ORGANISING OBSCENITY

A three-part exploration into the architecture of adult sites from the Western world, their intimate interactions and lusty language when searching for sex.

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ABSTRACT

Video-streaming porn websites made porn media more widespread and commonplace to the everyday internet user. This study takes a multi-disciplinary approach to exploring porn by treating it as information and viewing it through the lens of Information Science. It updates the idea of porn, the user's journey and the interaction found on porn websites. The thesis comprises three parts using a scientific approach that experiments, morphs and builds on each study to build a narrative of exploratory discovery within this lesser-studied field.

The first part of the study expands on the definitions of porn sites. Using concepts and frameworks from Information Architecture, it breaks down the many types of porn sites and focuses specifically on video-streaming sites. Video streaming sites are then broken down into defining characteristics that are compared to other sites to show the overlapping features and how they straddle different site categories; allowing them to simultaneously fit within the internet yet stand out from these sites. By also applying the video streaming porn site characteristics to a sample of porn sites to test, it draws out further nuances and questions.

The second part, applies the new characteristics to the interactive elements found on the sample sites. Primary and secondary data builds a quantitative and qualitative picture of the user's journey. This chapter illustrates the breakdown of interactions and viewership, making correlations between the two and comparing them across the sites. A list of interactions are broken into two types, Simple and Complex, and the site's areas for interaction into two layers, Basic and Involved. Information Seeking concepts like Berrypicking and Information Foraging are used as a framework to create speculations and hypotheses, possible reasons, and searching methods that inform the site's usability.

The third part focuses on Pornhub as an example and descriptively explains the changes to its categories over time by using resources like the Wayback Machine for data collection. It takes an exploratory approach to the changing categories and use of tags to supplement the information-seeking speculations made in the previous chapter. Focusing on the links between categories as Controlled Vocabularies and tags as Folksonomies informs how the sites morph and change to suit the content creators commercially and the users communally. Anecdotal evidence closes this chapter with speculations from industry professionals about their opinions on the site changes and future predictions.

The thesis concludes with contributions that include new definitions, terminology, methods and applications. The definition of porn expands by employing information science that encompasses the nuances of the internet. The various interactions and options create new terminology. New methods explore frameworks for future studies to collect data in new ways. Applying Information Architecture and information-seeking behaviours to porn sites provides a novel way of viewing and speculations about porn sites for future interest and application.

DECLARATION

‘This thesis is the result of the author’s original research. It has been composed by the author and has not been previously submitted for examination which has led to the award of a degree.’

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CHAPTER ONE: INTRODUCTION

1.0 Research Context

From the beginning of film history, people have made porn. Films were shown in public spaces, like XXX cinemas and peepshows. The 1970s saw a boom in production and the rise of the golden age of porn. This boom saw an increase in the number of films shown in mainstream cinemas and porn stars becoming recognisable figures in society and, occasionally, household names. This wave of porn hit mainstream society and continued to inch its way into different aspects like Hollywood films, advertising and more. Porn was then sold regularly on VHS tapes and then DVDs and really made its way into people's homes. This "pornification" of the Western world spawned a parallel discourse from its feminist connections, right to existence and ethics (Paul, 2006). With the rise of computers, the internet followed the same trajectory. The internet exploded with many websites full of content (Dean, 2014). The discourse started to break down what a porn film was and how far it could come into a regular, upstanding society. Two factions emerged: those that were pro and those that were anti-porn, who would fight on different aspects of the argument. Around 1999 it became apparent that people do not watch porn the same way they used to. They no longer go to cinemas or rent VHS tapes hidden behind a velvet curtain (Kendrick, 1987). They are on computers, clicking, opening multiple tabs, scrolling various websites and learning all the correct terms and phrases to find what they want.

Through library science, new theories sprouted up about the organisation and classification of items to link areas of knowledge to researchers and future generations. As the world became more digital, technology was incorporated more and more into the seeking and retrieval process. Unlike porn, Information Science has updated and progressed with the advancement of the internet and technology (Ryan, 2013). Many aspects of the internet have been broken down. The elements of sites are broken down through the theory of Information Architecture. The ways people search libraries and online are theorised in Information Seeking. Various types of sites lead the theory or support the ideas, but so few of them incorporate porn into the process. These two realms of knowledge are rarely linked despite their popularity and size. Combining research in these two areas creates a multi-disciplinary approach that mutually expands and benefits both.

This context provides the background and setting for the thesis. It is essential to understand the historical grounding that informed the project that resulted in its significance and contributions. All of these points will be explored and provided by the conclusion of this thesis. These can then

be expanded to real-world applications and implications to inform practice, methods or future research, again explained in the conclusion of this thesis.

The target audience spans a diverse range of those that have an interest in Porn Studies, Information Science or a general interest in both and how they fit together. The outcomes of this thesis could interest information architects or designers that are looking at ways to design sites or porn site creators to meditate on established design for possible future change. It could also interest those in the industry looking to make better-informed policies with more evidence from the environment. Those also on the ethical side of the porn industry and sex workers within it could look to this study and find better structures or directions of change to promote their ethical stance further. This work could give greater sensitivity to marginalised and minority groups within this environment, such as the LGBTQ+ community. Porn media creates a realm of representation for potential identity exploration and understanding that could help explore individual sexuality but may not be completely healthy in its current state. This research thinks of new ways to address the current presentation, interaction and language on these sites that, though changing, still incorporate stereotypes. This further emphasises the need for this research to promote improvement for these groups and target audiences in an area widely used, the internet. Overall, it will show these varying users' options and thoughts by using porn as a vehicle to understand more significant ideas on searching and representation.

1.1 Research Aims

This research aims are manifold but look to contextualise and connect concepts and theories across various disciplines with a holistic and user-focused outlook. The main aim was to investigate porn through the lens of Information Science by exploring ideas and theories mapped against pornographic websites. This exploration via the framework of concepts introduced aims to show and expand on their applications. These concepts and theories frame the research by creating constraints on ways to analyse and explore porn sites while also allowing for new ideas on what worked or did not work to emerge. The questions created from this multi-disciplinary approach aim to address multiple and mutual gaps in knowledge that can align and benefit all the areas of knowledge introduced. The many aims of this research provide this project with many outcomes, and the theoretical framework, explained below, provided it with parameters and priorities to focus on and realistically explore them further.

The aims of this research not only to address the parallel gaps in knowledge in porn studies and information science. They must also build bridges between the two areas of study for mutual benefit. This study aims to address the gaps within porn studies by mapping theories from information science onto them for better understanding. It is these theories that provide the ability to address the aim of creating an up-to-date picture of porn usage, views, searches for and organisation today. Exploring porn through information science further expands on the exploration of this uncommon research field while also scoping and focusing the research for this study. Thus, porn studies, often relegated to media studies, managably expands into an area that provides established insight into human interaction and internet usage.

Updating our understanding of these sites and internet pornography is invaluable, but encompassing all of these aims is the overarching idea that it will update the core knowledge of pornography in the multiple fields of information science. The importance of preserving these sites is the same as protecting any media. It comes with the implication that the media and technology are fleeting and not permanent or stable form. Even during this research, some of the sites went through drastic changes, for reasons which will be explained throughout, and showed the volatility of these environments. That is not to say this will act as an archive for the pages but more of a reference point that will serve as the legacy for this research. It will allow the thesis to remain relevant long after the source material has evolved or even disappeared. This thesis aims to express the validity of its research, the most significant aim being that it leads to further research later on – discussed further in *Chapter Seven*.

1.2 Research Questions

The research questions took shape in three parts, with three main questions split and answered through their two or three sub-questions. The three parts are separate but follow a narrative thread between them where they reference or build on what was established in the previous part. Each set of questions was formulated to create this building narrative that allowed a focus to be drawn into specific elements and sites. The motivation for the first set of questions was to give an overview of the sites within the context of the internet, the second set of questions focused on the workings of specific porn sites, and, finally, the third set of questions focused on a specific site the single aspect of its language. Below are the questions as they were split between each part and what they aimed to answer. These questions and their coordinating chapters will be expanded on further in the thesis structure section.

1.2.1 Part One

Part One aims to look at the definition of the sites as they relate to the internet. This section is where an expanded definition of a porn site is laid out. This definition will be used within the context of the rest of the thesis to test it and expand outward from it. The scope of this set of questions focuses on the structure and organisation of the sites, looking to Information Architecture to break down the sites into characteristics that inform the sub-questions. The thesis will present some visual design elements but focus on characteristics and elements defined in the literature review.

1.0 What do porn sites look like?
- 1.1 What characteristics do they share with other sites?
- 1.2 How are these sites and characteristics created on porn sites?

1.2.2 Part Two

Part Two further expands on the new porn definition set out in *Part One* and begins to grow on it by looking at the user's perspective. Interactions and Information Seeking are the driving forces of these parts and chapters – offering real-life examples to support the characteristics. The scope of this question focused on remaining within the characteristics defined in the first set of questions. Through these parameters, it focuses on the interactions that can be seen on the site to inform speculations and answers on interactions and searching.

2.0 How do users interact and search on a porn site?
- 2.1 How do characteristics of the site invite interaction?
- 2.2 How do the site's features support different types of interaction?
- 2.3 How do users use categories and tags for interacting and searching?

1.2.3 Part Three

This final part, *Part Three,* departs from the previous parts that looked at a sample of sites and focuses entirely on one site. By focusing specifically on Pornhub's language, its Controlled Vocabulary and its Folksonomy, looking at distinct changes and speculation about adaptations, with secondary anecdotal evidence. The scope of this question focuses only on the language of the categories on Pornhub found on the site from 2007 to 2023 for the duration of this study.

3.0 How does a porn site's categories and organisation change over time?
- 3.1 How have the category vocabulary changed?
- 3.2 How are the categories organised?

1.3 Theoretical Framework

The theoretical framework of this thesis aims to identify theories, key concepts and previous studies from a wide range of research disciplines that guide and support the research. The central ideas of the research stem from Porn Studies, Information Architecture, Information Seeking and Organisation of Information. Using textbooks, journal articles and other media sources, the research draws upon recent discourse and discovery to keep up to date while striking a balance of established concepts to be tested in new environments. In the literature review and throughout the thesis, the literature is justified to explain and support concepts proposed and put forward as outcomes of the study. The framework was used to formulate the questions and structure the concepts through their ability to explain the assumptions and hypotheses made throughout. Theories and concepts were chosen for their alignment and adaptability and then tested against Porn Studies.

The theories and models were chosen for their ability to interconnect and relate to each other. Theories about feminism, gender, sexuality and racial identity informed the literature and porn studies lens. For Information Architecture, theories on human interaction and design while Information Seeking are incorporated in theories like Berrypicking, Information Foraging and Browsing. Finally, Organisation of Information provided the framework for looking at language with theories like Controlled Vocabulary, Facets and Folksonomies. Although simple, using more general concepts in a new environment allows new relationships and connections to expand and build on them. Through application, this also shows how they apply to the created concepts and how they can be applied in the future by leading by example. Integrating the theoretical framework with the hypotheses and research questions guided the data collection using the scientific method. It shapes the overall study and provides this thesis with concrete examples to prove or disprove the concepts introduced with ways to interpret or understand the data and findings. Through thorough testing, it further provides examples and illustrates the strengths or weaknesses of these theories while also showcasing the challenges of investigating explicit media. The close links between the theoretical framework, literature, methodology and outcomes provide the thesis with fluidity in its application and boundaries. The interwoven framework and continual testing of concepts also allow for any alternative or seemingly opposing concepts to be introduced and tested without adverse effects – enriching the overall ideas. The theoretical framework provided the foundation and the structure of the research.

Fundamental theories and significant concepts are introduced in the literature review and referred to throughout.

1.4 Thesis Structure

This section will break down the thesis by chapter, including what to expect and where to find information. This three parts of the study are found in *Chapters Four* to *Six*. Though they are three parts; they are not siloed from each other, and all three build on and refer to each other.

1.4.1 Chapter Two: Literature Review

Chapter Two will lay out the theoretical framework for the rest of the thesis. The chapter starts with a rundown of different categories of porn definitions taken from the literature incorporating anti-porn stances, like Dworkin (1981), pro-porn advocates, like Williams (1999) and other moderates. All culminating in the idea, through evidence, that porn definitions are out of date – and fail to incorporate an accurate depiction of the internet environment and its users. The chapter then explores the use of information seeking by building a chronological picture of how people search online. Starting with how people generally use search engines to search for sexual material to specific search tactics theories like Berrypicking (Bates, 2007) and Information Foraging (Pirolli & Card, 2005) to examine the primal instincts employed when searching online. The chapter then examines Information Architecture and how a site's design supports searching and user interaction. Using design elements from Norman (2002) and theory from Morville and Rosenfeld (2007). The chapter introduces another area of study, organisation, which incorporates further ways for sites to display and organise their information using top-down approaches from the site creators and bottom-up approaches from the users. These approaches link the chapter back to porn and sexual searching by creating the final links between all the theories and how they apply throughout the thesis.

1.4.2 Chapter Three: Methodology

Chapter Three outlines the methodology and methods used throughout the project. Supplementary to the literature review, the methods chapter is the only reflexive chapter in the thesis that provides insight into my stance as the researcher and any unconscious bias or outlook. This writing style for just this chapter was chosen to remain neutral and subjective throughout the rest of the thesis with the goal of impartiality but an understanding that complete

and unbiased research is not achievable. The scientific approach informed the data collection. Some were organized and led to other data collections, and some failed and informed adaptations of other forms of exploration with data collecting. This chapter frames the study further within an approach and explains the data collection for understanding and replication.

1.4.3 Chapter Four: The Architecture of Adult Sites

Chapter Four is the first part of this three-part study. It begins with an exploration of what a porn site can be, listing the many types of sites available before honing in on a specific type of site, video streaming porn sites as the focus for this thesis. The chapter then expands to the different types of sites found online and where video streaming sites would fit in with that context. Drawing on the literature from *Chapter Two* and qualitative data collected, a sample of sites is compared to the various types of sites online. The sample of porn sites is then compared to each other based on a formulated set of characteristics that create the definition used in the chapters that follow. This chapter's images exemplify the characteristics and the tables collate comparator data with up-to-date information on the site today.

1.4.4 Chapter Five: Intimate Interactions

Chapter Five, or part two of the study, uses qualitative data from many collections. This chapter breaks down the many elements of the site and draws heavily upon the Information Architecture and information-seeking literature as its foundations. The many elements become interaction data points that are broken down, compared and visualised with charts and tables and mapped with the characteristics created in *Chapter Four*. From this exploratory data interpretation, a user journey is created with ways of looking at how interactions happen on the site and what type of searching takes place.

1.4.5 Chapter Six: Lusty Language When Searching For Sex

Chapter Six is the final part of this three-part study and puts a singular spotlight on a specific site, Pornhub. This descriptive exploration of the site's organisation through its categories and tags refers back to *Chapter Two* with the top-up and bottom-down aspects of web design, indexing and user experience. It introduces gender identity, race, age and technology into the study through its terminology, thus beginning the conversation around its controlled languages and recent changes to address outdated terms or biases. The chapter closes with a discussion through secondary interviews with people in the industry who comment on these changes and

serve as evidence for the designer's thought process and the search tactics from *Chapter Five* used by the user.

1.4.6 Chapter Seven: Conclusion and Discussion

Chapter Seven closes the thesis with an overview of the significant findings from the project. It explains how these findings are grounded within the context of the theory presented in the literature review and throughout the thesis. The overview of each part culminates in an explanation of the contributions from each study to the faculty of knowledge with benefits that span Porn Studies and Information Science. Thus, the chapter and the thesis are closed, with examples for further study based on this project being the beginning steps.

1.4.7 Appendices: Glossary and Data

Additional charts and graphs not used in the main body of the text will be included in the Appendices to support the points made in their corresponding part further. The charts and graphs consist of additional charts for specific sites where an overall figure incorporating all of the sample sites was chosen for a more concise explanation. These charts and graphs are presented with little context and should be viewed within the context of their corresponding chapter and section, as marked.

The glossary equally supplements the thesis overall with terms and acronyms defined. Many of the terms are defined within the body of the text, so it is optional to need the glossary. However, it has been added here as a quick catch-all reference point for the reader to understand terms defined on the sites and within the thesis. The sites taken from porn sites are separated from those that are from Information Architecture to provide accessibility across all disciplines—defining these terms side-by-side serve to show their differences in language as well as a resource for future study that may straddle these faculties.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This literature review is a culmination of multi-disciplinary readings on various topics: Porn Studies, Information Architecture, Information Seeking and Organisation of Information. Texts were found using printed sources via academic (primarily the University of Strathclyde and University of Glasgow Libraries) and digital libraries (primarily Google Scholar) as the initial sources and starting point for more significant concepts. This search involved searching for specific terms (‘porn’, ‘online porn’, ‘online porn searching’, ‘internet porn’). After those sources were exhausted, parallel reading and more contemporary findings were published in journals. As there is not a large amount of literature and only one journal dedicated to porn, this made scoping that part of the readings easy. Literature for the information science portion required more focused searching based on theories found in the initial literature. Searching included terms like ‘information science’, ‘information architecture’, ‘organisation of knowledge’, ‘information seeking’, ‘internet searching’ and ‘online searching’. Once the fundamental theories that would be employed were chosen, that focused the search with terms like ‘information foraging’, ‘berrypicking’, ‘controlled vocabulary’, ‘facets’, ‘folksonomy’, etc. and allowed each area of literature to be scoped for relevance individually. A combination search between the sets of terms like ‘berrypicking + online porn’ was also carried out but often returned none or one journal article, which further supported the idea of the areas of knowledge being entirely separate.

Key texts are cited in this chapter with additional texts that informed the research are listed in the bibliography. The diverse nature of the literature attempts to learn and gain sensitivity to online porn through the lens of Information Science. As porn is a less often studied topic, even in Information Science, reading around and parallel to the topics for methods and theories was paramount. By looking at techniques often used for libraries, databases and website navigation, a greater understanding of the many aspects of porn is achievable; laying the foundations and techniques to answer the questions created in this thesis.

This review organises a narrative and thought process on how these topics come together in the subsequent study. This review will encompass many threads of thought to define key terms used throughout the thesis incorporating critical overlaps between each topic and is split into four sections: Porn Studies, Information Seeking, Information Architecture and Organisation of Information. Starting with Porn Studies, the literature will focus on historical definitions used as

the basis for studying and will be interrogated in *Chapter Four* by incorporating historical definitions that look at elements of violence, free speech and others. Information Seeking will examine the main theories of Information Foraging and Berrypicking and explore human behaviour and how people search generally and for porn, which will define much of *Chapter Five*. Information Architecture will inform both *Chapter Four* and *Chapter Five* by expanding on how porn sites are organised by using Information Architecture concepts and how design works on any website. The ideas around Organisation lead to the final portion of the literature review, which will inform *Chapter Six* by introducing ideas on classification and ways sites are indexed by their creators and users to aid in searching via categories as a Controlled Vocabulary and tagging as a Folksonomy.

2.1 Porn Studies

Porn Studies and its definitions are varied, encompassing political, social and technological issues within them. Porn's challenge to define itself is due to the many societal concerns that surround it. Each definition is often created to fight for or against its existence. Recent discourse additionally fights against exploitation, while others fight for stricter regulation or total censorship. This continual battle in the many debates on porn makes it a challenging area to study and draw focus on. This section of the literature review will introduce these definitions through themes like history, the links to gender-based violence, freedom of speech, and the advancement of technology. These categories will show the different thought processes in the literature when creating a definitive definition of porn and the many issues that surround them.

2.1.1 Historical Definitions

Many academic porn texts rely very heavily on first defining porn, causing the definition to change and morph as each study attempts to legitimise it within its academic setting. The need to define it also stems from the need for the writer, researcher or theorist to define their stance. As a highly contested issue, the definition also incorporates a stance on being pro- or anti-pornography. This stance further complicates the issue of definition. As it is so politically charged, discourse becomes preoccupied with the porn debate and can hinder progression in the field. Nash, a pro-porn supporter, mockingly writes about porn's definition and quotes the famous anti-porn activists, Dworkin and Mackinnon, saying, *'... as MacKinnon notes, pornography is generally imagined to be simply "masturbation materials"'* (Nash, 2014, p. 22). Nash's use of quotes exemplifies her stance on MacKinnon's reductive definition. This exchange

is a prime example of the theoretical debate on pornography then and now, where both sides are right. Porn is *"masturbation material"* (Dworkin & MacKinnon, 1981, p. 25), but it is also more. Laurence O'Toole expands on this idea:

> *Modern porn is about fantasy and arousal. Anything else, be it revolutionary, educational or philosophical, is strictly secondary. And should it ever be stated to be more than that, it's most likely getting in the way, and then it's probably no longer porn we're talking about* (O'Toole, 1999, p. 4).

O'Toole accepts MacKinnon's definition as its primary use is for arousal and, he adds, fantasy. But he also diplomatically adds to the definition by giving the media a second usage and meaning by acknowledging its political power and contexts. Kendrick furthers this idea of the connection of definition and context by stating, *'Though the Nineteenth Century invented "pornography," it did not invent the obscene. [...] If we wish to understand the post-pornographic age, the time (most of human history) when the standards of who should see what were very different from those our great-grandparents have bequeathed us'* (Kendrick, 1987, p. 33). Kendrick writes from a historical standpoint with a heavy focus on censorship, but his view of obscenity and pornography being separate entities further complicates debating the definition of porn. His view is to define it within the context of its time and, retroactively, concerning where it originates; its provenance.

2.1.2 Gender-Based Violence

One of the main arguments in the porn debate is whether the content depicts or promotes violence, particularly against women. McNair, a porn supporter, writes, *'For anti-porn feminists, pornography is the record of abusive, violent acts committed against female performers in the moment of production, and against women as a whole at the point of (straight male) consumption. Or, it is perceived as the propaganda of male heterosexual rape, the ur-text of misogyny, leading directly to the violence against women and children*' (McNair, 1997, p. 33). Anti-porn feminists define the medium by who the films are made for and by; cis-heterosexual males.

Though this outlook on the bias may still be valid for the most part today, it may not be as accurate as it was when that definition was written, which McNair questions. The environment around sexual liberation and porn has changed considerably since then. The number of female viewers has increased, and sexual practices have changed since then (McNair, 1997, p. 35). As O'Toole stated, porn is fantasy and things like bondage and sadomasochistic practices are now

more commonplace and mainstream (O,Toole, 1999, p. 15). The idea that each film is a document of violence then becomes blurred and questionable. Ezzell writes that:

> *Mainstream pornography reflects a patriarchal construction of masculinity tied to sexual aggression and dominance, but it is not only a reflection of that construction. Indeed reflections of patriarchal masculinity saturate our cultural landscape.[...] If pornography were eradicated today, there would still be men's violence against women tomorrow. It is more apt to consider pornography and other forms of sexualised media as enabling conditions for real-world acts of misogyny and sexual violence* (Ezzell, 2014, p. 26).

There is no denying that some porn still displays misogynistic depictions of violence and power structures that may not all be fantasy and consensual. However, Ezzell touches on the fact that it is not the cause either. Porn only reflects society; violence against women happened before porn and would continue without it. This argument has little faith in society but even less faith in porn's power. These two views are two extremes of the debate, but Ezzell's idea leads to the next point for definition, free speech and the futility of trying to censor it.

2.1.3 Free Speech

The fight over censorship of pornography has been around as long as pornography itself. Returning to Kendrick and his book *The Secret Museum*, he writes, '*Today, in the post-pornographic era, efforts to censor pornography no longer seem to resemble political or religious censorship programs. [...] Once "pornography"; was labelled and its threat identified, the methods employed to control it were borrowed unchanged from the long tradition of political and religious persecution that preceded "pornography"; and outlines it*' (Kendrick,1987, p. 95). From this statement, Kendrick discusses how pornography closely entwines the morals of society and how political and religious powers further define those. This idea can be applied to many countries all over the world today. Censorship is still prevalent and ever-changing.

However, Western cultures emphasise political and religious freedom more, instigating the right to free speech and expression. Hornsby discusses this stance:

> *"Free speech"; has come to be a rallying cry used by those who have no interest in the question of what belongs under the head of speech, and who take it that once something is declared to be speech, social and political considerations have no bearing on it. Perhaps then it is worth guarding against the thought that insofar as pornography does harm to women, it does so in the service of the greater good of free speech"* (Hornsby, 2014, p. 144).

Hornsby states here that the porn debate has moved on from the days of MacKinnon and Dworkin's fight for censorship based on the stance on violence against women. However, what has risen from it is the idea that it is a form of freedom to have pornography in our society. It finds its way to that freedom under the umbrella of free speech. She goes on to say: *'If the category of "expression" had seemed apt for pornography, that could only be because it uses expressive means, not because pornographers express their ideas'* (Hornsby, 2014, p. 132). She agrees with pornography as an expression but questions if it is genuinely what the fight for free speech should be about, implying that pornography is not as political or powerful as it claims to be and is not making any grand statement. The political powers of porn have already been argued and discussed above. In defence of porn and free speech, Strossen answers Hornsby by saying, *'The reductionist approach of the pro-censorship feminists denies the existence of ambiguity, subtle, and irony in the interactions between all individuals and a text or image'* (Strossen, 2000, p. 146). Where Hornsby calls porn shallow, Strossen calls it nuanced and layered.

Again, both sides have valid points and are two sides of an endless argument. Even in Western society, censorship laws remain debatable on porn. Often, these debates can split between being about violence or freedom and sometimes both. It is necessary to know that these debates are still very contemporary and relevant to Porn Studies and this thesis.

2.1.4 Advancements in Technology

These debates are not without their faults. As stated before, these porn views are limited by their political stance and become entrenched in political discourse and gender politics that become more about porn’s validity than its existence. Many of these debates and definitions were written during a time before VHS tapes when XXX cinemas were porn sources, and digital media was not even an option yet. These limitations create a divide in the definitions notably defined as pre- and post-internet. The following definitions are from the latter and look at the internet as a porn environment. However, there are limitations as the debate elements remain further defined by technological advancements. The various types of porn sites available but not captured in the literature furthering the gap between the literature definitions and the real world. Looking at the advancement of the internet by reading parallel to porn does offer more insight through wider context.

When discussing the advancement of technology, frequently, history leaves out porn. When it is mentioned, history theorises that porn was a driving force in technological developments like the internet. McNair furthers his idea of representation in online porn and credits it with technological advances. He states:

> *This innateness unnecessarily to represent and consume sexual representation has been a key driver in innovation in the communication realm, fueling inventions and applications which have had important cultural and social benefits beyond the zone of sexual representation. This, indeed, is the first and most obvious way in which pornography can be said to have changed the world and made it a better place. Without it, the technologies of media production, pre-production and consumption might not have developed as fast as they have done* (McNair, 2013, p. 23).

He credits porn consumption and its need for innovation as a catalyst for change in technology overall and then states, '*New technologies of pornographic production and consumption - the internet especially - have opened up access to the pornosphere to women, allowing desire to be translated into consumption*' (McNair, 2013, p. 31). He introduces the idea of the *pornosphere*, a part of society and culture that runs parallel and, at times, intersects mainstream society creating moments like this one of the interrelationships of technology and porn production or consumption.

In Patterson's essay in Williams' Porn Studies bible, *Porn Studies*, she further connects the advancement of technology on the internet with porn representation. '*There is a fascination with the continually shifting capabilities of the computer as a relatively new apparatus for displaying still and moving images. Not inconsequentially, there is always a link between pornography and advancing technologies of representation, and the specifically hybrid representational space of the networked computer interface of no exception'* (Patterson, 2000, p. 120). Zabet and McNair relate this technological advancement to the increase in need, content and use of the medium in representation. These statements are vast and should be looked into further to assess if this is the case.

Ryan's book on the history of the internet never touches on porn specifically but does discuss the advent of a tube site that did go on to inspire aggregate porn sites; YouTube. After being launched in 2005, its usage was ubiquitous in 2007 and has not slowed since then. Ryan writes, *'Every video could be copied, rated and tagged by their peers. On the Internet, the user was king, and the selection and promotion of content was peer-driven. The impact that this would have as culture and news moved beyond TV and print media and gravitated towards the*

Internet would be profound. It would change the landscape of human media and culture' (Ryan, 2000, p. 150). He was not wrong. Since then, there has been a push for more to be put online. Websites like Pornhub have enjoyed parallel success to YouTube and created their own culture and way of working.

As porn sites grew, more of people's secret lives started to play out online. Di Filippo writes about early porn sites saying, *'There was hope for everyone to live out their sexual fantasies and the possibility of meeting their ultimate sex partner online. What became alluring and seductive for many was the availability of sex within the relative privacy of cyberspace. Over the past five years, the design and implementation of adult sites have improved dramatically, eliminating the technical hitches which would sometimes affect early users*' (Ryan, 2000, p. 150). Di Filippo views porn and technological advancements as an opportunity to unleash repressed fantasies. The advancements of porn sites allow for the sexual human experience to grow with it as technology improved.

Ryan writes of the change in culture and usage; now, people use the internet for hours daily. Di Filippo writes how porn sites have users and continually aim to improve their experience. This evolution is a progression from the content increase according to Patterson and McNair. These points of view create a porn history in the context of the internet, so rarely combined. All showing that porn sites are firmly part of the history of the internet, technology and society.

2.2 Information Seeking

This next section will look at ways people generally search daily and online for porn. Looking at a selection of browsing theories on Information Seeking, like Berrypicking, Information Foraging, this section will hone in on specific aspects of Information Seeking that can be mapped to human behaviours that occur when searching for sexual materials. These theories connect the primal human nature when searching for porn. Again, this deals with a few gaps in knowledge that make it challenging to create clear and distinct connections, but they will be addressed and explored further in the following chapters.

2.2.1 Search Engine Searching

With a greater array of technology available online or otherwise, the greater access people have to porn. To better understand how people search for porn online on porn sites, it is beneficial to look at previous studies that look at how people searched for porn, like through search engines.

Spink and Jansen's study was one of the first to start to connect search engine searching to porn searching. According to Spink and Jansen, '*Sexual information seeking is an important element within human information behaviour. Sexually-related information seeking on the Internet takes many forms and channels, including chat room discussions, accessing Websites for searching Web search engines for sexual materials'* (Spink & Jansen, 2004, p. 149). Spink and Jansen, the few to look at pornography specifically and how users search for it, give merit to the multi-disciplinary field and exemplify how varied and insightful it can be. Their data was collected and studied during the rise of search engines and the early days of Google. As a result, their conclusions resulted in many speculations concerning the behaviours of people searching for porn through multiple queries and trial-and-error.

They also said: *'Many researchers view Web search as a communication process in which there is a dialogue or discourse occurring between the searcher and the Web search engine. [...] Searchers evaluate and synthesise information among these dialogues in order to select search terms'* (Spink & Jansen, 2004, p. 55). This dialogue a searcher has with the search engine informs how the information is stored and created. Just as porn and technology grew up together, so did search engines, website architecture and search tactics to find it.

2.2.1.1 Searching for Sex

Some early works on searching for porn, like Spink and Jansen's study, discuss how users seek information from a search engine perspective. In contrast, others come from the point of view of searching directly on the site with categories and tags. Spink's work, from 2004, predates many porn sites' activity (e.g. Pornhub started in 2007) and looks at the first port of call for searchers to find porn at the time, search engines. It describes *'Web search engines match terms in queries submitted by searchers against an inverted file that the Web search engine creates. The inverted file is an index consisting of the words in each document along with pointers to the locations of these words within all the Web documents in the search engine's content collection'* (Spink & Jansen, 2004, p. 7). Rather than rely on categories of tags, the search engine searches through the entire document index for keywords to match the searcher's request. As the internet grew, this became harder but advances in Information Architecture allowed for more fluid, accurate and efficient searching.

Spink and Jansen's work is on the cusp of this change in online searching and, throughout their work, sees a decrease in pornography and sex searching chalked up to *'The decrease in sexual searching may be due to the ease and effectiveness of other means to locate Web pornography.*

What these topic trends suggest is that Web searching is moving from an entertainment medium to a more commercial and business medium' (Spink & Jansen, 2004, p. 57). The movement of porn into a more commercial or e-commerce environment online further shows the fluidity in defining porn online. Spink and Jansen take notice of the increased commercial properties in the search queries and suggest its main aim, entertainment, has changed; therefore changing the way people search and find it. This will be interrogated further in the three main chapters. *'There also appears to be an increased use of Web search engines, not to search for information but instead, as a shortcut for navigation'* (Spink & Jansen, 2004, p. 90). In their study, users relied on trial and error to find even a page as a source for their information and porn needs. However, now a search engine becomes another layer or means to get to an already known porn site as users are more au fait with the internet.

The initial stages of a search query for a user, especially during the beginning stages of the internet, came with many characteristics. Spink and Jansen's work specifically looks at sexual searching. *'The baseline elements in Internet sexual information seeking are the searching characteristics of the online user. [...] The study reported in this paper explores sexually-related human information searching on the Web via a statistical examination of Web queries containing sexual terms'* (Spink & Jansen, 2004, p. 150). It is these sexual terms that connect to what would eventually become the categories on porn sites themselves.

These categories repeat and change continually over the years, but Spink and Jansen's work shows the beginning forms of these keywords take shape; *'Sexual queries involved fewer unique terms. Many sexually-related terms were repeated frequently in queries, e.g., nude, sex, naked, etc. They found that sexually-related Web search sessions and queries were longer than non-sexual search sessions and contained more queries*' (Spink & Jansen, 2004, p. 152). Without the website to search specifically, novice users searched through trial-and-error for various terms and keywords in an effort to tailor their searches further. This tactic led to the repetition and refinement of similar terms. They also noticed that:

> *People seeking sexual information were willing to expend the time and effort to create longer queries and to use more queries. Sexual searchers viewed more pages than non-sexual searchers. [...] For example, a typical sexual information seeker was seeking images of nude women and may view more than 20 pages of Web sites* (Spink & Jansen, 2004, p. 152).

This activity was crying out for an organisation of this information that would help users. It all comes at the start of the rise of large-scale porn tube sites like XVideos, XNXX and Pornhub, which leads users to funnel their search into specific sites more efficiently than search engines.

2.2.1.2 How People Search for Porn

Internet users are now adept at searching for porn and have their ways of searching for their favourite websites and videos. As McNair half-jokingly says, *'Boundaries on the internet are more fluid [...] To access pornography on the internet requires, as a rule, that one search for it'* (McNair, 2013, p. 159). Gone are the days when porn had to hide. Now, people know how to search better, and certain websites have become a staple online. To refer to Patterson's view on early *"cyberporn"*:

> *This suggests not only that the habits of looking at Internet pornography are as constitutive of the viewing experience as the images themselves but, likewise, that these habits of looking insistently participate in inscribing power relations and social relations directly onto the body of the subject through gesture and repetition. These physical habits of looking -- of pointing and clicking, of pushing the refresh button on Webcams, of the delay and frustrations of opening and closing windows - as well as the representational assumptions these habits entail, push the viewing into a particular kind of interaction with the Internet, one that not only reflects but reinscribes social relations* (Patterson, 2004, p. 108).

Not all online internet users are used to searching for porn, but they are sometimes so adept at creating habits for themselves that the user's habitual searching becomes entwined and part of the viewing process. Searching has become second nature, while the screen has become invisible in the systematic online porn experience.

Searching for porn works differently from searching for a book or a mainstream film. There is still a certain mindset and sense of fantasy when people look for porn. Kuhn's book on censorship discusses XXX cinema, but her private and public sphere ideas remain relevant in today's internet age. *'... at least three understandings of the private sphere can be identified: a geographical notion of private space, an alignment of privacy with the person or her/his individuality, and an association between privacy and property of ownership'* (Kuhn, 1988, p. 15). This understanding of the private sphere affects how people view and search for porn. While porn is readily and publicly available, it is still a taboo form of media that filters itself separately from other types online. The individualistic nature and increased need for privacy causes the search for porn to be quick and thrilling.

2.2.1 Information Behaviour

Information Behaviour explains how people deal with information. Bates, a professor in Information Science, describes Information Behaviour as the many ways human beings interact with information, emphasising how people seek and utilise information (Bates, 2010). Cole's study connects the information need for Information Retrieval to translate to information knowledge. He states, *'The essence of information search, compared to the broader concepts of information behavior and information seeking, is that the user must formulate a query or question to an information system to make the system work'* (Cole, 2011). Thus connecting the co-dependency of the information to the searcher through queue and discovery. Savolainen also introduces his idea of Information Behaviour into many aspects of daily life. Information Behaviour begins with an information need and entails how the individual searches and feels to fulfil that need (Savolainen, 1995). These different theories of information share interconnected ways of doing things that could incorporate more visceral and bodily reactions.

In Karl and Hartel's study, they address the pleasurable and the profound in sexuality, entertainment and leisure. They add to Savolainen's study by stating, *'Everyday life offers a safe but conservative perspective on informational phenomena, because it emphasizes controlling life in order to preserve the status quo'* (Kari & Hartel, 2007). They further address the lack of Savolainen's study to encompass the many multitudes of the everyday but creating a list of the pleasurable and the profound to encompass more nuanced, unthought-of, or even dull aspects of life; further splitting them between higher and lower aspects of life. Relevant to this study, they encounter confusion when trying to categorise sexuality, which they agree is part of the pleasurable aspects of life but unclear if it is categorised as higher or lower, stating:

> *The distinction between lower and higher things in like is conceptually clear-cut, but it may seem vague in borderline cases. For instance, to which category does sex belong? There are undoubtedly individuals who believe that sexuality is a base instinct. Others (including us) would say sex is a higher thing, becuase it is usually judged a very enjoyable activity* (Kari & Hartel, 2007).

Sexual information is hard to categorise, and the social attitudes leave them unable to categorise it within their framework without some confusion. At the end of the article, they even flag it again by saying, *'In some cases (such as sexuality or altered states of consciousness), the context may require resorting to more exotic research methods than what the information*

science community is used to' (Kari & Hartel, 2007). Further solidifying the challenge of sexual information.

The developments in Information Behaviour and the challenges in categorising specifically sexual information create a further challenge for study. Looking at Information Seeking and search tactics is yet another way this type of information may be understood. This section will look at ways people search and find porn information by assuming their need is for arousal rather than anything else, like education or research. Looking at the theories on browsing first, it will hone it specifically on two theories, Berrypicking and Information Foraging, as the framework for looking at how porn searchers query the sites, think about their information request, and satisfy their information needs.

2.2.2 Browsing

According to Wilson, who created models of individual needs combined with Information Seeking: Information Seeking is the nested behaviour to the Information Behaviour with a user making the conscious effort to acquire information. Information Searching is further nested in Information Seeking and requires interaction at the interface level to express an information need and locate relevant items to satisfy that need (Wilson, 1999). Marchionini added to the field by looking at how the rise in technology changes how Information Seeking occurs, and he proposed three types of browsing: *'systematic, exploratory and casual'* (Marchionini, 1995). He describes exploratory searching as a tactic 'that blends querying and browsing strategies' and further breaks down this type of search into three parts: *'lookup, learn and investigate'* (Marchionini, 1995). His ideas show overlapping tasks the searcher employs to satisfy their information need and branch out into new information discovery through browsing. Both Jiang, Koshman, and Bates use the idea of exploratory Information Seeking as the basis for their studies. Jiang and Koshman's study on exploratory searching in different Information Architectures reference Marchionini and state, *'…by creating, organizing, browsing and searching for information. These actions contribute to the notion of exploratory search that can be described as an information process…'* (Jiang & Koshman, 2008, p. 11). The exploratory searching, browsing, is more of a process; a process that is less preoccupied with the search results and more focused on the various returns and options presented that lead to further searches. Bates further breaks down browsing into four elements.

> *The first element is essential to our understanding of browsing; the later elements almost always occur as well:*

> *1) glimpse a scene*
> *2) home in an element of a scene visually and/or physically (if two or more elements are of interest, they are examined serially, not in parallel),*
> *3) examine item(s) of interest,*
> *4) physically or conceptually acquire or abandon examined item(s). This sequence is repeated indefinitely through further glimpses. Browsing is not a smooth scan of a scene* (Bates, 2007).

Her breakdown of browsing as an exploratory process here further shows the fluidity of browsing that diverts from any linear idea of Information Seeking being a simple search-and-find effort.

Makri, a supporter of browsing through accidental or serendipitous discovery, also writes, *'Browsing is an activity that is often conducted without an explicit purpose. It is potentially easier to accidentally discover information that is considered both useful and unexpected when browsing without a particular aim in mind as opposed to when searching for a specific purpose'* (Race & Makri, 2016, p. 60). Unlike Berrypicking and Information Foraging, the user has no aim and searches without a purpose, while the other two theories are specific to honing in, finding and collecting for future use. Where Berrypicking is more specified searching, browsing is more general. Browsing encompasses many searching tactics also employed on porn sites (Bates, 2007). Makri says, *'Having a vague sense of what one is looking for translates to being open to possibilities. [...] However, they can also overwhelm users, who may find it difficult to process them meaningfully. Facets make navigation easier by parsing the information landscape into smaller and more manageable subsets of information'* (Race & Makri, 2016, p. 69). A browsing environment can overwhelm users if they are not focused, like a berrypicker or forager. Though the porn site is a great environment that supports all three of these searching methods, there is still a need for classification or organisation, as Makri suggests, with facets discussed further below.

2.2.3 Berrypicking

Bates expands on her ideas of browsing by producing the idea of the natural search tactic, Berrypicking. Bates does specify, though, that the two techniques are separate. *'...I want to emphasise that browsing and berrypicking are not the same behaviour. [...] Berrypicking involved using a wide variety of techniques, some of which are very standard and others which involved considerable browsing. One of the points emphasised in this model is precisely that people use a wide variety of techniques'* (Bates, 2006). Both techniques are related and work

together but come to a search with different aims and mindsets. Bates also discusses different search tactics that will be useful to apply to how porn sites are used and viewed. Her most famous theory is Berrypicking. She explains this as follows:

> *This term is used by analogy to picking huckleberries or blueberries in the forest. The berries are scattered on the bushes; they do not come in bunches. One must pick them one at a time. One could do berrypicking of information without the search need itself changing (evolving)...* (Bates, 2006, p. 261).

As described, the user searches and picks up information or media on their journey through the site. They are collecting search terms, information and media, i.e. berries along the way.

The search becomes a harvesting process to gather as many berries as possible while they are ripe. The searcher is also not preoccupied, like browsing, with the result or endpoint, and their queries may change over time (Bates, 1989). They add to their collection of information and their knowledge of finding what they are looking for by adding to their new query ideas during the process. Bates lays out twenty-nine search tactics that could be employed to further a search and expresses that the more techniques employed, the more power the searcher has in finding information (Bates, 1989). Her top six search techniques for Berrypicking include footnote chasing, citation searching, journal run, area scanning, subject searching, author searching and design features (Bates, 1989). This concept can be applied to search tactics online in general and also on porn sites. The latter four are most relevant to this study in that a user can employ area scanning by finding similar content in the same area, employ subject searching using the same categories or tags, use author searching for more work by the same producers or performers and find more information based on the site's design features. More of these concepts will be expanded on in *Chapter Five.*

2.2.4 Information Foraging

A similar Information Seeking tactic users may also employ is Information Foraging, coined by Pirolli and Card. They relate Information Seeking Behaviour to the cognitive psychology of food gathering, stating, *'The basic hypothesis of information foraging theory is that, when feasible, natural information systems evolve toward stable states that maximise gains and valuable information per unit cost'* (Pirolli & Card, 1999). The searcher continually adapts and changes their search based on the cognitive cost-benefit analysis of every search tactic and decision. These costs are defined as *'time costs, resource costs, and opportunity costs of different*

information foraging and sense-making strategies' (Pirolli & Card, 1999). Searchers weigh up options and make decisions about their searching and tactics to assess their success rate while gathering as many relevant bits of information as they can.

Information Foraging is further defined by two adaptations that aid the searching in find information: '*(a)* information patch models*, which deal with time allocation and information filtering and enrichment activities in environments in which information is encountered in clusters; (b)* information scent models*, which address the identification of information value from proximal cues'* (Pirolli & Card, 1999 p. 643). A searcher employing Information Foraging to find information with focus on a specific patch. This could be a website or a link where they might find information. The information scent refers to how promising the site may, or may not, be to the user in satisfying their information need. The user will make navigation, search and information gathering decisions based on these factors paired with any previous knowledge of the environment. All of these variables and decisions become factors in creating the Information Foragers '*diet'* (Pirollu & Card, 1999).

Like Bates's Berrypicking model, Pirolli and Card also relate Information Foraging to specific '*information patches'* (Pirolli & Card, 1999) that a searcher can utilise and make decisions. They state: *'By analogy, the task environment of an information forager often has a "patchy" structure [...] often the information forager has to navigate from one information patch to another…'* (Pirolli & Card, 1999, p. 645). To prevent this need to bounce from patch to patch out of necessity continually, Pirolli and Card introduce the idea of '*Environment Enrichment*' (Pirolli & Card, 1999)*,* where it could include *'reducing the average cost of getting from one information patch to another'* or *'making information patches that yield better returns of valuable information'* (Pirolli & Card, 1999, p. 646). However, both of these tactics still leave a searcher with the decision on the efficiency of staying with a current patch or risking any cost or benefit in changing patches. There is also the '*Diminishing Returns*' factor, which Pirolli describes as *'the expected value of continuing to scan diminishes with each additional listing scanned'* (Pirolli, 2007). He further explains that this could be down to two reasons: 1) '*There is usually a point at which the information forager faces the decision of whether it is worth the effort of continuing to search for a better result than anything encountered so far'* or 2) *'may also occur because the forager has a strategy of picking off the more highly profitable items first (e.g., bigger berries for the hypothetical brd) from a patch with finite resources'* (Pirolli, 2007). These factors in the

Information Foraging search process lead to a more varied and nuanced search tactic than berrypicking, discussed further below.

Pirolli further relates Information Foraging to web navigation and describes how decisions are not made at random but through cues and senses. He states, *'Web users cannot have perfect knowledge of where to find desirable Information. When navigating the Web by following links, users must use local proximal cues, called information scent, to make navigation choices'* (Pirolli, 2005). Through the site's design, previous knowledge, or interactive elements, web navigation becomes, again like Spink and Jansen, a trial-and-error environment where the forager searches for the path of least resistance to satisfy their information need. Pirolli says, *'The accuracy of navigation choices based on the assessments of information scent can have dramatic effects on the costs of information foraging, and an adaptive information forager might be expected to optimise such judgments and choices'* (Pirolli, 2005). A searcher has to handle the online decisions of where to find relevant Information that will pay off and balance it with an understanding of finding accurate Information, which may not always be possible.

Lui, Little and Rüger discuss multimedia interfaces and interactions and reiterate Information Foraging as *'...foragers then decide which information resource they will select based on their information diet…'* (Lui et al., 2011, p. 232). The foraging searcher will focus their efforts and learn from their mistakes to create a more efficient and evolving search method. They say, *'Different foragers will make different decisions in these stages based on the different contexts'* (Lui et al., 2011, p. 232). No two foragers will be alike; each individual will define their own benefits and search for rewards. Wittek, Liu, Darányi, Gedeon, and Lim's study on Information Foraging in a consumer environment also draws attention to this aspect and states, *'Many decisions require an exploration of alternatives before committing to one, and exploiting the consequences thereof'* (Wittek et al., 2017). They state that some searching requires experimentation and Error to explore options. They also interpreted two types of scenarios searchers encounter when carrying out these times of searches: risk and ambiguity. *Risk* is defined as *'the perceived quality of the actually visited patch of information, and can be reduced by exploiting and understanding the patch to a better extent'*, and *ambiguity* is defined as *'the opportunity cost of having higher quality patches elsewhere in the search space'* (Wittek et al., 2017). The searcher has many options to balance and take into consideration when searching. That includes temporal aspects too, *'the foragers also need to decide how long they will stay with this information patch and when to go to a different patch of information'* (Lui et al., 2011, p. 232). Overall, they aim to dictate the search with what knowledge they already have to find the

most efficient route to their information thus, creating a more involved exploratory search than Berrypicking.

Collaborative Foraging is another concept introduced by Pirolli in his study of knowledge sharing among students. He explains that *'Cooperation may yield more benefits than simply making searches more parallel and making them less prone to failure. Membership in a group provides actual or potential resources that can be utilized or mobilized to achieve individual goals'* (Pirolli, 2007, p. 150). Just as the name suggests, a group of foragers collaborate and work together to utilise certain types of indexing options and interactions for information. Pirolli goes on to say that *'…groups of cooperative Individual foragers who are positioned in social networks such that they broker information and ideas across groups might be exposed to a greater diversity of information themselves and be a conduit to greater diversity for their colleagues'* (Pirolli, 2007, p. 154). The diversity in the group expands the knowledge base for the whole group through information sharing. They *'engage in social exchanges of information and appear to arrange themselves such that they bridge across content areas'* that combined with their diversity with their grouping *'focus their foraging and sense-making efforts'* (Pirolli, 2007, p. 157). Collaborating Foraging connects the individual searcher to the wider group of users to a website through social networking means that provide sensemaking and community building that aid further exploratory searching.

Overall, Berrypicking and Information Foraging are similar and can be seen as exploratory searching or browsing. However, their main differences are as follows: *'The berry-picking model devotes more attention to focused searching as a key constituent of exploratory search, while the information foraging theory concentrates on the characterisation of exploratory browsing'* (Savolainen, 2017). The berrypicker searches a broader topic to cast a wider net to maximise information collection, while the forager hones in on relevant preferred topics that may ensure results. A berrypicker will be more willing to search specific sources and focus on the search process. At the same time, a forager finds an expanded source and considers the external context of their search to yield their results or adapt their search (Savolainen, 2017). A forager is continually looking for new sources of information and various factors like information scent, information patch and environment enrichment to ensure efficiency and pay off in their searching. Where a berrypicker focuses on one patch, the forager weighs up options between many, combining it with its knowledge with an understanding of exhausting a resource and its ability to move on to others.

In relation to porn, the berrypicker may focus on one category on one specific website where they know they have found content they liked before. For them, that patch has been fruitful. A forager may focus on one specific category on one specific website. However, they may eventually move onto a new category or just between websites or many videos at once to even find parts of videos that satisfy their information need. Their search could be everchanging and provide a greater variety of content to the forager that may be more fruitful but possibly less focused than their initial search goal. These theoretical frameworks and behaviours directly relate to how one would search for sex, which will be explored in *Chapter Five*.

2.3 Information Architecture

As internet users become more adept at navigating information online, websites, including porn sites, have become standardised to aid in efficient searching. Design elements from mainstream sites are adapted and adopted to provide comfort and avoid confusion to the user. It is these design elements that create the site's structure and its architecture. Elements of Information Architecture present themselves in the design of a website and support the users' Berrypicking and Information Foraging tactics. The top scholars of Information Architecture are Morville and Rosenfeld, who relate the layout of a site to its efficiency in findability. They state that Information Architects, *'...need to understand those needs and behaviours, and their designs should correspond accordingly. There is no goal more important to designing Information Architecture than to satisfy users' needs'* (Morville & Rosenfeld, 2007, p. 30). An architect's primary goal is to design the site to cater to the user's information needs. They also go on to define three main areas that define good Information Architecture. *'understand the business goals behind the web site and the resources available for design and implementation… be aware of the nature and volume of content that exists today … And we must learn about the needs and information-seeking behaviors of our major audiences'* (Morville & Rosenfeld, 2007, p. 24). These three layers of understanding inform Information Architecture: the business goal, the information needed, and the audience or site. They provide the reasoning when creating or navigating a website.

In a later interview with Rosenfeld, he describes *'information design as the design of two-dimensional information spaces (e.g., web pages), and Information Architecture as the design of multi-dimensional information spaces (e.g., web sites)'* (Carliner, 2008). As Rosenfeld explains here, a multi-page website, as opposed to a web page that shows information

reminiscent of Web 1.0, is more dimensional and multifaceted and involves more organisation and structure. In that same interview, he addresses the myths of Information Architecture by stating the central myth as the belief *'That search is separate from the Information Architecture. [...] IA is about finding, whether that means supporting browsing, searching, or asking. And we know that, in the context of a single session, users jump back and forth between these modes all the time'* (Carliner, 2008). Again, Rosenfeld reiterates how Information Architecture and Information Seeking are intrinsically linked to create structures and structure. Morville also supports this idea: *'The foundation of almost all good Information Architectures is a well-designed hierarchy of taxonomy. In this hypertextual world of nets and webs, such a statement may seem blasphemous, but it's true'* (Morville, 2005, p. 166). by drawing attention to the hierarchies created in a website through its design and organisation to support the search and finding – each level is linked and does not exist in silos from each other.

A recent reverse engineering website navigation study tested Morville and Rosenfeld's Information Architecture approach. Fikri, Kusumawardani, and Ferdiana agree that *Information Architecture* is defined as *'the arrangement of digital information space to provide users with simple and intuitive access to content and functionality'* (Fikri et al., 2020). They define it by three systems, similar to Morville and Rosenfeld's; *'1) System organization, namely the system for organizing content to pages and managing the relationship between them, 2) Navigation System, which is the system to allow users to move from one page to another, and 3) the labeling system, namely the system for page naming and navigation functions'* (Fikri et al., 2020). Their three elements mimic the business, information needs, and user areas but focus on the organisational aspects of the site, like page content and relationships, navigation system and labelling system to address the three areas. In the end, they concluded that for sites with especially more information, *'Information Architecture can help increase usability aspects because the information users need will be displayed in such a way on institutional websites following their expectations'* (Fikri et al., 2020). Showing that Information Architecture creates a standard across all websites to support user needs and searching. In contrast, users become more adept at searching larger quantities of information through these structures. Navigational elements like topic navigation, timely navigation, and signposting to marketing, as defined by Brown in his *Principles of Information Architecture* (Brown, 2010). This section will break down site elements by design elements as defined by Norman, show how they equally apply to Information Architecture and support the three main aspects of a website.

2.3.1 Design Elements for Website Design

In Norman's book *The Design of Everyday Things*, he discusses the need for Standardisation in design to make things recognisable, avoid confusion and, thus, make things usable. Though he does not speak about the internet specifically, his concepts on design help discuss how to create a site. He lays out seven crucial design elements to consider when creating a product. They are

1. *Use both knowledge in the world and knowledge in the head*
2. *Simplify the structure of tasks.*
3. *Make things visible: bridge the gulfs of Execution and Evaluation*
4. *Get the mappings right*
5. *Exploit the power of constraints, both natural and artificial*
6. *Design for error*
7. *When all else fails, standardize* (Norman, 2002, p. 188).

Norman discusses concepts like Mapping, Errors, and Standardisation in these seven elements directly related to how websites are created. For example, any website will rely on knowledge of the internet and the real world. The website will have simple structures not to frustrate its users and make its options visible. They will also allow for Errors and Mapping for users to eliminate and avoid wrong actions and navigate backwards to rectify any mistakes. Finally, many sites will design themselves based on website designs that already work because users already know how to work with the design, along with many other reasons. These design elements are relevant to porn. They use the established user's knowledge to navigate the site and understand the indexing based on world knowledge of porn terms from video rental days. The sites are simple in structure and limit the number of tasks that can be done while making many options visible at once. Despite the many options available to a user, the sites provide them with clear or hierarchical menus mapped to make sense while also employing constraints for things to occur that are dependent on the user's actions. The sites also allow for errors and options to continue to move forward or backwards to fix any issues. Finally, many of the porn sites are laid out and designed in similar ways to allow for ease of usage. These concepts will be expanded on further in Chapter Four.

Morville further supports these elements and again draws attention to the hierarchical layers of organisation for a website. He states, *'Because hierarchies provide a simple and familiar way to organize information, they are usually a good place to start the Information Architecture process.*' This hierarchy and organisation creates the beginnings of a framework for web

designers. For users, he goes on to say, *‘The top-down approach allows you to quickly get a handle on the scope of the website without going through an extensive content-inventory process.’* – addressing the Information Seeking aspect of a website before finally stating, *‘You can begin identifying the major content areas and exploring possible organization schemes that will provide access to that content’* (Morville, 2005, p. 168). Thus, it addresses again the three aspects of Information Architecture laid out in the book and supports Norman’s push for Standardisation through hierarchical structure. Below, Norman’s Standardisation, Affordances, Feedback, and Error elements will be defined, along with how they relate to Information Architecture and design for browsing and findability.

2.3.1.1 Standardisation

Starting at the end of Norman's principles, Standardisation acts as a solution and catch-all idea to help ensure that a design will work. He states, *'When something can't be designed without arbitrary mappings and difficulties, there is one last route: standardize. Standardize the actions, outcomes, layout, and displays. Make related actions work in the same way'* (Norman, 2002, p. 200). This efficient way of designing looks at things that are recognisable. Things like buttons and search bars have become the standard for any, if not all, websites. This standard allows users to quickly search or interact with little extraneous searching or navigating on the website. Krug, a writer and theorist of usability for web design, likens Standardisation to a stop sign, *‘The convention includes a distinctive shape, the word for 'stop,' a highly visible color that contrasts with most natural surroundings, and standardized size, height and location’* (Krug, 2009) stating the importance of recognisability in universal conventions. Standardisation is also important for interoperability between other websites and the rest of the internet. The World Wide Web Consortium states, '*Web application testing is one of the key points in the further direction of website development.'* A website's design, software and hardware must all work to some standard to function with other sites. *'Therefore, websites and applications need to be tested to ensure consistency between the overall functionality of the web application, specification documents, browsers, and operating systems'* (Semerádová & Weinlich, 2020, p. 91). This Standardisation must work and function across all website layers, down to the document level, for better recall.

Semerádová and Weinlich’s attempt to standardise consumer websites leads them to understand that this standard is closely linked to design and Information Architecture. They state the aim of standardising Information Architecture is to *‘... sort the content in a way that is*

understandable, easy to use, and intuitive. This is achieved by using processes such as card sorting, content hierarchy creation, the understandable naming of individual website elements, destination paths, and taxonomy' (Semerádová & Weinlich, 2020*,* p. 1). The sites fall into a tree-like structure with their connection to other sites, menus, and organisational structure of documents or information. However, despite their aim to create a framework for Standardisation, they state it has a '*significant weakness in measuring user experience'* and *'does not guarantee full user satisfaction, clear content, or successful graphic design*' (Semerádová & Weinlich, 2020*,* p. 11). The argument for a standard website may stifle creativity or innovations to new forms of Information Seeking or Information Retrieval – the acts driven by users of the sites and not the backend designers. Though an all-encompassing standard for all websites may or may not be possible, Norman states, *'The nice thing about standardization is that no matter how arbitrary the standardized mechanism is, it has to be learned only once'* (Norman, 2002, p. 200). Again, he supports some form of it to take shape within design elements.

2.3.1.2 Affordances

Affordances are the next concept that allows a user to recognise the use of that object based on that design. Norman's definition states, *'Affordances provide strong clues to the operations of things. Plates are for pushing. Knobs are for turning. Slots are for inserting things into. Balls are for throwing and bouncing'* (Norman, 2002, p. 9). This idea follows from the Standardisation of a website and shows that the use of certain things on a website has to be made evident. Though a site is not a physical object, the possible interactions still have to be communicated; a hyperlink may be highlighted, a button designed to stand out from the background, a search bar may be at the top of a site to invite searching, and so on. Affordances invite interaction. When that fails, the design has failed, and the user is confused with how to use the site then forced to revert to the familiar elements. Krug also writes on Affordances, defining them as *'visual cues in an object's design that suggest how we can use it'* (Krug, 2009). The way to signpost these visual cues is through visual hierarchical structures in the design. He states the need to *'make sure that the appearance of the things on the page – all of the visual cues – accurately portray the relationships between the things on the page: which things are similar and which things are part of other things'* (Krug, 2009). These apparent relations connect to the tree-like structures that are the focus of Standardisation for a site's organisation and are seen as a fast form of communication and operation for Information Seeking and finding.

Krug also clarifies the need for minimalism and the editing of needless information cluttering a design's Affordances. By giving 'the smallest amount of information that would help,*'or just enough information to operate the site without frustration'*, *'it makes the useful content more prominent'* and the use of the site efficient (Krug, 2009). In Wroblewski's book on web form design, he further explains the user's thought process when presented with a website, specifically on a mobile phone. He states, *'Across all your mobile layouts, aim for the minimum amount necessary to help people to meet their needs whether they're looking up or finding information'* (Wroblewski, 2008, p.118). Wroblewski uses the extreme constraints of mobile web design to drive home the need for Affordances to be communicated to the site users to find information and the need to be extremely minimal due to the smaller screen. A desktop or laptop may not have to go to such extremes, but the importance of both remains. Norman also reiterates that Affordances become the options that can be taken advantage of and, thus, *'… the user knows what to do just by looking: no picture, label, or instruction is required. Complex things may require explanation, but simple things should not. When simple things need pictures, labels, or instructions, the design has failed'* (Norman, 2002, p. 9). Affordances highlight the immediately understandable and yet the invisible. A site's features should incorporate Affordances throughout all its options, but they should be something not seen or to require too much thought.

2.3.1.3 Feedback

Feedback is the next concept of design for Information Architecture. Norman defines this as design elements that '*Give each action an immediate and obvious effect'* (Norman, 2002, p.99). Norman further describes this as *'…sending back to the user information about what actions has been done, what result has been accomplished – is a well-known concept in the science of control and information theory'* (Norman, 2002, p. 27). This concept is an excellent way for users to know if an action they have attempted on a website has worked. Norman provides examples: *'Imagine trying to talk to someone when you cannot even hear your own voice, or trying to draw a picture with a pencil that leaves no mark: there would be no feedback'* (Norman, 2002, p. 27). For a website, this could be a page changing, clicking, making a sound, a thumbnail moving if a cursor moves over it and more. If a site is static and more in-line with early websites, the user cannot interact with it, and they quickly move on to another site. Feedback is an excellent way for design to invite users to interact with a site, show their actions take shape, and lead them to new information. Norman stresses the importance of Feedback here, saying, *'Without feedback, one is always wondering whether anything has happened. Maybe the button wasn't pushed*

hard enough; maybe the machine has stopped working; maybe it is doing the wrong thing' (Norman, 2002, p. xii). If the Feedback for a website is too small or non-existent, they could continue clicking at random, get frustrated, or close the page entirely.

A good website design will consider Feedback made possible by what Norman calls Mapping. He describes Mapping as *'a technical term meaning the relationship between two things, in this case between the controls and their movements and the results in the world'* (Norman, 2002, 23). He provides an example: *'To turn the car to the right, one turns the steering wheel clockwise […] the wheel and the clockwise direction are natural choices: visible, closely related to the desired outcome, and providing immediate Feedback. The mapping is easily learned and always remembered'* (Norman, 2002, p. 23). The steering wheel turn is not the only part of the car's mechanism that makes it turn left but the car's design is the tools and options the driver is given to interact and drive with. The user understands that the steering wheel moving will result in the wheels moving too thus, creating that associative relationship between the two that is communicated to the user on how to use it. Norman explains that good Mapping makes it *'possible to determine the relationships between actions and results, between the controls and their effects, and between the system state and what is visible*' the user gains an understanding of the design when they '*receive full and continuous Feedback about the results of actions'* (Norman, 2002, p.53). Websites require wireframes and Mapping of their options and elements that provide details of outcomes or Feedback that the user will receive. The more precise the Mapping and the more pronounced the Feedback is to the user, the more likely they will be able to understand how to use the website correctly.

2.3.1.4 Error

Despite the issues that could arise with bad design without considering Affordances or Feedback, there is still a way for the design to incorporate a failsafe. It takes the same in allowing for *Errors*. Norman provides some advice and says, *'Assume that any error that can be made will be made. Plan for it. Think of each action by the user as an attempt to step in the right direction; an error is simply an action that is incompletely or improperly specified'* (Norman, 2002, p. 200). Not everything is plannable in design. If a design is terrible, Errors will occur more often, and users will become frustrated and force some change. Krug again makes reference to the idea of *"breadcrumbs"* and states, *'Breadcrumbs are self-explanatory, they don't take up much room and they provide a convenient, consistent way to do two of the thing you need to do most often: back up a level or go Home'* (Krug, 2009). This further supports the idea of thinking

of Errors in navigation as a trail; a trail that supports Berrypicking and Information Foraging. If there is a way for a user to undo the action, the frustration becomes more bearable and forgiving. *'Try to support, not fight, the user's responses allow the user to recover from errors, to know what was done and what happened, and to reverse any unwanted outcome. Make it easy to reverse operations; make it hard to do irreversible actions'* (Norman, 2002, p. 200). This integration of possible Errors into design creates a challenge for designing websites that need to provide Mapping for both a forward and backward action. Norman states, though, that it is better to *'Design explorable systems. Exploit forcing functions'* (Norman, 2002, p. 200). Design can create an environment for exploration, like Berrypicking and Information Foraging, but it can also lead the site user with specific functions and available options.

Norman explains these limits on options and choices as constraints: *'The surest way to make something easy to use, with few errors, is to make it impossible to do otherwise -- to constrain the choices.'* The designer has the power to design things with only one option and to make them work perfectly (Norman, 2002, p. xii). When designing to fix Errors, it is important to understand the cause to then design around them or create constraints of a website's options. If constraining is not possible then reverse actions should be built into the system and make it easier to correct Errors overall (Norman, 2002, p. 131). There is still no way to design for every Error that could occur, but, as Norman suggests, good design throughout his seven principles and a sympathetic outlook to Errors by the user will mitigate these issues with any website.

2.3.2 One-Handed Searching and the Three-Clicks Rule

The design for searching on mobile phones is also important to this thesis and are especially worth mentioning here with design elements that cater to one-handed searching and interacting –a concept that will be particularly relevant for *Chapter Five* but also throughout. Wroblewski discusses how constraining the number of options on a mobile device helps with the design's success. He states, *'Minimizing the amount of navigation options on mobile screens helps to prevent errors as well'* (Wroblewski, 2008, p.65). The extreme constraints of a mobile device mean the options for navigation and interaction must be very limited. Much of the design elements for a mobile site will equally follow the elements above. It is these constraints that create a different set of challenges for users ways of searching. In Kim, Kim and Lee's study of the usability of mobile internet within Information Architecture, they concluded that the *'Availability of hands, movement of legs and number of people around the user were found to have especially significant impacts on the kinds of usability problems'* (Kim et al., 2005). These

usability problems could also be issues for using any desktop or laptop computer, but they found that it had a far more significant impact on mobile users. They found that *'people do not use the mobile Internet in every possible context, but their usage is heavy in a few critical contexts, such as when they are not moving and have only one hand available'* (Kim et al., 2005). One-hand usage could be both driven by or dictated by mobile use but also the external environment.

The concept of one-handed interactions or searching is pertinent to mobile phones, where users often use just their thumb to select actions. In Wu and Kuo's work on one-handed gestures for browsing, they work with the assumption that mobile users use one hand or, as they state, 'single-handed operations' (Wu & Kuo, 2013). They create a list of single-finger interactions that can occur on a mobile phone for searching, encompassing the many interactions on a desktop but with a streamlined edge. They conclude at the end of their paper that additional gesture options on mobile devices could alleviate the stress on the thumb when searching. However, the study showed no change in efficiency when comparing two different groups, one using just one hand and the other using two. This efficiency in searching and how it connects to the site's design are speculated in this thesis as a preference for one-handed gestures or clicks of a mouse on a desktop when navigating. Though this project does not have insight into how many users access the site via a mobile phone, it is clear that the site's interface design is created with both a desktop and mobile in mind.

Jacon and Leohrlein's chapter on Information Architecture also refers to this simple form of navigation through design. They express that

> *the primary functions of a navigation system encompass not only facilitation of movement through a site but also representation of scale (i.e., the size of a Web site), specification of location (i.e., the user's position within the site), indication of directionality (e.g., from general to specific), and creation of meaning (i.e., the context of relationships between resources)* (Jacon & Leohrlein, 2009, p. 34).

A site, through its design, must be able to communicate all of this to the user while providing the content that the user expects. They further introduce the idea of *'the three-click rule'* where a *'user must be able to access an information source with no more than three clicks'* (Jacon & Leohrlein, 2009, p. 35). This three-click rule relates to the idea of one-handed searching as they are both simple forms of navigation and offer up ways of searching with just clicks without typing on a keyboard. They describe it as *'user-friendly navigation'* that provides '*global navigation*' and has an important effect on the hierarchical website Information Architecture (Jacon & Leohrlein,

2009, p. 35). From their knowledge, they explain hierarchy, similar to Krug, in a tree-like structure. They expand how hierarchies also have *'Depth*' and *'Breadth'*; *'Depth represents the number of levels of division in the vertical organization'* and '*Breadth refers to the number of choices that are presented to the user at any one level*' horizontally (Jacon & Leohrlein, 2009, p. 35). For example, a porn site's depth may only have two or three levels to get to a video, requiring only two or three clicks based on the two or three levels its hierarchical structure; using categories and tags.

2.4 Organisation of Information

The section will focus on the Organisation Systems employed that aid in the Information Seeking and Information Architecture described above. This section will discuss website classification structures, specifically emphasising vocabulary, tagging and Folksonomy. The need for the organisation has grown immensely since the start of the internet. The expansion of information shows a need for organisational structures to emerge for better recall to satisfy information needs. Norman explains how an organisation structure expands capabilities and memory by saying, *'Take fifteen unrelated things, and it is not possible to keep them in conscious memory at once. Organise them into a structure, and it is easy, for only that one structure has to be kept in conscious memory'* (Norman, 2002, p. 127). An assortment of items seems impossible to remember but put them into some organisational structure, and then it becomes easier. Norman's simple concept here can easily be expanded and related to computers and their memory for information recall.

Classification of things is how one starts to organize. As humans, we naturally partition things into groupings and by characteristics. Just as Information Architecture goes hand in hand with Information Seeking and needs, so does Information Architecture help improve classification systems for mutual benefit. In Engel's study on how to improve classification from a business point of view, two ways Information Architecture can aid in issues in classification structure: *'content "silos" and "wild west" folder structures' and help with the 'chaos of personal classification systems'* (Engel, 2017). These two points address how a classification system aims to relate to the rest of the world but can fall into traps where it is not perfect or too personal to be truly meaningful. The best solution is classification and indexing, defined as *'two main tools to organize information to serve the users'* going from '*generality and speciality'* and decided based on the *'aboutness'* of the information to act as tools for information and retrieval (Gholamreza, 2005). When combined with a robust Information Architecture on a site, this

encompassing system provides the user with ‘easy access’ and ‘speed’ in finding relevant items.

The indexing and ontological connection to the information takes shape through Controlled Vocabularies, tags, and facets, discussed further below. All these are employed in Information Seeking to create a *'semantic domain of words and phrases' and standardization of terms to narrow a search and in Information Architecture to make that final piece of information findable'* (Gholamreza, 2005). Makri believes that all of these will combine in modern websites or catalogues of media and *'…include some combination of a single keyword search box, relevancy ranking, faceted browsing, suggestions, "bread crumb trails" of other navigation guideposts, enrich content, social networking tools, personalization tools, and access to additional digital content such as articles'* (Race & Makri, 2016, p. 68). All of these interactions, invitations for interactions, and ways of searching now combine to create many options for users to get the desired results and ultimately satisfy their information needs. The sections below will look at categories as Controlled Vocabularies, tagging forming folksonomies and facets as ways of indexing information for search and retrieval. These three main topics will be vital to *Chapter Six* in understanding the elements that go into the indexing of a porn site and the thought process in how any changes are made.

2.4.1 Categories and Contolled Vocabulary

In Adler's work on classification, she looks to the library science for this language in organisation and how the Controlled Vocabulary is formed through subject headings as categories. She again talks about *'aboutness'*, stating. *'…controlled vocabularies and classifications facilitated the findability of documents through the technique of representing "aboutness." A subject of a work was reduced to what that work was about, and aboutness came to be defined by subject headings'* (Adler, 2017, p. xii). Just as the subject headings are created and governed by the library, so too are categories on a porn site. These headings and categories are useful in creating uniformity.

Bates speaks on these vocabularies, saying, *'We have long recognised that powerful retrieval in online searching can be gained through the combined use of natural language and controlled vocabularies. [...] Effective use of these vocabularies requires a strategic understanding of which types of classification and indexing are involved, and taking advantage of the particular mix of vocabularies in a given database to achieve optimum retrieval'* (Bates, 2016, p. 79).

Understanding a Controlled Vocabulary from a searcher's point of view can yield better search results while creating the vocabulary dictated by the searcher's vernacular. Classification and indexing can be natural to fit the user group it intends to serve. Even content creators may find ways of doing so without even realising: *'...many of them perform tasks that are Information Architecture responsibilities. If you decide what information gets created and delivered, identify keywords to support findability, or organize the hierarchy for a table of contents, you are performing IA tasks'* (Swope, 2018). Again, a clear connection between the user, the content creator, and the site designer is drawn together through their organisation system, this time through the keywords and language used to categorise.

Categories and Controlled Vocabularies also go hand in hand. Adler describes them: *'Headings belong to controlled vocabularies, which are designed to ensure uniformity and universality within and across library catalogs or other information retrieval systems so that locating information is predictable and precise'* (Adler, 2017, p. xiii). Categories and Controlled Vocabularies sit within the context of the individual site and the context of other sites around it. These other sites can include the rest of the internet or just a selection of sites of a specific category, like porn sites.

The need for precision in large-scale information centres, like websites, is essential. Having terms with relationships to each other creates efficiency and teaches the searcher how the terms fit together and the logic of the organisation system overall. Using terms like '*See Also*' with the Controlled Vocabulary relays this to the searcher, similar to a thesauri. Again, Adler draws upon her knowledge of the Library of Congress as a syndicate system that organises items based on a common interest, *'…meaning that it connects related terms, synonyms, or variants by using cross-references in a database within the catalogue. Online library catalogues often provide links to "Use" or "See" references so that the patrons are directed to the authorized terms for their searches…'* (Adler, 2017, p. 30). This same system is comparable to websites and the internet, where signposting and messages like *'Did you mean...'* continually guide the searcher to the right repository, website, search query or page.

2.4.2 Tagging and Folksonomy

Tagging further categorises the site for the user and by the user and allows the system to adapt and incorporate many aspects of the user's search. *'Self-organization by your users can be a potent force to allow the content on your site of your social software to be used in a way that better benefits your community'* (Gauntlett, 2000 p. 78). Where tags are dictated by the site's

creator and its content, tags are free and open to expression. Morville further discusses this when looking at free tagging or community tagging, also employed on Pornhub. Though not tracked and discussed in this paper, it is still important to touch upon as the categories introduce the user to the tagging system and invite them to add their own. Morville and Rosenfeld state: *'Free tagging, also known as collaborative categorization, mob indexing, and ethno-classification, is a simple yet powerful tool. Users tag objects with one or more keywords. The tags are public and serve as pivots for social navigation'* (Morville & Rosenfeld, 2007, p. 77). Where categories are set up and controlled by the backend designers or employed by the content creators, tags allow the user to add in their indexing collaboratively. Morville and Rosenfeld also state, *'...when large numbers of people get involved, interesting opportunities arise to transform user behaviour and tagging patterns into a new organization and navigation systems'* (Morville & Rosenfeld, 2007, p. 77). The categories and tags create a hierarchical structure that Morville described before. Tags become an additional source to enrich all previous layers of organisation and navigation, incorporating the user's point of view. However, it should be said that tagging could also lead to an explosion of tags with their issues like typos, repetition, or an overabundance of terms, which could cause challenges with searching or the need to go into an edit.

Where categories employ a top-down process where terms originate from more authoritative connections to the website, tagging employs a bottom-up process. *'The social nature of tagging emphasizes that tags are not only personal labels used for categorizing individual collections, but also serve as public clues for others to reach personal collections'* (Jiang & Koshman, 2008). Based on this personal influence and knowledge, the tags look outward to other users and communities that use the site and signpost to content. This concept is Folksonomies and is described as resulting *'... from this bottom-up social tagging process and are distributed classification systems that can be exactly described as a flat namespace without rigid hierarchies or exclusive categories'* (Jiang & Koshman, 2008). Though related hierarchically lower than categories on a website, tags are on the same level within the organisation system and create the Folksonomy as a whole. A Folksonomy is democratic and *'... gives everyone the opportunity to express his or her personal viewpoints through tags and welcomes distinct or even contrary ones to co-exist'* (Jiang & Koshman, 2008). Tags allow all users to express their personal opinions and terminology outside of the constraints of the Controlled Vocabulary with its categories.

In Race and Makri's book, they further explain how tags are connected to the search process. They state, *'Tags can help users move beyond their existing conceptualization of their topic or search query and toward discovering new concepts, relationships, vocabulary, and resources to assist their information acquisition'* (Race & Makri, 2016, p. 75). Tags become a new source of Information Seeking in themselves and, as he describes, a great source for information discovery through browsing tactics that support serendipitous information finding. They become a source for users to direct other users to new discoveries. Tags supplement the established finding aids on the site and create an environment for Information Foraging.

When looking at social media, like Instagram, and how they use hashtags for searching, it can show the differences by comparison. *'Hashtags have distinct meanings and usage patterns on Instagram. Given the importance of hashtags in searching for relevant content, it is essential to clarify these differences'* (Coleman & Held, 2014, p. 515). Referring back to Bates, if a concept map was created for a few porn platforms it would show the overlap and hierarchies, Bates suggests more generally. The Sage Handbook also provides advice on creating a concept map: 'In order to create a conceptual model, we first identify the entities present within the data set. An entity is defined as a reference to *'a thing in the real world with an independent existence. [...] After identifying the relevant entities within the data set, the task becomes determining how they are associated with one another by relationships'* (Coleman & Held, 2014, p. 127). This data will differ from Instagram's more varied content, so no doubt comparing these sites will create a more definite Controlled Vocabulary. However, looking to Instagram will help with the more socially created tags that can often incorporate misspellings and natural language.

2.4.3 Facets

The final organisational structure discussed in this literature review is using facets. Often employed for online shopping sites, it offers *'small categorical hierarchies that correspond to concepts contained within the repository'* (Jiang & Koshman, 2018). Where tags operate without a hierarchy, facets reinstate a hierarchy but thematically organising the categories and tags. This system organises the terms (both categories and tags) into bundles logically and thematically. Ranganathan introduced The idea of organising complex subjects by facets in the 1930s. He describes five fundamental facets, called PMEST: *'(1)Personality (what the object is), (2)Matter (what something is made of), (3) Energy (how something changes), (4)Space (where something is), (5)Time (when it happens)'* (Raganathan, 1960). These attributes split up the flat structure or list of many subjects or categories into higher categories that describe further

aspects of what the categories are aiming to define. It is further defined as *'…a method of multidimensional description and arrangement of information resources by their subject, attributes, or "aboutness". It addresses the fact that users may look for a resource from any number of angles corresponding to its rich attributes and multidimensionality'* (Uddine & Janecek, 2006). Items or documents can be multi-faceted and overlap. However, the system acts as a bridge to narrow a search and allows *'users to search or browse with greater flexibility'* (Uddine & Janecek, 2006). Through its layered way of thinking about the site's organisation, based on the ontology of its content, the user's ability to search expands to encompass fluidity in information needs and discovery.

In Uddine and Janecek's study on facets in Information Architecture, they define the purpose of tags as a *'structure to improve web information organization, access and navigability'* (Uddine & Janecek, 2006). This structure again re-establishes the tree-like hierarchical structure put forward by Morville, Rosenfeld (2007) and Krug (2006) within Information Architecture. Their study goes on to conclude that *'It gives convenience in browsing by grouping related information objects or products together, enables broadening and narrowing of searches by their attributes, gives context to search terms being used' and 'classifying and organizing information in multidimensional hierarchies is more accessible than simple one-dimensional taxonomic hierarchies'* (Uddine & Janecek, 2006). Facets support and focus navigation that provides more dynamic and responsive options for searching that accounts for Error with more options to navigate back and forth and up and down, allowing for *'...seamless integration between browsing and free text searching and an easy alternation between refining (zooming in) and broadening (zooming out)'* (Quintarelli et al., 2007). Using facets has also been linked to '*...a strong reduction of the mental work, which favors recognition over recall; and better support for exploration, discovery and iterative query refinement*' and *'easily understood by the average user'* (Quintarelli et al., 2007) – further supporting the Berrypicking and Information Foraging search tactics defined above.

2.5 Porn and Information Science

Porn sites are untapped sites for Information Architecture that can be compared to other mainstream sites within a new context. Their design conventions cater to types of searching that were not previously employed for this sexual information need. Though they use organisational structures found elsewhere and their methods are far from innovative, their application to challenging pornographic media makes them attractive. Pornographic material is challenging for

many reasons. It is a highly regulated and discoursed topic, as explained above, with many factors that are easily affected by politics, gender, sexuality and racial positionality. These factors make the area hard to define and work with definitively. Applying the theories, frameworks and concepts, defined and described above, to porn sites express new ways of looking at both the applications and the sites. Thus, the questions for this project and the rest of this thesis are structured based on the application of each set of concepts introduced in this literature review.

2.5.1 Information Architecture

Information Architecture is the all-encompassing idea that encapsulates the various elements within this thesis. The architecture of a site is closely linked to the framing of information and a site's organisation for an overall goal of findability. Each section is closely entwined. As with any site, it adheres to a particular structure and is designed within specific parameters or constraints to facilitate searching and interaction. *'According to the Information Architecture Institute, "Information Architecture is the practice of deciding how to arrange the parts of something to be understandable"'* (Swope, 2018). A designer of a porn site is no different. A porn site will have design elements that will allow it to stand out as unique and marketable while still incorporating Norman's elements of Standardisation, Affordances, Feedback and Errors.

Morville and Rosenfeld state that *'Information needs can vary widely, and each type of information need causes users to exhibit specific information-seeking behaviours. Information Architects need to understand those needs and behaviours, and their designs should correspond accordingly.'* This point reiterates the close ties between Information Architecture and Information Seeking. It shows that the many elements of a site, though sometimes aesthetic, are there for a singular goal: to give the user what they want. They go on to confirm this when saying, *'There is no goal more important to designing Information Architecture than to satisfy users' needs'* (Morville & Rosenfeld, 2007, p. 30). A porn site's architect understands that the user of that site is there for arousal and looking to find pornographic content that caters to their specific tastes. It is not the job of the architect to throw all porn at the searcher at once but to serve up options and interactions that provide a curated experience that will lead the user and not overwhelm them.

The Information Architect creates a hierarchy on their pages and through their site wireframes. This idea is supported again by Morville and Rosenfeld, who state that *'...because hierarchies*

provide a simple and familiar way to organize information, they are usually a good place to start the Information Architecture process.' Increasing the amount of media a site can contain requires some hierarchy. They go on to say that a hierarchy also *'...allows you to quickly get a handle on the scope of the website without going through an extensive content-inventory process. You can begin identifying the major content areas…'* (Morville & Rosenfeld, 2007, p. 69). Porn website designers and content creators organise large amounts of media on the site within its aesthetic design to commercially lead users to their own uploaded videos. This possible commercial motivation is based on Morville and Rosenfeld's goals along with other motivating factors. In *Chapter Four*, porn site characteristics are broken down and compared to Norman's design elements and within the frameworks described to assess an overall definition and how it operates for its users, answering the questions:

1.0 What do porn sites look like?
- 1.1 What characteristics do they share with other sites?
- 1.2 How are these sites and characteristics created on porn sites?

2.5.2 Information Seeking

Information Seeking can be simplified as *'Input, output, end of story*' but *'this is a very mechanistic and ultimately dehumanizing model for how users find and use information on web sites. In fact, in this model, the user, like the site itself, is just another system -- predictable in behaviour, rational in motivation'* (Morville & Rosenfeld, 2007, p. 31). Searching online has become more nuanced, from searching on search engines to creating specific search tactics, like Berrypicking and Information Foraging. These types of Information Seeking create more varieties of ways to find information that goes beyond the linear input-output scenario. Sometimes, an information need is unclear even to the user. *'...information seeking is often iterative and interactive. What you find at the beginning of your search may influence what you look for and find later in your search'* (Morville & Rosenfeld, 2007, p. 61). Through this searching, the user is on a journey of discovery and not in any great need to get to the end of their search for any specific goal. Sometimes, the item they stumble upon is something they did not realise they had been looking for all along. This way of looking at search tactics incorporates the different ways a user can approach a porn site and incorporates Bates' Berrypicking and Pirolli and Card's Information Foraging into their tactics.

Spink and Jansen's study on sexual Information Seeking supports this. A person searching for sexual material will take many avenues and cast their net wide to find what they might be looking for; without a specific goal set out in the beginning. Spink and Jansen go on to state:

> *Sexual information behavior can be included as part of human adaptation and survival. Seen in this light, the seeking of sexual information on the Internet and elsewhere in the environment may occur not only for the findamental human purpose of mating and the propagation of the species, but also for the diverse information behaviour mechanisms concerned with adaptation and survival* (Spink and Jansen, 2004, p. 150).

Though this thesis looks at a different form of sexual searching that is not directly related to mating, it touches on an important aspect of the searching: it taps into the primal side of human nature. It is these links to the primal when searching for sex and employing animalistic search tactics like Berrypicking and Information Foraging that will provide the foundations and questions for *Chapter Five* – looking at how users interact and search on porn sites:

2.0 How do users interact and search on a porn site?
- 2.1 How do characteristics of the site invite interaction?
- 2.2 How do the site's features support different types of interaction?
- 2.3 How do users use categories and tags for interacting and searching?

2.5.3 Organisation

From the beginning stages of the internet, people have searched for porn either through search engines or sites, but it is the development of categories and tags that created the keywords. Some terms within a Controlled Vocabulary may act like they would in a thesaurus as broader/narrower or related terms or split into facets to organise further to help narrow the search. Still, the list controls categories and tags for the site that invite community tagging underneath but maintains consistency across all videos. Eventually, some free tags become their categories, holding more authority on the site. These terms can include acronyms, slang or other specific terms. For example, the term MILF (Mother I'd Like to Fuck), BBC (Big Black Cock), BBW (Big Beautiful Women), and ATM (Ass to Mouth) could all be tags used for other words like Many Islands, Low Fares, British Broadcasting Company, Basketball Wives, or Automatic Teller Machine respectively. That is why the site needs to identify its specific Controlled Vocabulary that defines these terms to save users from confusion. Also, as Morville suggests, there is a definite use of terms that collapse into other terms based on their being possibly ambiguous or preferred due to a change in language or political correctness. He states, '*…we develop controlled vocabularies to manage the ambiguity of language*' (Morville, 2005, p. 129). A Controlled Vocabulary is also true in how porn sites may organise their Controlled Vocabulary through their categories. Terms are added or disappear to help control this ambiguity.

The categories on porn sites work as their own Controlled Vocabulary for the site. They act as keywords for searching and finding quickly and efficiently, giving users the language they need to search for what they want to find. It can be either known or unknown, but the language of the categories is determined and maintained by the sites and remains static, or at least tries to be, to avoid confusion. Morville describes Controlled Vocabularies as *'Predetermined vocabularies of preferred terms that describe a specific domain…'* (Morville & Rosenfeld, 2007, p. 52). Morville explains how categories for specific vocabularies in a domain can be studied. He also describes the benefits of tag analysis: '*the data that comes from tag analysis can be used in much the same way as search-log analysis. Look for common terms, but also look for jargon, acronyms, and tone; even misspellings are useful it you're building a controlled vocabulary'* (Morville, 111). Categories provide a picture for the overall site, while tags provide a picture for the users. In Ogas's study of tags on porn sites, he was able to conclude what type of women attracted men to specific porn videos and the physical or psychological appeal of porn to men or women through tag analysis (Ogas, 2011).

On Porn sites, the categories are usually added by the creator or uploader of the video, but like other sites like YouTube, it allows the user to add their tags. It allows even further classification of the videos, although it is doubtful how useful many tags are as they are often specific, with misspellings or repetition. The growth of these categories is the creation of a vocabulary – one that was taken from video rental shops or XXX cinemas before them and pathology or psychology before them. The growth incorporates broader terms deemed necessary to create nuance and further organise the content with categories like ‘Orgy’ and then ‘Gangbang.’ Both these terms have crossover, and Gangbang could be a narrower or related term for an Orgy. Still, their definition is different enough to allow them to have their term within the vocabulary, just as Morville suggests. These organisation structures and the evolving language on porn sites will serve as the basis for *Chapter Six*:

3.0 How does a porn site’s categories and organisation change over time?
- 3.1 How have the category vocabulary changed?
- 3.2 How are the categories organised?

2.6 Conclusion

This literature review’s multi-disciplinary approach through the combination of readings and various topics provides insight and background for the thesis. Citing sources from Porn Studies, Information Seeking, Information Architecture and Organisation of Information create the main

strands of the project and how the questions were formulated from the readings – as collated above. These fields of knowledge support and supplement each other throughout the project.

The literature on Porn Studies serves to show the changing attitudes and definitions in the field. The many changes and discourse around the definition lead to *Chapter Four* in this thesis on how the definitions can be expanded further with sensitivity and combination to the previous ones by encompassing their many strands of thought. Information Seeking continues from porn's technology discussion and expands on the idea of the user and the internet. Expanding on this thought considers the user in terms of the internet and, in combination with the previous section, porn. This thesis focused on the search and interactive elements of the user experience that further combine ideas on cognitive psychology and primal instincts when searching that have clear connections to a user searching for sex online.

Through the design and the breakdown of Information Architecture elements, the thesis looks at how sites provide for the user and create the overall experience. Though the designer and the user are invisible in this project, evidence of their work can still be seen and speculated on a website's front and back end. The design creates the overall environment for which these hypotheses and speculations can form. Finally, the Organisation and Indexing of these sites pinpoint some evidence that Information Architecture points to in the literature. By looking at the indexing through categories and the creation of folksonomies, as defined in this literature review, the thesis extracts evidence of community finding, user interaction, language creation and top-down or bottom-up methods on a porn site.

This literature review provides the initial foundations for filling the identified gaps in the research. As explained in *Chapter One*, mapping information science theories onto porn attempts to build bridges between the two faculties through experimentation and mutual expansion. Information Architecture provides benchmarks and standards for all sites, but using them against porn sites here further tests their accuracy, usage and usefulness, which is not available in the literature and will be further expanded in *Chapter Four.* Applying information-seeking behaviours to porn websites provides potential user insight that will be explored further in *Chapter Five*. This mapping of theories onto established platforms provides the initial methods for looking at navigation on the site without the need for human participants but is still grounded in established theory. Connecting porn studies to information-seeking and organisation and indexing methods also serves to build upon Human-Computer Interaction theory by providing further examples of

how users interact with sites, as explored in *Chapters Five* and *Six*. This multi-disciplinary combination of literature builds on these theories while providing the initial literary connections and methodical applications for future study.

Overall, this literature review is the theoretical backbone for the project, where the main terms, themes and theories are laid out. Further literature that informed the review and the project is provided in the bibliography as well as a quick reference glossary of Porn and Information Science terms can be found at the end of the thesis.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter will discuss, in first person, the methodologies employed to answer the research project's questions and inform the data collection, which supports the claims and answers. This chapter will also provide the thought process behind the study, hypothesis and methods used to replicate the data collection process with the scope, risks and challenges it encountered. The project considered three main questions:

1. What characteristics define a porn site?
2. How do users interact and search on a porn site?
3. How does a porn site's categories change over time?

The data collections were formulated, planned and carried out in a process that was viewed as fit and the best options to answer these questions. Each is discussed further by going through the methodologies overall and methods for each data collection. Each part in this chapter will break down the philosophy, approach, scope and choices made throughout the investigation phase, building on hypotheses and theories put forward by the literature in *Chapter Two*.

All of this reflexive explanation will sit within the context of my personal positionality and thought processes when thinking of the best ways to complete the project. As research is rare with porn sites, many methods developed from experimentation by testing and building on methods that do or do not work. The working methods will be usable for those looking to replicate the study, carry out similar ones or expand on them in the future – described more in other contributions in *Chapter Seven: Discussion and Conclusion*.

3.1 Positionality

To start with, my positionality will contextualise what personal beliefs and experience I have brought to the project and helped steer it in its unique directions. Below I will discuss my background, my beliefs about porn and my understanding of porn as information. These three aspects of my positionality act as specific factors to this study that allowed it to be carried out in this way. Also, it will lay out the foundations for the subsequent sections about its philosophy, approach and data collection. It should also be noted that throughout this entire thesis, it was approached with a Western perspective that favoured Western sites.

3.2.1 Background

My background in film and media with archiving provided the foundations for this project. These previous academic experiences trained me to parse sentences, break down film scenes, think critically with allegory and metaphors and how best to categorise pragmatically and systematically. Initially, I used Information Science and theories on Information Seeking very little before the research, however, at the beginning of the project it became a clear addition to the study. My interdisciplinary background created the necessary backdrop for the qualitative data. I broke down elements of each film, thought about the viewership or users and interrogated categories that answer questions to further categorise and parse porn sites as a form of media and information. Though I have no connection to the porn industry, I firmly believe that porn and porn websites hold many interesting conversations and data within them. They are the fringes and the outliers in so many academic fields, yet so popular, thus creating a juxtaposition of taboo causing people to shy away from yet also want to talk or learn about it in equal measure.

3.2.2 Beliefs on Porn

I believe not all porn is good, and some can be damaging to the many strides made in gender and sexual politics today. But I also believe that censorship and silencing conversations around these topics neither serve to protect but rather instill fear and stifle any progress. This is not without the awareness of my privilege of being a white woman studying this topic from a third-person perspective within an academic setting. Not everyone has a voice in this conversation yet, and not everyone is for porn usage in every form. However, this project takes a pro-porn stance and, in the project context, finds an interest in how others use porn sites and indulge their searching. The primary focus on qualitative data was a choice that I believe would maintain the human-focused elements of the project – to be discussed more below.

3.2.3 Porn as Information

Based on the reading for *Chapter Two The Literature Review*, I believe there was a clear divide between how porn was seen by academics and how porn was used on a daily basis. This led to a disconnect in my mind when reading about porn in the context of XXX cinemas and VHS tapes while being aware of the many websites and pop culture surrounding them. Bridging this gap by considering online porn videos as information seemed a clear choice. Taking porn out of the media studies realm and mapping it to the Information Science studies offers a new way of

looking. Straddling these topics with an emphasis on Information Science also opens up many aspects of the contemporary porn scene. Porn as information allows it to be thought about on the backend management and the frontend consumption. The backend looks at the indexing and organisation of the website that maintains the videos for the consumer, while the frontend is the website and enticing options that package the videos for the user. Thus, the seeds of the research project were born. With little literature, frameworks or methods to guide it, a more experimental approach was used.

3.2 Philosophy

This section will describe the philosophy that guided and laid the foundations for the project and how it would answer the questions. The philosophy laid out a clear route on what types of questions to ask, ways to collect the data and how to flexibly morph the project into a finished project and thesis. It encompasses the beliefs about the fields, as laid out in my positionality above, and tailors the data and its uses. Below, I discuss how most of the project follows a positivist philosophy while some more flexible approaches and outlooks make it semi-pragmatic.

3.2.1 Positivist

The philosophy that guided this research was a positivist view with some pragmatic tendencies. As mentioned above, my experience in media was more based on a humanistic view of aspects of film and pornographic media. However, Information Science opens the materials to be updated with a more contemporary reflection of reality and with insight as to why things happen. This plays into the positivist philosophy of looking to science and the scientific-methodical approach to finding truths. Its epistemological stance on the knowledge in the project is gained through observation and measurements of what is already out there. Though I have presented my background and positionality, that is not to say that I am part of the study and remained objective throughout as the data collector, observer and interpreter with a consistently logical scientific outlook.

As an independent observer, I aimed to explain and predict the quantifiable observations I recorded. The data included secondary information produced by humans, but there were no human participants for primary input in this study. This was reflected in the philosophy and grew out of necessity as the initial stages of the project started during the COVID-19 pandemic in 2020. This was also a way to work around finding trustworthy or willing participants. While

researching for the literature review, there were many common issues when it came to surveying or using human participants, so it is rarely seen. This is usually chalked up to the topic not being taken seriously or seen as shameful, meaning participants are prone to lying in both situations. There are also the implications of the many ethical issues that need to be taken into consideration for both the participants and the researcher. Very careful consideration would need to be given to any future research that involved human test subjects to ensure proper approval and safeguarding is addressed to mitigate any potential harms or upset. Regardless, this project hopes to one day progress beyond its positivist philosophy and use humans as a primary data source.

3.2.2 Semi-Pragmatic

I followed a semi-pragmatic philosophy since the data is more qualitative than quantitative, which could be seen as a branch off of a purely positivist philosophy and one that does not have to be completely objective. Also, I employed a range of methods, mixed methods and qualitative when collecting to answer the questions set out by the project. These methods straddle the scientific and positivist way of formulating and testing a hypothesis while also testing different methods and moving on to new ones to suit the project.

3.3 The Questions

In this section, I will refer to the original three questions and explain how each was tackled to answer them within the overarching philosophy. I will break down each question by its specific philosophy, approach, collection, and method. As each question is built on the previous, some approaches morphed and adapted to fit the new angle. They are all grounded in the same philosophy described above; however, they deviate from each other in a few ways regarding their approach, methods and choices.

The table below, 3.1, maps out the different aspects of the approach and methods to show where they overlap or differ. The following sections will explain these different parts, but having them laid out here for reference will also show the development from one question to the next, especially with the third question that looks to try new approaches. The final row of the table refers to the data collection that was the primary data source used to answer the question.

These data collections will be referred to in this section but will be explained in greater detail and specific steps in the following section.

Table 3.1: Breakdown of philosophy and approach based on each question for the project.

QUESTION ONE: **What characteristics define a porn site?**	**QUESTION TWO:** **How do users interact and search on a porn site?**	**QUESTION THREE:** **How does a porn site's categories change over time?**
POSITIVIST (SEMI-PRAGMATIC) PHILOSOPHY		
DEDUCTIVE		INDUCTIVE
QUALITATIVE	MIXED-METHOD	QUALITATIVE
DESCRIPTIVE/SCIENTIFIC METHOD RESEARCH		DESCRIPTIVE
CROSS-SECTIONAL		LONGITUDINAL – RETROSPECTIVE STUDY
COLLECTION ONE: *Characteristics Data*	COLLECTION TWO[1]: *Front Page Data* COLLECTION THREE: *Interaction Data*	COLLECTION FOUR: *Pornhub Category Data*

3.3.1 Question One's Approach, Collection & Methods

The first question: What characteristics define a porn site? sets up the definitions that will be used for the following two questions. The questions are developed to be reactionary as the study progresses. By reactionary, I mean that one reacts to the findings or conclusions and leads onto the next as a form of experimentation and evolution during the project's development. The overall approach was centred around the belief that the definition of porn does not incorporate more contemporary technology, like the internet, when looking at how it is distributed, displayed and searched for by users. Similarly, Information Studies do not incorporate porn into much of their theory or studies on search behaviours or Information Seeking. This creates a parallel gap in the literature of both fields that could be combined and expanded. Looking to the theories in the established literature to find and expand the meaning through a positivist lens looks to the established websites to uncover general details to bolster

[1] Not specifically used in data analysis but used to inform Collection Three and Four.

the facts and meaning to achieve this. The need to define porn within these contexts is to lay the groundwork for the following questions while also defining the nature and environment of the sites and the thesis – giving the research and reader the same point of reference.

The first question used a deductive approach that looked at observed qualitative data and theory to assess the established definitions and create a new one with testable descriptive characteristics. It then determined the data and characteristics to provide a new definition for the following questions to be mapped against.

3.3.2 Question Two's Approach, Collection & Methods

When answering the second question, How do users interact and search on a porn site? a more semi-pragmatic philosophy was used. Combining the qualitative definition and characteristics created in the first answer with more quantitative data, the answer explores the ideas around search tactics on porn sites. This question was formulated from answering the first. For the first and second questions, the descriptive research and scientific method were based on secondary analysis of literature sources for previous definitions and characteristics with primary descriptive observations mapped onto current sites. It was based on the belief that the interactions and search tactics would provide insight into how people may employ primal tactics to gather and interact with this information. It would further assess the need for speed and exploration via tags, thus making accurate search results secondary for the user by using a deductive approach, like the first question.

Using the descriptive and scientific method when collecting and interpreting the data on the interactions collected, it drew attention to the breadcrumb trails or communication between the sites' users. It also highlight their creating of finding aids and community creation. To answer this question, the data collection and analysis were based on the theories and characteristics set out in the answer to the first question, creating a reactionary testing of the definition. It also considered more theories introduced in the literature review to further the tests with theories around Berrypicking, Information Foraging and Information Architecture to guide and structure the testing and analysis.

3.3.3 Question Three's Approach, Collection & Methods

To answer the third question, How does a porn site's categories change over time? the approach was, again, reactionarily led by the data to experiment and test the answers from the previous questions to explore the language through new methods not found in the literature; yet still using a more positivist and semi-pragmatic approach.

The third question hones in on a particular site, Pornhub, and a particular aspect of the previous question, categories and tags, to look at how the interactions provide and change the Controlled Vocabulary on the site over time. Using a retrospective longitudinal approach, this novel method could test the descriptive data for many years without needing years of observation. Though not without its flaws, the achievement of the site that was captured based on its traffic allowed for an abundance of potential data to be collected that provided the changing categories for this study and all other layouts and characteristics that could be expanded upon. Taking out the need for time while still providing solid data trends as evidence of change made this method robust and useful in testing this question. For the third question, the descriptive research was mapped and tested on one specific site to test the claims and hypotheses posed in the previous two questions. Again, this part of the study evolved from the previous data collection. This time, the question was approached more pragmatically, using data that could be tested to give nuance to the previous conclusions in Question Two.

This was based on the belief that the language of these sites is used for many reasons and can adapt to fit the needs of the users and their search tactics, as tested in Question Two. Looking specifically at categories and tags, Question Three sets out the idea that the indexing form the site creators and site users create "the breadcrumbs" that form language to aid navigation. They are the site's efficient communication of its content and how it is organised. Categories beget facets beget community tags. Tracking and testing this language through the qualitative data provided answers to Question Three. For all three questions, I have chosen to use a mixed method; however, it focuses more on qualitative data. The choice to use more qualitative data was to maintain the more human and holistic elements of the website users in the project. The quantitative data used serves more to build a richer picture of the user experience.

3.4 The Data Collections

Now that the foundations and thought processes have been laid out for the project, the next section will detail the different data collections referred to in Table 3.1. They will show where the specific methods were used when collecting the data, the study design and the steps used to collect the data to make replication possible. All four collections will be detailed below with some analysis with more data analysis is in each chapter as the data relates to each question.

In Table 3.2, for easy reference for each data collection. Like Table 3.1, it relates the collections to each question; however, this table provides more details on the aims and reasonings. Again, showing how each progression in the project was reactionary to the results of the previous question/collection. The table also details the methods and data collected for each.

Table 3.2: Break down of the different data collections and how they fit into the research project.

Number of Collection	Title of Collection	Aim & Reasoning	Methods and Type of Data
Collection One	*Characteristics Data*	**Aim:** To map the characteristics of regular sites and porn sites. To answer question one: What characteristics define a porn site? **Reasoning:** The belief that all websites have the same general layout and structure to be recognisable and usable. Porn sites also employ the same design, structures and layout but have not previously been recorded together. By recording the characteristics and features of the sites, they can be compared and contrasted to mainstream sites and porn sites, answering Question One.	**Method:** A collection of various types of porn and mainstream sites breaking down certain characteristics in a framework to show how they compare and contrast. Providing a list of search options and interactions on the sites. **Data:** The data is qualitative.
Collection Two	*Front Page Data*	**Aim:** To record the top categories of a site as they appear to the site user. **Reasoning**: Centred around the belief that the front page of a porn site is the first point of contact for the user to start searching and use the categories instead of the search bar. The number of categories gave a view of the spread of the content on the site and how the categories and content change. This collection was devised by *Collection One/ Characteristics Data* by mapping the characteristics of the front page to give deeper context about the site content. *****This data was used throughout the study by informing other collections, like *Collection Three/Interaction Options* and *Collection Four/Pornhub Category Data,* but not specifically to answer a question. The process could be used in future for further research.	**Method:** A collection of categories listed in their original order as they appear on the website's front page with their associated number of videos attributed to that category. Emphasising the content and changes of the site. **Data:** The data is semi-qualitative and quantitative.

Collection Three	*Interaction Data*	**Aim:** Using the list of interactions (including views, tags, likes, upvotes, downvotes, and number of comments) for the site and specific video details (like duration) to see how users interact with the content on the site. With the aim to answer question two: <u>How do users interact and search on a porn site?</u> **Reasoning**: By collecting data on the interactions and how many times they were used by my site users for a film will provide insight and clues about how users interact and search the site. When compared to secondary data about the site's traffic and length of stay on the site. This will expand on the ideas from the previous collection about what the site looks like in *Collection One/Characteristics Data* and what it offers in content in *Collection Two/Front Page Data.*	**Method:** Using the list of interactions, the top ten films from the top ten categories from *Collection Two/Front Page Data were* observed and recorded for the number of interactions on each list. Creating a list and types of interactions on videos on the sample of sites. **Data:** The data is semi-qualitative and quantitative.
Collection Four	*Pornhub Category Data*	**Aim:** To look at a specific site and how the categories changed over time. The aim is to answer question three: <u>How does a porn site's categories change over time?</u> **Reasoning:** In *Collection Two/Front Page Data,* the amount of change was small and hard to track, but the changes could be seen. By expanding on one of the factors, time, the changes could be seen in an expanded form and offer a faster way to see the evolution of a porn site, its categories and content. The categories would show the changes in the language on the site, how the site's organisation structure has changed and how it continues to evolve to support the search tactics set out in question two.	**Method:** Using the Wayback Machine Internet Archive to create a retrospective study of one site [Pornhub] to record the categories with the associated number of videos on the site. Categories and numbers were recorded for each year and kept in original order as they appeared on the site to show category changes over time. **Data:** The data is semi-qualitative and quantitative.

3.4.1 Collection One: *Characteristics Data*

The first data collection, Collection One*: Characteristics Data,* was centred around the different aspects of the site, most notably the content and characteristics that make up the site's front page for the user. The selection of types of sites took examples that were mentioned in the literature and how they provide different forms of consumption of porn online. The types of sites chosen below are defined as sites that have historically evolved and grown online, as discussed in the literature. The aim was to see what options are available to users across all websites and whether porn fit into this list or had any unique options. The process was simple when selecting sites from the top searches through Google and observing the site. Each site was chosen for its top rating, position in the search results, or popularity. Each site was then noted for its key features based on the site's genre. The entire sample was from various sites that offered different types of porn options to give a wide array of sites available. The options included for this study were

DVD and Sex Toy Sellers
Video Streaming Sites
Video Streaming Sites for Women
Cam Sites
Game Sites
Search Engines
Written Erotica
Social Media

The number of sites that were chosen for each category of site was dependent and relied on whether the options were repeating themselves or the already chosen sites were alike and a third would be redundant. At least two were chosen for each. Because porn video streaming sites were the chosen focus of the thesis, two additional sites marketed to women were also chosen for this category as possible outliers for the data. Each site was tested against a small framework that collected details on the following:

1. Layout - defined as how the site looked and where options could be found on the screen.
2. Ways to Interact - a list of options the user of the site could do as an outcome of the site.
3. Search Option - a list of available menu, search and sidebar options.
4. Design - the colour of the site and the overall aesthetic.
5. Organisation - the type of indexing of the site’s content.

This framework was compiled from the various ways other mainstream sites were broken down in the literature and took the lead from the sites themselves and how they were displayed. The

layout, search options and design were recorded based on examples from other sites like social media discussed in the literature. The site and observation followed the ways to interact, and the organisation looked for examples that could be used to index that followed the literature on the organisation. The study's design meant that all the data collected was observational and descriptive, primarily of the front page, and collected in a Word document. The data was qualitative, with any interpretation based on the similarities and differences between the options noted for each site. These characteristics were drawn into a list and compared to other observations of other sites. The characteristics were tabled and compared to other sites on the internet.

Steps for Collection Two: Front Page Categories

Step 1: From a search engine, search for “DVD and Sex Toy Sellers.”

Step 2: Select a sample of sites randomly or in order.

Step 3: Open the site and, using the five framework options above, take descriptive notes.

Step 4: Find the next site and continue the same process.

3.4.2 Collection Two: *Front Page Data*

The first data collection was to capture the general features on the front pages. For Collection Two*: Front Page Data*, the data collection was created to focus on video streaming sites and the two sites for women from the first question. This data collection took the sample of video streaming sites from the first collection as a starting point to look at the front pages closer. These sites include:

Pornhub
Pornhub Gay
XNXX
YouPorn
Porn.com
XVideos
ForHerTube
Bellesa

These sites were chosen in two batches and for two reasons. Five of the sites, pornhub, XNXX, YouPorn, Porn.com and XVidoes, were chosen by searching using Google for ‘free porn.’ This search tactic was to capture some of the top and most popular porn sites online. The other

three, Pornhub Gay, Bellesa, and ForHerTube, were chosen by looking for ‘free porn for women’ to incorporate other sites that would provide possible different motivations and users to compare to the initial five. Pornhub Gay is not specifically for women but was part of the search results and had the potential to incorporate an LGBTQ+ outlook too.

This collection gathered qualitative and quantitative data from each front page for each site, creating a mixed-method outcome. Again, this study was designed to be descriptive and observational by recording what the front page showed. This involved viewing the front page and recording all categories in the original order they were presented and with the number of videos attributed to them. All the data was collected in an Excel spreadsheet for further interpretation. This data collection was done three times for the study over the course of three months – once a month. The reasoning was to track any changes to the order and the content at this time.

Steps for Collection Two: Front Page Categories

Step 1: Select the site from the sample list and open the URL to the front page.

Step 2: Take note of the categories in order in one column on an Excel spreadsheet with the number associated next to them in another column.

Step 3: Repeat this step for another site using another sheet on the Excel spreadsheet.

Step 4: Continue these steps with each site until all the sites are recorded.

Step 5: Repeat this process after a month for all the sites.

Unfortunately, this data collection was not used in any specific chapter or data interpretation to answer the defined questions. This was due to the disparity between large amounts of collected data, but the time it was collected showed little to no change. Also, interpreting the data to show the site's content presented specific challenges that led to little insight. As the categories could overlap, comparing each category to the total number of videos on each site showed a wide spread of content. Still, more general categories, like *HD Porn* or *Gay*, dominated the content percentages. This collection did inform the following two collections, so I still chose to include it here and it can be incorporated into future studies.

3.4.3 Collection Three: *Interaction Data*

The third data collection, *Interaction Data,* was created from the *Characteristics Data* and *Front Page Data*. While collecting the front page data in both collections, it was clear there were many options available to users, and this third collection's main aim was to record that. This collection focused on one level deeper into the site, looking at a sample of individual video pages. The top ten videos listed on the site for each of the top ten categories, as they appeared on the front page, were recorded for the following interaction data attributes:

Main Category
Title
Length
Views
Approval Rating
Upload Date
Upvotes
Downvotes
Hearts
Categories
Community Tags
Content (brief time coded description of the film)

This, again, was descriptive and observational in its study design recording, on an Excel spreadsheet, what was seen on the site with little manipulation or interaction.

The top videos from *Front Page Data* informed the sampling of top videos used in the first collection. The top ten videos for each site's top ten categories became the sample and were then observed and recorded for the different interactions. From there, the videos were analysed for their interactions. The interactions were analysed to provide a bigger picture of how site users use its options without the need for human participants. Over five hundred videos were recorded for this project. Some sites do not have comparable interaction attributes, so they were skipped. The data created was mixed-method, providing quantitative numbers with qualitative attributes that enrich the data with context for hypotheses and inferences about the user experience and searching on the site – allowing it to be interpreted more easily for Question Two in *Chapter Five*, where it will be explained more.

Steps for Collection Three: Interaction Options

Step One: Select the top ten films from the top ten categories on the first selected sight.

Step Two: Record data for each interaction attribute in a separate column.

Step Three: Record the interactions for each video in separate rows on the sheet.

Step Four: Select the next site in the sample and repeat Steps One, Two and Three. Continue for each site in the sample.

Step Six: For any site that does not have these options, skip. Collect as much data as possible for sites with only some options.

3.4.4 Collection Four: *Pornhub Category Data*

The fourth collection, *Pornhub Category Data*, focuses specifically on one website from the sample to gather the data. In this instance, the website, Pornhub, was chosen for its ubiquity, age and popularity as an exemplar site. This data collection was again a reaction to *Front Page Data* by looking again at the categories on the front page as its data source. The study was designed to be descriptive, like the others, but this one takes the time element a step further by employing the Wayback Machine to retrospectively expand the time period for data collection on the site. The categories for each year are collected in their original order by selecting each year from the Wayback Machine since the site's creation in 2007. These categories and the number of videos attributed to them were recorded in an Excel spreadsheet. The interpretation of the data shows the growth, changes, and constants of the categories over the years and how they compare to the community tags added from *Interaction Data*, which will be expanded on further in *Chapter Six.*

The method creates a qualitative data sample that can show the changes to the top categories on the site that go beyond its original order. The qualitative data was quantified through categorisation and interpretation, which makes the data semi-qualitative and quantitative. Any site snapshot that was not correctly archived or the data was indecipherable was recorded as zero – this only happened twice. The number of videos for each category was also recorded in this collection but was not used in the project. However, it can also be used for future research.

Steps for Collection Four: Wayback Machine Category Changes

Step One: Search one website from the sample of sites.

Step Two: Search the Wayback Machine for the site's URL.

Step Three: Find the site's earliest recording in the archive.

Note: Some sites might have different uses or owners before the site you may be looking for, so check this against the site's creation date.

Step Four: Find the site's front page and record the categories in the order they are listed in one spreadsheet column.

Step Five: Record the number of videos attributed to the category in another column.

Step Six: Return to the Wayback Machine, pick the following year and record the categories and number of videos.

Step Seven: Continue for each year recording the data until the present day.

3.5 Data Analysis

All of the data was collated and analysed for each of their corresponding chapters. The data was synthesised into Figures and Tables to provide further information on noteworthy highlights, outliers or relationships for answering the questions. This analysis is particularly important for *Chapters Five* and *Six*, where most qualitative and quantitative data is vital in creating the speculations or conclusions for each. As the sample size for the videos was only 560 and not very large, this allowed the data to be manageable in Excel. It also allowed the data to be analysed differently to find the best and most encompassing outcomes. More of this is found in their corresponding chapters to provide background and understanding. Also, in *Chapter Five*, SPSS was used to calculate the correlations between the many different types of interactions using a few formulas to test and experiment. All additional figures and tables can be found in the *Appendix* at the end of this thesis to support the findings described in the chapters.

3.6 Hypotheses and Risks

The project had many stages and evolutions that could be seen throughout the data collection process. These exploratory and experimental approaches led to many hypotheses that helped formulate the questions and subsequent data collection. This section will discuss some of those hypotheses related to the data collection in retrospect and tie them to the questions they aimed to answer. It will also discuss the challenges encountered during the data collection and any risks that could be associated with similar studies to mitigate them in the future.

3.5.1 Hypotheses

Before carrying out the work, some hypotheses were drawn to make educated guesses about what the data would show and what it could answer. In Table 3.3, I have laid out some of the hypotheses the project aimed to address and how they relate to the three main questions and data collection. The very first hypothesis for the project was that the definition of porn does not accurately incorporate porn websites. While reading the literature, this was assessed, and through the data collection in *Characteristics Data,* the hypothesis was deemed valid and addressed in Question One. The second hypothesis surmised that most people do not search for porn as they may for a video on YouTube; they use the categories for navigation from the front page with one hand or a few clicks. As no data was collected in relation to this, as it was hard to track without human participants, many secondary sources were found that did have possible answers and could be combined with primary data when answering Question Two. The following hypotheses, see Table below, were also assessed, tested and addressed in their respective questions with specific data that allowed them to be answered with a specific statement on causality or at least a generalisation by the end of the project.

Table 3.3: Some hypotheses and how they relate to the research questions and data collection.

HYPOTHESIS	**QUESTION**	**COLLECTION**
The definition of porn do not accurately reflect contemporary internet porn.	Answered in Question One - *Chapter Four*.	Collection One: Characteristics Data
The way people search for porn is via the front page and by clicking categories.	Partially answered in Question Two - *Chapter Five*.	Literature and Description
Most users use a porn site very quickly and only view the videos.	Partially answered in Question Two - *Chapter Five*.	Collection Three: Interaction Data
The categories on a porn site have changed drastically over the years.	Answered in Question Three - *Chapter Six*.	Collection Four: Pornhub Category Data

3.5.2 Challenges

One of the biggest challenges while collecting the data was maintaining accuracy, especially with the categories and tags that may incorporate miss-spellings, acronyms or colloquialisms as standards and being aware of any auto-correct feature that could edit them. The use of Excel mitigated that issue. It was also a challenge when the sites differed too much, and the data could not be lined up or compared easily. The last challenge affecting the data collection was the rapid changes to these sites. The time given to collect the data was limited on purpose as too much time mid-collection could result from drastic changes on the site. For example, Pornhub purged over ten million videos off its site in October 2020[2], which led to a domino effect and change to its categories and videos displayed on its front page. It was a conscious decision to collect the data in ways that could be done quickly and at once without the risk of the data shuffling or not lining up again.

3.5.3 Risks

Before carrying out the data portion of the research, some risks were assessed to ensure a smooth outcome for the collection. The table below lists some common risks that were thought about before the data collection began.

Table 3.4: Some of the risks considered before carrying out the project.

RISK	**RISK LEVEL (high, medium, low)**	**MITIGATION**
Stumbling on illegal content	medium	Report directly to the site's channels. Do not independently investigate or watch further.
Mental fatigue	high	Incorporate breaks in every part of the process and speak to an advisor for support.
Long-term porn exposure	medium	Take breaks every few hours and speak to an advisor for support.
Human/computer error recording data[3]	medium	Take screenshots for recording later or carry out one site at a time with breaks.

[2] Due to a legal battle over undocumented videos and unverified content creators.
[3] This included human error through recording and human error within any tags that incorporated misspellings or slang that may be autocorrected on the computer.

In retrospect, these risks did not materialise during the data collection due to the awareness and planning given before the work. No illegal content was found during the data collection. The mitigation techniques for the other risks, such as taking breaks, were seamlessly incorporated into the workflow and are credited with preventing other issues.

As the project took a more positivist approach, there was less emphasis on concluding and more on building a framework and methods for what standard porn video streaming websites look like, with more general than specific conclusions to be formulated. Any illegal content had an additional plan as part of the data management plan to report anything suspect through the website's dedicated channels and refrain from watching further or investigating independently. Also, as part of the data plan, there was the incorporation of breaks or limits based on time per day so that there was no pressure to continue working for more than five hours a day or more, thus burning out or exposure to too much content. Things like screenshots and notes taken throughout would be employed to help refer back to data and reduce human error. Breaks in the workflow would also help with human error.

3.6 Scope and Limitations

This section will discuss the scope and limitations of the methodology and data collection. Some limitations were applied to the data to narrow the questions, focus the interpretations, and provide answers or speculations. Sometimes, the scope was due to factors on the site that led to data needing to be recordable or having to be worked around. At no point was the data so limited that a conclusion or generalisation could not be made for the project. The experimental approach laid out when carrying out each data collection allowed for scope, limitations, workflow, data collection and, eventually, interpretation to be flexible.

Also, the scope of this project did not incorporate human participants. This was decided for many reasons. The project started during the COVID-19 pandemic, and the uncertainty of the situation led to new ways of working. Thus, new methods of looking at human interactions on the sites through the evidence of their interactions was chosen. The study could remain flexible without needing ethical approval by not using human participants. However, some sort of human testing or surveying would be of interest in the future and discussed more in *Chapter Seven*.

3.6.1 The Sites

The sampling method was chosen based on the Spink and Jansen (2004) study on how people search for sexual material using search engines. Based on location, that meant that all of the sites were from english-speaking backgrounds and with primarily western content. This bias is noted but does not discount the existence of other sites from other perspectives. This point is flagged up here as a limit to this study and a point for further research. Regardless, the sites that created the sample covered some of the most widely known and used internationally, chosen for their ubiquity. This allowed the users of the sites to be generalised where any future study could build on this to find nuances. As with much of the data online, all of these sites' popularity, rating, and existence are prone to change, so the sample of sites is also a product of the time. The site's scope could also be expanded and include more sites or a more even split with sites for women. The sample that was chosen shows a wide spread of characteristics and attributes before repeating themselves too much and becoming redundant.

3.6.2 The Videos

The same could be said for the videos. A wider selection of videos from various categories could have been selected. In this instance, popularity was prioritised when sampling. This was inspired by and taken from Burgess's (2009) study on videos on YouTube. The aim was to take a sample that was with purpose. The sampling relied on each site's algorithm that is assumed to centre around popularity and interactions from users then displayed on its front page.

Some sites did not adhere to the changeable top categories listed on the front page. For example, with sites like Bellesa and YouPorn, there were not ten in their top categories, only eight. So, only eighty videos were recorded. Some sites like ForHerTube and XVideo led to completely new sites that did not align with the rest of the sites or were just video content at a specific URL address, so not all the data could be collected in the same way, consistently with the other sites or at all. In the end, 560 videos were recorded – 100 videos for each Pornhub, XVideos, XNXX, Pornhub Gay and 80 each for Bellesa and YouPorn.

3.6.3 Time Horizon

Time was not a major factor in much of the collected data. For Collection One: *Characteristic Data* and Collection Three: *Interaction Data*, the data was collected once in a single collection to explore making the data cross-sectional. Collection Two: *Front Page Data* also attempted a

cross-sectional time horizon by recording data over the course of an allotted time period. However, as explained above, the time was not long enough to track any noticeable changes and was not interpreted in the project with time as a factor.

Collection Four: *Pornhub Category Data* was the most tied to time, with a factor of the year serving as a factor but one observed in a single data collection rather than over a period of time. This fourth collection attempted a more longitudinal data collection technique. Retrospectively longitudinal because the Wayback Machine allowed the data to be collected simultaneously while providing changes over many years – following a more retrospective study of the site's history and the data. This experimental approach allowed the qualitative data of the vocabulary to be compared to the data point of the year for any possible causality for change, if any.

3.7 Conclusion

This chapter discussed the methodology and positioning around the three parts of this study with the steps to carry out the data collections relevant to this project for easy replication in the future. As discussed, all three data sets relied on each other but provided insight independently creating the three parts of this thesis. These sites change so regularly that replication may be impossible, so this study acts as a record for this time as well as an exploration and experimentation into the many ways data can be collected. Each set will be explored, interpreted and visualised in the following chapters to answer the three research questions.

PART ONE

CHAPTER FOUR: THE ARCHITECTURE OF ADULT SITES

4.0 Introduction

This chapter will introduce the initial stages of the project and create the definitions that will inform the succeeding sections of the thesis. This section will also answer the following questions:

1.0 What do porn sites look like?
- 1.1 What characteristics do they share with other sites?
- 1.2 How are these sites and characteristics created on porn sites?

The first question will look at a selection of porn sites that offer a wide variety of options for users. The sample of sites focus on specifically english-language and western sites for this study. Although many of the sample sites are used internationally, it is a point of interest for future research to possibly look at others that divert from this trend. The different types of porn sites will create a picture of the types of content, along with some historical context and technological advancements that came with them. These categories of sites will show the challenge in defining porn in the modern day, before choosing, video streaming sites as the main focus due to their popularity, ubiquity and relation to porn media, and history. The sites will be broken down with a list of characteristics that will provide the framework for the following chapters.

To test its validity and porn's relation to the rest of the internet, the characteristics will be tested and compared to other types of websites. These characteristics will draw upon principles of Information Architecture and show how video porn sites straddle a variety of different types of websites. These comparisons will show how a porn site is structured based on its features and general design – contextualising it within the rest of the internet.

In the final part of this chapter, the general structure of these sites will be tested by looking at a sample of top, currently active, porn video sites. These sites will incorporate a selection of popular sites with a sample of two marketed towards women, as described in *Chapter Three*. The characteristics set out in this section will be mapped against them. They will also be compared and contrasted on the various elements that create the site's design and if a standard emerges.

By the end of this chapter, a detailed picture of what porn sites look like, how they compare to other sites, and how they define themselves within the rest of the internet will be captured and used as the framework for the rest of this thesis. Drawing from media studies that specifically look at porn and their definitions with an Information Architecture that specifically looks at how a site is laid out or organised will create the structure for this exploration. This ubiquitous and controversial media needs more definitions and ways to categorise it to increase understanding. The comparison to other types of porn sites, other types of mainstream sites and other video streaming porn sites will test hypotheses and speculations and provide the foundations for the following chapters.

4.1 What does a porn site look like?

There are many different types of websites on the internet that deal with porn and cater to a variety of users' needs. Some refer to this as Porn 2.0, a play on Web 2.0, websites that offer more user-based interactions and dynamic sites compared to the static sites of Web 1.0—referring to sites that feature user-generated content, social networking, webcam hosting, blogs, and interactive elements like commenting or categorising. These sites range in selling content, hosting content, selling products or even providing connection to producers or other porn searchers. Gone are the days of video rental, sex shops or specialised classified ads providing information on porn material. Instead of sending in an order form to get a DVD in the post, anyone can easily access a video at the click of a button. In the early stages of the internet, it is speculated that porn made up nearly 30% of all online websites (O'Toole, 1999). As the internet grew and the number of websites grew, this percentage declined, but the overall number of sites and their offerings increased. Now there are more sites dedicated to porn than ever before (Attwood, 2010, p. 75). All play into the multi-billion dollar industry that essentially goes unreported, so the exact extent and impact are hard to quantify, but their ubiquity highlights their power. This part will discuss the many different types of porn sites found online today.

4.1.1 DVD and Sex Toy Sellers

Sites that grew organically at the beginning of the internet mimicked the real world. With dial-up being the primary form of connection and internet speeds being relatively slow by today's standards, sites were simple static pages with simple offerings. Most porn sites sold videos like a video shop would, but this was now in the privacy of the user's home. The access to the

internet meant there was no need to risk the embarrassment of going to a shop. They could browse the VHS or DVD listings, order online with their credit card and receive the item straight to their door in discreet packaging (Paasonnen, 2007). The same is true for sex toy shops. Orders are taken online and arrive straight at the buyer's physical home. Based on the *Characteristic Data*, these sites still exist with sites like Adult DVD Empire, Your Choice DVD, Open Erotic and Amazon, all offering porn DVDs. Sex toy shops like Adult Toy Mega Store and Love Honey offer various items.

4.1.2 Video Streaming Sites

Once internet users could file share and learn to download, porn videos appeared directly on websites. They offer a wide variety of sites that offer an even wider variety of videos to watch instantly without needing a physical DVD or television. The computer became the television screen. They also offer much content for free. For many in the industry, this was the death of their career since they could no longer make the same amount of money if users had access to free content. Despite this, these sites grew in popularity and numbers, hosting some of the most considerable content and seeing the most significant online traffic (Similar Web, 2023). These sites have become libraries for much of the porn content online. They are the focus of the project and will be discussed further below.

4.1.3 Camgirl Sites

As internet speeds got faster, these earlier stages of the internet also saw the rise of webcam video. One of the most groundbreaking websites, Jennicam, was run by a woman who recorded herself and broadcasted it online 24/7. Though it was not specifically porn, Jenni is credited as being the first camgirl on the internet (Gauntlett, 2000). Now, camgirls are a regular occurrence online, with sites like Live Jasmin, Cam4Models, and OnlyFans offering live or recorded cam videos for subscription or one-off fees. These sites offer instant satisfaction like video sites but with the possibility of interaction with the performer. The user can also control the performer, the setting and, sometimes, the action of what they are watching, often for extra money.

4.1.4 Game Sites

The increase in internet speeds and video quality also allowed for games to grow online (Ryan, 2010). Some sites offer complete interaction with games. Websites like Porn Games and Gamecore allow users to pick and play a game as a character within the film. Games have

become more popular with the rise of virtual reality headsets and show porn's drive to offer new experiences and options to the public continually.

4.1.5 Search Engines

As the number of porn sites increased to tailor to all the user needs, wants and desires, there grew a need to organise or curate them, and porn search engines were created. Although porn sites are searchable, regular search engines like Google, Yahoo or Bing mix the porn results with other mainstream results or try to clean them from the results altogether (Ogas, 2011). PornMD and NudeVista curate a selection of sites that only offer porn and create niche search engines to streamline the user experience further.

4.1.6 Written Erotica

The push for these niche interests and online experiences has also seen a recent push for more women-friendly content (Grebowicz, 2013). Some sites cater to more erotica and fan fiction, which has seen an uptick in women's involvement and usage on sites like Archive of Our Own, a fanfiction website, and Dipsy, an erotic audiobook application. These further diversify McNair's idea of the *'pornosphere'* (McNair, 2013, p. 31). These sites are further examples of this production and consumption currently found online.

4.1.7 Social Media

Some sites aim to straddle the porn and social media world too. Sites like Fetlife are like dating apps, similar to Tinder, that set users up based on their fetishes. Sex.com aims to be porn's answer to TikTok, with users creating and sharing content. These sites have come a long way from the sex shops, online forums, and message boards (Coleman, 2014) and continue to show porn's overall aim to test the waters and try new technology.

4.1.8 Overview

There are many different types of porn sites online. Many of them grew from the real porn world, while others grew organically with the needs of their users. They still host a large portion of media on the internet, porn or otherwise, and still see massive amounts of traffic that rival many other mainstream sites. Due to the controversial nature of the content, much of the reporting on the traffic, the viewership and the monetary earnings are not fully reported, making it difficult to see the true impact of all of these sites. All of these types of sites cater and focus on porn, but

how they operate, are displayed, and work varies greatly. That is why it is essential to focus on one type of site in this thesis; video streaming porn sites.

4.1.9 Focus: Video Streaming Porn Sites

Video streaming porn sites can host many options mentioned above, but their primary focus is providing adult video content. Video sites were chosen due to their easy access and usability. Video sites have been around for a long time. They remain consistent in their popularity, organisation and content, making them an ideal candidate for studying the characteristics and systems built around them. Their consistency contrasts to other sites that adapt or hide much of their content behind paywalls. Video streaming sites offer a wide amount of content and allow most of the site to be seen for free.

4.1.9.1 What is the definition of a video streaming porn site?

Video streaming porn sites are ideal for furthering the discussion around the definition of porn overall. They are sites that focus exclusively on porn media and content, unlike other sites that may be mixed with other mainstream media or are more product-focused. It will also update the definition of porn media with a primary focus on internet porn. In contrast, the previous literature has specifically focused on the understanding of porn to be DVD/VHS- and cinema-centric. These are well out-of-date and hinder conversations about porn, setting it back in time with little understanding of where the media is today. This need for a contemporary definition makes the questions essential and lays the groundwork for how the rest of the thesis will look at the porn media. It will contextualise itself in the multidisciplinary theoretical literature and move beyond it out of necessity.

For this thesis, a specific definition of video streaming porn sites will be defined based on the main focus of a porn site is adult entertainment. Morville's view on Information Architecture will inform the project by showing how the sites are defined through their design. When mapped to concepts from Information Architecture ideas around Information Seeking can also be defined and expanded. A porn site's definition and structure go hand in hand. Information on a porn page is organised using categories, which Morville defines as, *'... categories, options, and links in language that (hopefully) is meaningful to users…'* (Morville, 2007, p. 42). The labelling system on a video streaming porn site is the first thing users see. They start the search. The definition created in this chapter will inform how the site is design, labelled and organised to promote its specific type of searching on video streaming porn sites..

Morville further discusses the use of organisational systems: *'Organization systems present the site's information to us in a variety of ways […] or to specific audiences'* (Morville, 2007, p. 43). A video streaming porn site's organisation system may compare or mimic other sites, like YouTube. It will contain categories and visual cues that will set it apart. The front page is a navigational tool described to, *'...Help users move through the content, such as the "A-Z Directory" and the "Go Quickly To..." menu of popular destinations' (*Morville, 2007, p. 43). By looking to how other sites are designed and operate concepts can be borrowed and applied to porn to extract the ways in which a video streaming porn site caters to its '*specific audience.'*

Following a survey of various types of porn and mainstream sites, the following is a list of characteristics that define video streaming porn sites specifically:

1. Categorisation system - for indexing content
2. Organisation System - for search functionality
3. User-content driven - interactions
4. Front Page with listing recommendations
5. Monetisation like user accounts, subscriptions and monetisation

This paper will use these characteristics to interrogate a set of sites and their architecture and functions. Creating a list of characteristics as definitions also creates a language and, eventually, a form of Standardisation for these sites.

Overall, these characteristics when applied to video streaming porn sites help to show that they are thought about and organised with intention. These characteristics, as defined by the main aim of the sites being for adult entertainment, can now provide a more comprehensive outlook and definition. The sites have categories and tagging structures to give users a well-organised and easily navigable experience. They offer an overall organisation system for searching with ease and provide user-driven content and feedback that is communicated throughout the site. But they are clearly and immediately on the front page with recommendations. The monetisation is the final characteristic in the list and worth mentioning but will not be explored deeply in this thesis. These characteristics will provide the framework to interrogate a sample set of sites and their architecture and functions. By creating a list of characteristics it also creates a language and, eventually, a form of Standardisation when looking at these sites.

4.2 What characteristics are similar to other websites?

This section will explore and discuss the elements defining a porn site compared to mainstream sites based on the above characteristics. Many sites will be different but may have overlapping aesthetics, features, and designs, with video streaming porn sites. Characteristics can be used as a benchmark to similar sites like YouTube. Thereby discussing the validity of the list of characteristics created and exploring which mainstream sites the video streaming porn sites align with best.

There are many types of websites on the internet. They can include e-commerce sites like Amazon and eBay, social media sites like Facebook and Instagram, entertainment sites like YouTube and Netflix, personal blogs, government sites, search engines and more. However, porn sites are more sensitive and controversial. While some studies may look at adult content online, it is still few and far between and often set outside an accurate reflection of the websites. When porn sites are included in the discourse it is often shoehorning them into one type for ease and homogenisation rather than define them as their own entity.

The critical first step in defining porn websites is to define them in the context of the rest of the internet. This step means finding already predefined categories of websites that suit porn sites. It is important to remember that a porn site's sole purpose is to provide adult entertainment. This purpose makes it unique but difficult to define these types of sites. However, we can look at the characteristics of the sites listed above to help see the most closely related based on their Information Architecture features and characteristics.

4.2.1 Aggregator Sites

When looking at similar sites, aggregator sites are the first to come to mind. These sites are content or video aggregators that collate videos and content together in one place for the user from various sources, just as a porn site does. The sites offer the usual search option bar and a front page offering users the most popular or relevant videos. *'As a media company, YouTube is a platform for and an aggregator of content, but it is not a content producer itself'* (Burgess, 2009, p. 4). So, like porn sites, the content is user-driven. 'It is an example of what David Weinberger (2007) calls '*meta businesses'* - the '*new category of business that enhances the value of information developed elsewhere and thus benefits the original creators of that*

information.' Unlike Netflix, YouTube offers more specific options like tagging and community tagging like porn sites do providing more user-driven development on the site.

The sites can also link to the paid subscription features that offer more content to subscribers and access to more catered search results. The features of a monetised subscription account will not be discussed in this thesis but is another essential point to help define these sites. The sites also incorporate features like upvoting, downvoting, ratings, adding to a viewing queue or playlist, and comments as part of the user's interactive elements to individual videos. For sites like YouTube, the videos also have dynamic thumbnails that provide a sneak peek at the video, similar to Netflix playing automatic trailers when a cursor hovers over them. Sites like Pornhub operate the same way. The characteristics of a content aggregator site are:

1. Organises and collates content from various sources for easy searching
    a. Dynamic thumbnails
    b. Tags, Categories and Keywords
2. User-driven content
3. Gather content and information all in one place
4. Ability to update the content
5. Subscription option for commercialisation or monetisation
6. User-friendly design with interactive features
    a. Up/Down-Voting or Likes/Dislikes
    b. Adding video to a queue or playlist
    c. Comments
    d. Tags

Porn sites share many similarities with aggregator sites. They offer a way for content from various sources to be displayed on a single page in order to offer one location in which to find many types of porn. They also use organisation systems like categorisation and community tagging, to make it easier for users to search, navigate and find the content they are looking for on one site. This way of searching with keywords or categories is integral to finding the content users are looking for quickly and efficiently. Finally, both sites have options for monetisation. They both will have some forms of advertising throughout the site and offer subscription or paid access for more premium content in addition to the free content on the site.

However, porn sites can differ from aggregator sites too. A porn site may have content that does not adhere to copyright laws, rather than linking to the source, and has been stolen or re-edited by the uploader. A porn site also has a singular focus, adult content, and it could be questioned how much other media is incorporated into the site. Where an aggregator site could incorporate

videos, blogs, and articles, a porn site may focus more on just video content. A porn site could also be subject to more controversial censorship and ethical debates that could affect the running of the sites causing blocks in certain countries or the requirement for additional safety regulations, like age verification, to be added to the site's architecture or language. This constant monitoring causes the content to change rapidly but more due to the site's moderators or uploaders rather than any automated system an aggregator site would have. Most changes would be deletions due to copyright infringement or content not meeting moderation standards.

So while porn sites and aggregator sites share some similarities in function and design, they are also not the same in their operation. So, with all the similarities and differences in mind, the characteristics the sites share are

1. Categorisation
2. User-Driven Content
3. Organisation system
4. Monetisation

4.2.2 E-Commerce Sites

Porn sites being neglected in broader internet discourse is common but, when included, they are often categorised with e-commerce websites backed by the idea that they are both commercial. E-commerce includes some common examples like Amazon and eBay, which primarily focus on the trade and sales of goods, products and services. *'At the end of 2000 Amazon began to show a personalized welcome page that recommended books to each visitor based on that person's previous purchases.'* [...] This and other web technologies such as *'really simple syndication' (RSS), bookmarking of websites, and email updates etc., all allow individuals to feast on a tailored media…'* (Ryan, 2010, p. 161). The front pages of Amazon and eBay have a search bar. The front page shows products and information to entice users to start their search based on previous interactions. Each product has interactive elements with options to review, bid, and contact the seller. There is also the checkout option where the user provides personal details like address and card details to complete their order. So, the list of characteristics of an e-commerce page are:

1. Search option and categorisation with product listings
2. Shopping cart options
    a. Purchase/Bid
    b. Product Reviews
3. User accounts, subscriptions, and advertising
4. Customer service

    a. Contact seller
5. Security features

The theory sometimes frames porn within e-commerce because it wants to sell a product, i.e. the content. Porn sites have advertising throughout the pages with options to sign up and buy. This shift searching and need for content created a mutual drive for technology that created an obvious link between porn sites and e-commerce. Gauntlett writes,*'There is no doubt that the demand for adult entertainment sites led to a competitive race for technology in a world of e-commerce. Many of the innovative designs and technological advancements created, developed and refined by adult site entrepreneurs can now be found as an everyday part of non-adult sites'* (Gauntlett, 2000, p. 124). Like e-commerce sites, porn sites also have a subscription or user can choose to create an account that users can sign into to save preferences, searches, and items on the site. *'Mechanisms for online shopping, credit card processing, banner advertising, chatrooms, video streaming and general Web marketing were often pioneered by adult site developers'* (Gauntlett, 2000, p. 124). This mechanism also connects to any membership offerings the sites have, like Amazon Prime comparable to Pornhub Premium, that offer exclusive member benefits. Both types of sites offer a simple form of categorisation to aid in searching, like aggregator sites. They also include a recommendation system for the user based on what they have searched for before. They also both sustain their site through advertising and subscriptions similar to aggregator sites.

However, on closer inspection, porn sites have quite a few differences from e-commerce sites. The literature that once grouped them could be outdated due to the sites evolving their architecture, technology and business model. The biggest difference is that a porn site does not sell products. A user can purchase access to a film but still does not own a copy. Unlike sites like Amazon and eBay, which mostly sell physical items and have product lists. E-commerce also heavily focuses on transactions that require more options like contacting the seller, the shopping cart or tracking parcels. A porn site only has a shallow level of transaction activity available; its subscription and membership options. A subscription and membership are not always required for a porn site too. Where an e-commerce site needs many features and security measures, the porn site user may feel safer not signing up. There is a possible implication in a porn site's controversial nature that it cannot be trusted, so the level of user behaviour and transactions are nowhere near what they are on any e-commerce site.

So, in the end, only two characteristics overlap with porn and e-commerce sites:

1. User accounts, subscriptions, and advertising
2. Categorisation and listing recommendations

4.2.3 Social Media Sites

The next type of site that could be compared to a porn site is social media sites like Facebook and Instagram. *'Social media are web-based services that allow individuals, communities, and organisations to collaborate, connect, interact, and build community by enabling them to create, co-create, modifies, share and engage with user-generated content that is easily accessible'* (Sloan, 2017, p. 17). Facebook, one of the most popular social media sites, provides the user with a front page displaying content from people connected to the user's profile and from pages and companies. There have been several attempts to categorize social media and identify what technologies can be considered social media, Grahl for example, identified six types of social media applications:

1. Social networking
2. Bookmarking
3. Social news
4. Media sharing
5. Microblogging
6. Blogs and forums (Sloan, 2017, p. 18).

The six applications incorporate elements from aggregator and e-commerce sites. They display recommended content with dynamic thumbnails to the users, mixing it with other user content and advertising. Instagram differs in that it has no front page but a scrolling front page but, like Facebook, incorporates content from other accounts connected to the user with more commercial posts mixed in. Both sites offer search options, too, but not to search for more content. The primary purpose of the search is, arguably, for other users. Social media sites have many more interactive elements for the users, such as likes, comments, follows, and sharing. So from here, a lift of characteristics for social media sites are as follows:

1. Newsfeed (or similar) primarily with content; search option is secondary
2. Content generated based on user connections (e.g. Friends or Follows)
    a. User profiles
3. User/Community features - to create, share and interact with content
    a. Sharing
    b. Likes
    c. Follows
    d. Messaging
    e. Comments
4. Advertising

Porn sites share only a few similarities with social media sites. Coleman states that *'Social media environments have encouraged generations of web users to browse through a wide range of products while managing friendships and affectations around the products of sex entertainment'* (Coleman & Held, 2014, p. 214). Both types of sites incorporate user-generated content, uploaded or both to the sites for viewership. Coleman also refers to Chun's study, *'...of cyberculture foresaw that methods of navigating and archiving pornographic excess would be driven by a Foucauldian "will to knowledge," and an urge to build a sexual knowledge apparatus within online communities'* (Coleman & Held, 2014, p. 215). Chun refers to the various ways porn is disseminated in a culture, like peer-to-peer sharing, pirating, downloading and collecting, comparable to social media sites. The more data the user provides to the site, through more search history or profile information, the more tailored the site will be to the user's interests. It will also see advertising become more tailored and personal.

However, it is questionable how much information a user would add to a porn site and if it would be in the same way and the same amount as a social media site. It was already discussed in e-commerce about the unlikeliness of users providing personal payment information, so it seems unlikely they would do the same to bulk out a personal profile. Many social media sites connect with other users through their profiles. The use is very different for those who create a porn profile. The profile is more of a bookmark page to save and connect to their favourite videos and stars and provide access to the interactive elements of the sites, like commenting and rating. Unlike social media sites, the interactive elements are more impersonal than the interactions on a social media site that spark conversation, connection and opinion. A person can like a video on a porn site with other people, but they will not share any more connections than that. The content gains the main benefit from the interactions, as the more likes it gets, the more it grows in popularity.

While social media sites may have a similar layout or seem to provide similar entertainment when compared to porn sites, it is clear that they are very different, and their shared characteristics are only a couple, such as

1. User-generated Content
2. Advertising

4.2.4 Entertainment Sites

The final type of website this section will discuss is entertainment sites. Like aggregator sites, content-driven sites primarily focus on a particular media type, like music or videos. Spink and Jansen's study traced that as adult searches on search engines decreased, entertainment searches increased. *'The analysis shows a decrease in sexual Web queries from 1998 to 2002 and an increase in general entertainment and alternative information sources during the same period.[...] Of course, other factors may be influencing this trend, including other methods of locating online sexual materials'* (Spink & Jansen, 2004, p. 90). They trace this to a need to use more e-commerce sites, while speculating that users go directly to the site to find adult entertainment instead of via a search engine (Spink & Jansen, 2004, p. 93). They are usually sites with simple and easy-to-navigate pages that display a list of media in various categories and genres.

Sites like Netflix or Disney+ have a front page offering popular videos and options for watching with dynamic thumbnails when the cursor moves over them. Some sites, like Amazon Prime, are connected to more significant e-commerce sites to incorporate the media into their other product offerings. Most, if not all, of the sites require a profile and subscription created to pay for and watch the media. They also can interact but are often limited to saving the media on a list or queue or rating the media with a star or thumbs up/down vote. Compared to other sites, though, the advertising on an entertainment site like Netflix or Amazon Prime is not often tailored to the user but used to advertise itself and its other content. Unlike the other sites discussed, it does not incorporate external advertising as much. Finally, the last characteristic would be the regular updates the sites go through. They continually update their content and cycle out new and old shows simultaneously throughout the site to keep subscribers enticed.

1. Content driven - a particular type of media (video)
2. Front page with user recommendations
3. Profile and subscription required
4. Interactions
5. Updated regularly

Porn sites and entertainment sites share similar ethos and characteristics as both used to entertain users first and foremost. Gauntlett states, *'Early in the 1990s, however, a male group of innovative business people - come from highly lucrative careers in the fantasy telephone line industry - realised the tremendous opportunity for adult entertainment on the internet. A new genre emerged, and continues to be one of the fastest-growing businesses on the internet*

today: the adult entertainment site' (Gauntlett, 2000, p. 123). Their interactive elements are secondary. *'Nevertheless, the technology shifts rapidly, offering dynamic online dimensions to innovative adult entertainment sites. These sites range from sophisticated multi-million dollar corporate creations to amateur productions created with in-home disc cameras/scanners and video recorders'* (Gauntlett, 2000, p. 122). Porn sites provide adult entertainment, and although the content may differ from more mainstream entertainment sites, their architecture is still similar. Both sites are content-driven and often focused on a particular type of media: video. They also provide their user with front-page options and user recommendations. They provide user interactions, whether they be limited or comprehensive.

Porn sites, as mentioned, do offer subscription and membership options to users for a fee, but many sites do not require this to view most of the material. The subscription and membership would only unlock premium content, unlike Netflix and Amazon Prime, which require a subscription and fee to enjoy any of the content and even offer levels to their subscription options to unlock different levels of content. Entertainment sites are not user-created content, so their regular updates to their material are based on production, releases and copyright, similar to porn sites that may offer new releases or uploads. However, a more significant divide still defines it as user-generated content, unlike official commercial releases of mainstream media. Also, as discussed before, the regular updates on a porn site are often due to moderation instead of newly released content or marketing strategy. Porn sites advertise a wider variety of items and media, which sets them apart from mainstream entertainment sites. Advertising is a more secure revenue stream for the site since only a minority of users sign up for memberships and have a more niche and limited audience, unlike mainstream entertainment sites.

Porn and entertainment sites serve a similar purpose for different audiences and operate similarly. Their shared characteristics are as follows:

1. Content Driven
2. Front Page
3. Interactions

4.2.5 Which- sites are Porn Most Like?

From listing all the characteristics of the various sites on the internet and sharing them with those relevant to porn sites, a master list of characteristics that define them emerges. First, a collated list of the shared characteristics will show which overlap and combine into a single

characteristic; for example, categorisation characteristics appear for a few sites and are condensed into one. The shared lists are as follows:

Shared characteristics with Aggregator sites

1. Categorisation
2. User-Driven Content
3. Organisation system
4. Monetisation

Shared characteristics with E-Commerce sites

1. User accounts, subscriptions, and advertising
2. Categorisation and listing recommendations

Shared characteristics with Social Media sites

1. User-generated Content
2. Advertising

Shared characteristics with Entertainment Sites

1. Content Driven
2. Front Page
3. Interactions

A porn site can feature all these characteristics and provide the user with similar information or interactive options. All these sites also have overlapping characteristics between each other. It is clear that video streaming porn sites share characteristics with all of these sites and tailor them to adult content. Video porn sites collate media, like an aggregator, and are content-driven, like entertainment sites, but with more user-content, like social media. They may operate revenue streams based on subscriptions like e-commerce or entertainment sites but will not focus on products or mainstream entertainment. Alternatively, it could rely on advertising and content interactions like social media but be oriented to personal interactions and advertising.

4.3 How do porn sites' characteristics compare and how do they form a standard for porn sites?

Now the video-streaming porn sites characteristics are defined:

1. Categorisation system - for indexing content
2. Organisation System - for search functionality
3. User-content driven - including interactions
4. Front Page with listing recommendations
5. Monetisation like user accounts, subscriptions and monetisation

These five characteristics will serve as the backbone of justifying and defining the chosen sample sites. The eight selected sites; six mainstream, Pornhub, Pornhub Gay, XNXX, YouPorn, Porn.com, XVideos and two female-oriented ones, ForHerTube and Bellesa. The mainstream sites cater to a general user while the niche three cater to a more specifically queer or female audience. Each site was also chosen for its historical elements and impact as they relate to the internet and will be discussed to justify their use in the sample of sites. Whereas before, they were related to other types of sites online, this part will map the characteristics as they relate to various video streaming porn sites. By combining these two parts and creating the definitions, the question of how they relate to real-world examples.

Each site will have the characteristics mapped against them. They will also incorporate Norman's (2002) design elements that allow the characteristics to exist on the sites. It will incorporate the Information Architecture elements discussed above and connect them to the various designs on these sites, bridging the gap between the site creators and the everyday users of the sites. It also shows how the sites create a hospitable environment for fast searching by drawing heavily from the writing of Norman and his interrogation of the design of everyday things (Norman, 2002). Many of these sites will look very similar to other sites online, like YouTube. It will further solidify their technological advancements and current standings in the context of the internet and allow them to be more easily compared and contrasted by breaking them down into their essential elements.

4.3.1 Design and Usability

Norman discusses some basic elements that must be considered when creating good design. His principles include:

1. Use both knowledge in the world and knowledge in the head
2. Simplify the structure of tasks.
3. Make things visible: bridge the gulfs of Execution and Evaluation
4. Get the mappings right
5. Exploit the power of constraints, both natural and artificial
6. Design for error
7. When all else fails, standardize (Norman, 2002, p. 188).

All seven of these principles incorporate Norman's ideas of designing for the user with elements like Visibility, Feedback and Affordances that will also aid the user in the most efficient and enjoyable experience with a machine or system. Visibility is described as making *'relevant parts*

visible' (Norman, 2002, p. 99). What features invite the user to interact? Feedback would be giving *'each action an immediate and obvious effect'* (Norman, 2002, p. 99). A reaction from the machine or system that communicates to the user that something changed or worked. While Affordances *'makes sure that appropriate actions are perceptible and inappropriate ones invisible*' (Norman, 2002, p. xii). Make the use of the system the most obvious to the user so it cannot be used any other way. Overall, Norman asks that designers of anything *'make sure that (1) the user can figure out what to do, and (2) the user can tell what is going on'* (Norman, 2002, p. 188). Norman's principles combine to help create best practice when designing anything. When applied to a porn site they become particularly apt in pinpointing the intention of the designers and experience of the users.

Not all of these sites will incorporate all of these principles and elements. Still, they will support the backbone of the characteristics and lead to more consideration of the users, incorporated in later sections. These will be further supported with images from the front page of the sites to provide more visual aids to the description. By the end of this part, the sample of sites will further justify the definitions and list of characteristics created earlier. It will also start to look at the user experience of these characteristics and the site's architecture and will start to interrogate whether these sites work well for users.

4.3.2 Pornhub

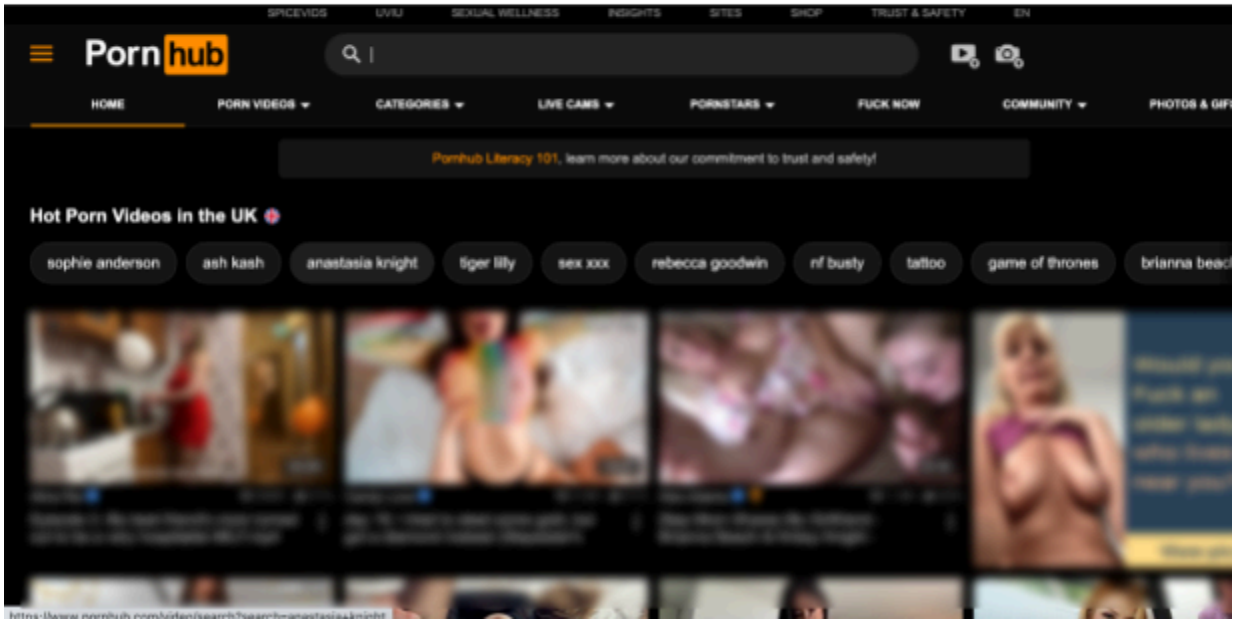
Pornhub is a Canadian-owned video streaming site (Web Archive, 2020). The site was founded by Matt Keezer and launched in May 2007. In 2010, the company was purchased by Fabian Thylmann under his company Manwin, now MindGeek. MindGeek took ownership of many other porn sites, like YouPorn and RedTube, making up the company's "Pornhub Network" (Web Archive, 2012). Thylmann sold off his company to Feras Antoon and David Tassillo, and now, at the time of writing this, the site has changed hands again and been sold off to a private equity company (AVN, 2022). Over the years, Pornhub has also introduced many technological features to the site to increase usability and interactive offerings. In 2013 the company introduced Pornhub Select and PornIQ, which created selected and curated playlists of videos for users based on their preferences, the time of day, their region and other factors. In 2017, they announced that they would start to use artificial intelligence to automatically tag the videos in their library (Biggs, 2017).

All of this growth and added features led to the popularity of Pornhub. *'In November 2022, Pornhub was the 13th-most trafficked website in the world and the second-most-trafficked adult website after XVideos'* (Web Archive, 2020). The website's impact through its popularity is plain to see with those statistics. They also significantly impact as one of the few sites to record and report on their insights. Regularly, the site publishes statistics and visuals on top search terms with breakdowns of users. These reports informed the site's characteristics while informing the natural world and were called *'the Kinsey Report of our time'* (O'Connor, 2017).

4.3.2.1 Characteristics and Analysis

The homepage, shown in Figure 4.1, starts with a selection of videos based on the most watched videos "*in your area*" on the site. Each video is shown with its title and thumbnail, and when scrolling over each, a dynamic thumbnail fits into the front page with the listed recommendation, defined in Characteristic 4. On this front page are a wide variety of videos that feature some with higher production value while others are home videos and amateur footage. All the videos are displayed in a non-hierarchical grid structure, giving all content a similar, if not the same, value. The content is user-created, just as Characteristic 3 states.

Figure 4.1: Pornhub.com front page.



Most of the website focuses on Visibility. For example, adverts, which are typically for online erotic games or other videos, feature within the columns of selectable videos. The ads cycle and usually depict some form of digitally animated penetration or video clips advertising more

hardcore films. The ads move nonstop and are embedded in the selection process. Opening up the selection process to error if the user wanted a video. The videos cycle through images or dynamic clips when cursored over, and the top menu bar reveals many drop-down menus. The website is busy with advertising activity for itself and other sites, production companies and video content – a variety of monetisation options like for Characteristics 5 from the list. Another example of this is the display of any video that is part of the site's premium service, labelled with a yellow star; however, for this study, the premium portions of the site will not be explored.

The videos on the site further display categories, like Characteristic 1, where they are split up in a seemingly non-hierarchical layout to entice the user into searching or, faster, clicking. These categories further create the structure for the site and provide the vocabulary and language that the users and searchers need for the site. As porn sites offer a different type of media from the rest of the internet, users must still be able to satisfy their search needs – discussed further in *Chapter Five*.

The videos displayed on the front page invite the user to peruse the site and what it offers without entering any search terms. Norman says, *'Just the right things have to be visible: to indicate what parts operate and how, to indicate how the user is to interact with the device'* (Norman, 2002, p. 8). The device here is the site. However, with many porn sites, nearly everything is visible to the user from the start. The user sees the videos, the search bar, and the top bar with options, advertising and other features, not to mention that all videos and advertisements are dynamic and moving throughout this whole experience. It can be overwhelming and hard to navigate with too much on display.

The user must look to other options that will aid them if they have come to the site looking for something specific. Norman writes, *'Affordances provide strong clues to the operations of things'* (Norman, 2002, p. 9). A user's eyes gravitate to the familiar sight of the search box at the top of the page. Just as Norman suggests, the search box 'is for searching', and as the user will be familiar with other sites that also display their search box at the top of the page, they can now start to make sense of the page and see how to enter and find what they want. The total number of videos is displayed in the search bar at the top of the page. This is an quantifiable insight into size of the site and the organisation system that runs throughout the site, just as the Characteristics 2 defines.

The videos take the fore as the site's primary focus, causing more of the architecture and organisation system to create these small but practical tips and clues for navigating and what is available to navigate. Any navigation on the site has immediate Feedback with changing a page and, often, a new selection of videos or options. Overall, Pornhub covers all the characteristics defined. Their design and architectural features create an impactful display for the user that can sometimes be overwhelming but still have enough of the familiar to make it usable.

4.3.3 Pornhub Gay

The history of Pornhub Gay coincides with Pornhub and has gone hand in hand since the beginning of the parent site, Pornhub. The site's popularity is under the same URL despite the gay partition of the site having its section. This partition of the site is something that many sites do for gay, transgender, straight or any combination of the three sections of content.

4.3.3.1 Characteristics and Analysis

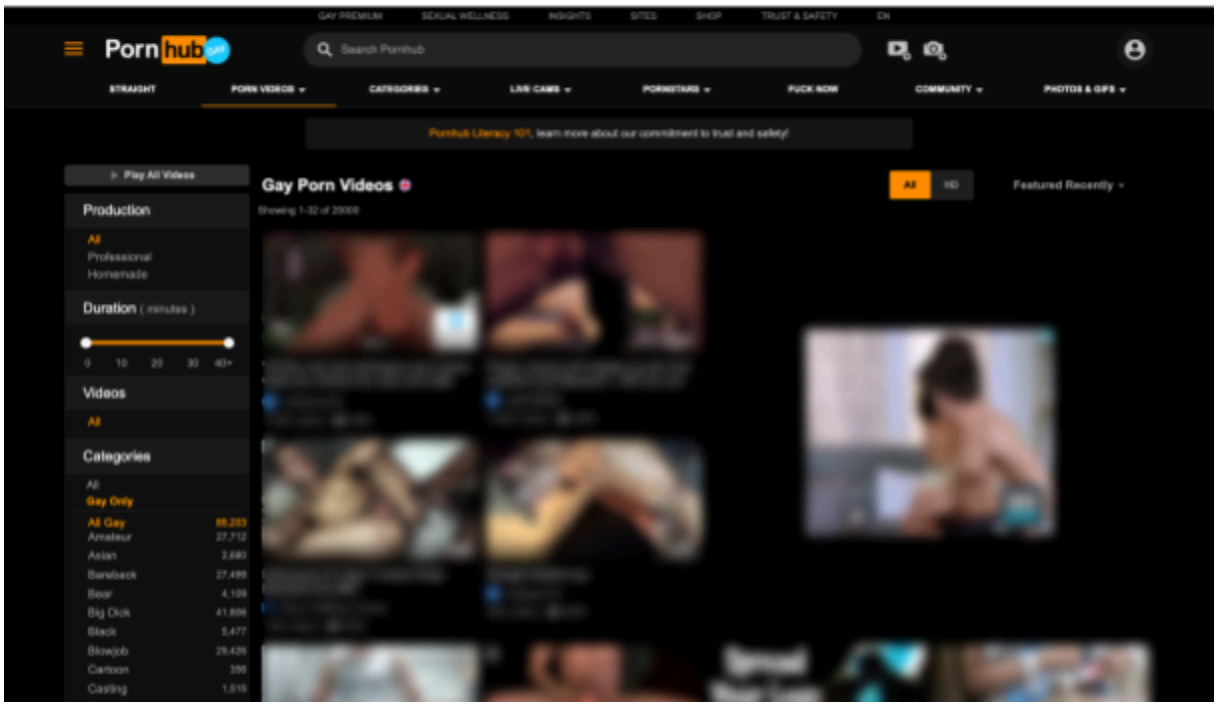
Pornhub Gay is part of its parent site, Pornhub, and carries over the same dark aesthetic, only this time, it had a small sticker on the logo in the top left-hand corner of the site, shown in Figure 4.2. Users may stumble upon a small and subtle change, search without realising it, and select via a tab on the partition site. Because it is a site within the main site of Pornhub, it follows the same layout, satisfying Characteristics 1, 2, 3, 4, and 5, as its parent site with a similar layout, shown in Figure 4.3 below.

Figure 4.2: Pornhub Gay logo.

Like with Pornhub, Norman’s principles can easily apply to the videos on the front page, the search bar and other characteristics. In order to find the gay part of Pornhub the option comes up under the categories tab of the site with three overall partitions to choose from: straight, gay and trans. Only when selecting one of these does it change to that partition of the site and make Pornhub Gay visible but not immediately apparent to users who navigate from the search bar or

other options. Even when the site changes, the feedback and perceptible changes are minor and may not be easily perceptible.

Figure 4.3: Pornhub Gay front page.



When it comes to its categorisation, the site changes slightly. The site's main videos immediately show gay, predominantly male, content. The categories and tags reflect this as well. Again, the categories will be looked at in *Chapter Six*, but it is clear already at this stage that the change in language in the context of a site also provides search information to the user. Overall, Pornhub Gay is identical to Pornhub in its characteristics and features, being an offshoot of Pornhub. The initially difficult-to-find site's route is quickly learned by the user.

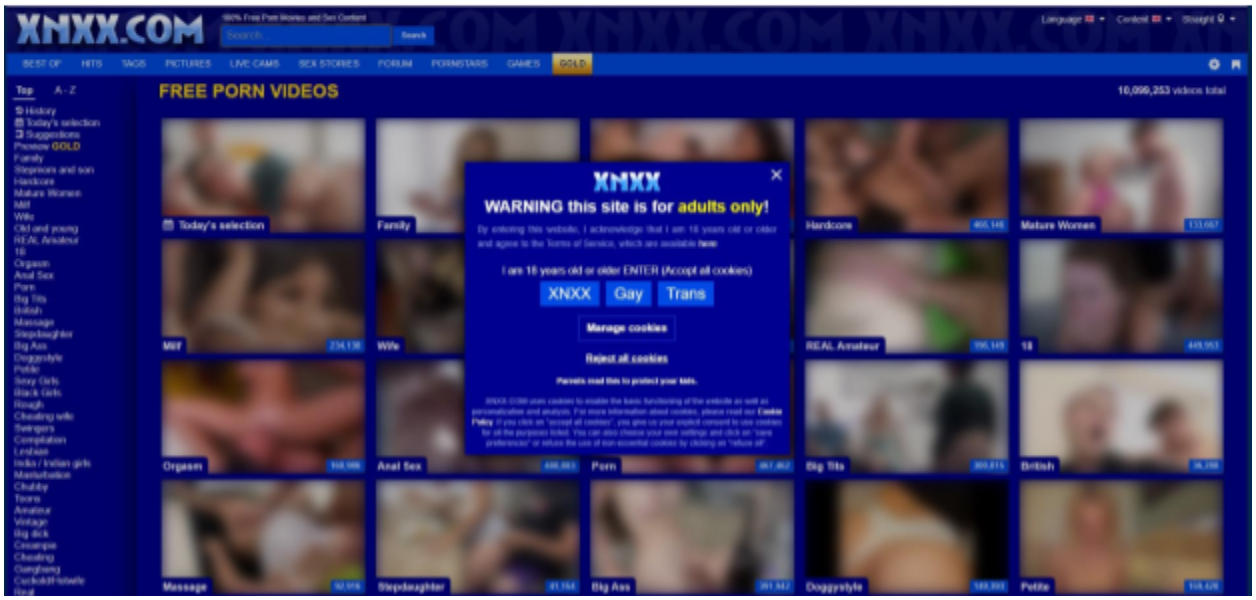
4.3.4 XNXX

XNXX is a French site. Little is known about its origin and ownership other than it was launched in 2000 and is currently run by the same company as XVideos, WGCZ from Paris (Woods, 2016). In 2018, it ranked as the third most popular site online (Moynihan, 2019) and by 2022 it was the 14th most popular site on the internet, right after Pornhub (SimilarWeb, 2022). These sparse details still solidify the impact of this site online through its consistent popularity among porn sites and mainstream sites alike.

4.3.4.1 Characteristics and Analysis

XNXX is one of a few sites in the sample to encounter a warning banner to enter the site, see Figure 4.4. The banner states that the site is for adult content and that users must be 18 to enter. However, the prompt to enter the site is not an age verification, like found on websites for alcohol, which request a specific birthday. The prompt is more selection for the different partitions on the site where the user can decide if they want to see XNXX, gay or trans content. Whereas with Pornhub, the user's choice of content has to be selected while on the site, here it is selected at the beginning. The design of this warning is visually similar to the site, so it does not look threatening to those who enter, and anyone with a small amount of computer literacy can immediately enter. This gateway's simplicity seems unlikely designed to deter those under eighteen from access.

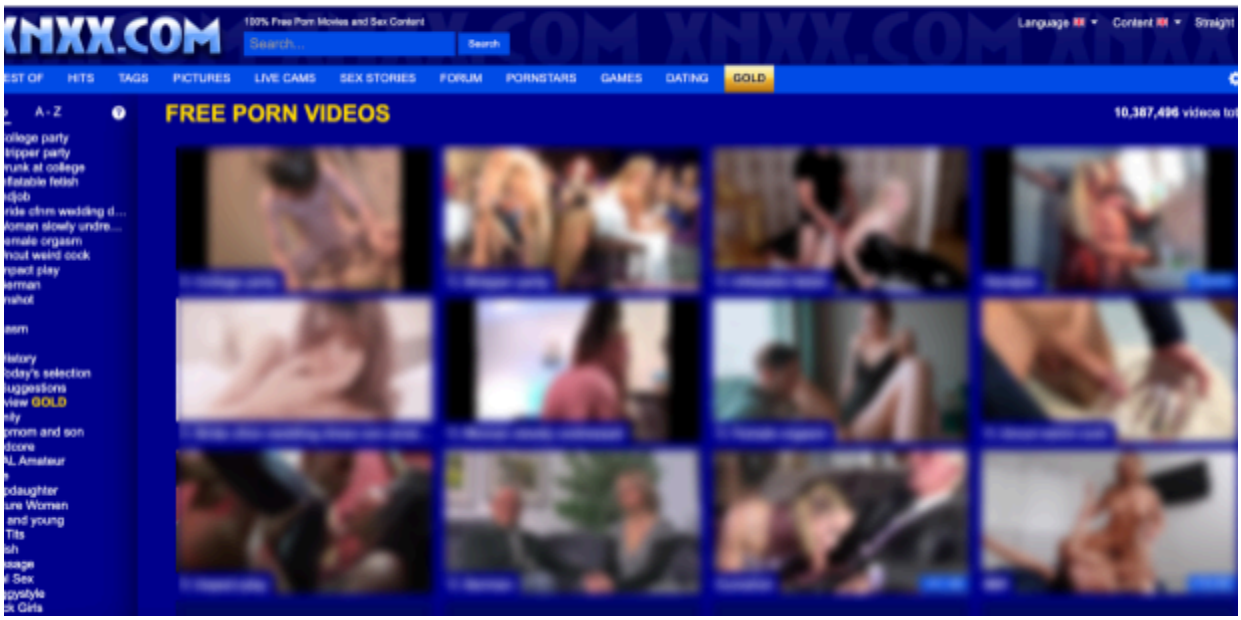
Figure 4.4: XNXX front page with age verification warning prompt.



The website's homepage, shown in Figure 4.5, opens up to a selection of top categories, like Characteristic 1 states, with the number of videos available in each category. The top right corner tells the user how many millions of videos are on the site. Visually it already looks a lot like Pornhub with the grid-like selection of videos. The selection of videos to choose from on the front page are not specific video titles, like with Pornhub, and are thumbnails for the categories. When cursored over, each video thumbnail reveals a teaser of clips from the top video in each category. This Feedback gives the user feedback that the site is live and active and an invitation to entice them to view the longer video. The far left-hand column shows the categories to click

on for faster access. The sidebar and the search bar invite the user to search the site differently. Their Affordances will be familiar and offer two ways of searching for those who know what they are looking for and others who may need the list of categories as prompts to get them started. These two ways of searching, with the clickable thumbnails being the third, make for various ways for the user to begin a search. As the categories and information repeat it creates more streamlined options than Pornhub. There are fewer advertisements and features to confuse or cause Errors when selecting too. Apart from that, the website looks almost identical to Pornhub's top bar menu options with language options, live cam options and search bar options that fit into the site's various organisational systems, which adhere to Characteristics 2, 3, and 4.

Figure 4.5: XNXX front page.



Instead of premium, the site is partitioned by the ‘Gold’ tab, which allows the user to peruse through to the paid part of the site that boasts high-quality content, pays specific contributors, and searches ad-free. XNXX's partition creates a new monetised system like Characteristic 5 that differs from subscriptions but, with advertising, that displays the ways the site makes money. XNXX is right behind Pornhub in popularity and provides a very similar site (SimilarWeb, 2022). Being more straightforward in its categorisation and search options create a layout that is less busy and could mean it is less overwhelming for users when navigating the same content or categories in many different ways. It also means that some of the characteristics can be condensed and combined for this site. This layout and design, however,

becomes the norm for other sites, and Standardisation starts to solidify when looking at the next three websites.

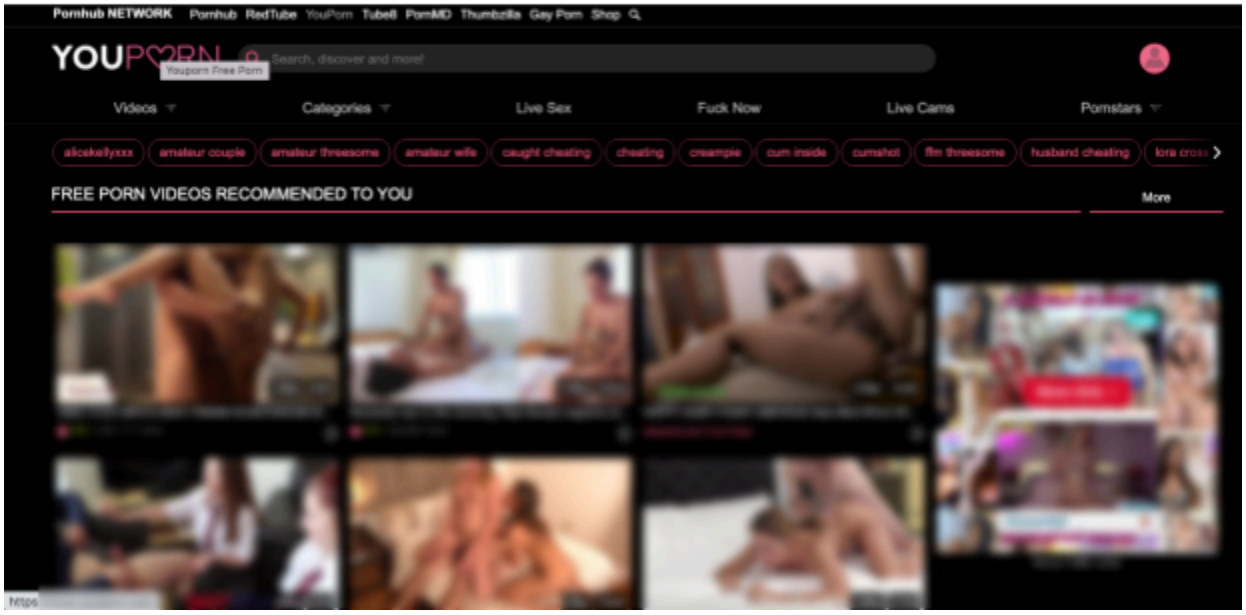
4.3.5 YouPorn

YouPorn is another site with only a few details known about it. It is reportedly run from an island in the Caribbean Sea (XBiz, 2020). In 2011, Manwin purchased the site, the same company that owns Pornhub (AVN, 2023). Though only a few things are known, some details can still be decipherable from the site that displays its impact. For example, Extreme Tech reported in 2006 that it transferred an average of 3TB of content daily, which has since grown in 2012 to 950TB daily (Extreme Tech, 2017). This amount of data shows that the site, in 2012, hosts over 100TB of content to around 100 million users per day. *'At the peak time, YouPorn serves 4000 pages per second, equating to burst traffic in the region of 100 gigabytes per second, or 800Gbps. This is equivalent to transferring more than 10 dual-layer DVDs every second'* (Extreme Tech, 2017). A long way from purchasing or renting a single DVD. Despite the challenge of finding up-to-date information on these statistics or the same information for other sites, they still show the sheer power and popularity of the site differently than the others based on just popularity. It is unclear if the site is as popular as Pornhub or XNXX based on the unavailability of Similarweb's metrics. However, ExtremeTech's metrics based on data size is another way to view the impact of these sites.

4.3.5.1 Characteristics and Analysis

YouPorn automatically goes to the front page, Figure 4.6 below, without any need to click through a warning to alter and remains very similar to the consistent layout of Pornhub and XNXX. Its black website looks clean similar to Pornhub. The top bar for navigating the categories looks like buttons on this site, unlike the others that looked like hyperlinked text. These buttons make it more apparent to the user that they are clickable to go to that category and satisfy the Visibility and Affordances on the site for navigation. The logo incorporating pink and a heart replacing the 'o' in porn connotes a more light-hearted website and one that is possibly more friendly. The site shows various advertising that satisfies Characteristic 5, and the content incorporates amateur user-generated content to satisfy Characteristic 3.

Figure 4.6: YouPorn front page.



The main page with recommendations, like Characteristic 4, has the same layout of top videos, moving ads and thumbnails that provide teasers. The way the sites are organised is similar to the others, and it offers all the exact search and interaction abilities consistent with Characteristic 2. The thumbnails are to main videos like Pornhub but unlike XNXX. The advertising is back but without sidebars and is incorporated into the four-video-wide grid on all the sites so far, which is less busy in design.

When scrolling down and looking at their categories, like Characteristic 1, the site does something other sites have not so far. It has organised its tags. Where other sites have organised their tags by the most popular, YouPorn organises them by facetted categories and sub-categories. This hierarchy starts at the top level with Action, Story, Stars and Details, then subdivided into more specific categories like Finish, Body Details, and Age. These subdivisions and headings make the website dynamic as the page length is shorter and more modern with less need to scroll. Less scrolling means that things are easier to find as they are even more in one place, unlike other sites where the user is left sifting and browsing to find something specific, giving a sense of logic to the categories. From these categories, the user can see how many videos are available in each, but the site does not indicate how many total videos are on the site to compare.

YouPorn again solidifies the four-across grid structure in its design, which was found on all the other sites before. The characteristics are all accounted for, and they operate similarly to Pornhub, probably because the same company owns them. The buttons and search options are visible and more apparent than those on Pornhub and XNXX, as their design mimics pressable buttons. The thumbnails provide Feedback and teasers for the video they display, and the user is invited to search in many ways similar to Pornhub.

4.3.6 Porn.com

Porn.com is an outlier in the selection of sites and has no information on the site's history or if a larger company, probably Manwin, owns it. More challenging still are the site's statistics, such as its popularity or size. However, a few things can be deduced from its domain name. It was created early on in the history of the internet because of its URL's name. It is the simplicity of its domain that also makes it impactful. A searcher looking for porn would easily find porn.com, and any drawing in novice searchers to the website due to this. Also, having the extension as part of the name speeds up the search and directs the users straight to the site when put in as a URL. The easy-to-find name contrasts the other sites that have esoteric names like XNXX or variable names like Pornhub and YouPorn.

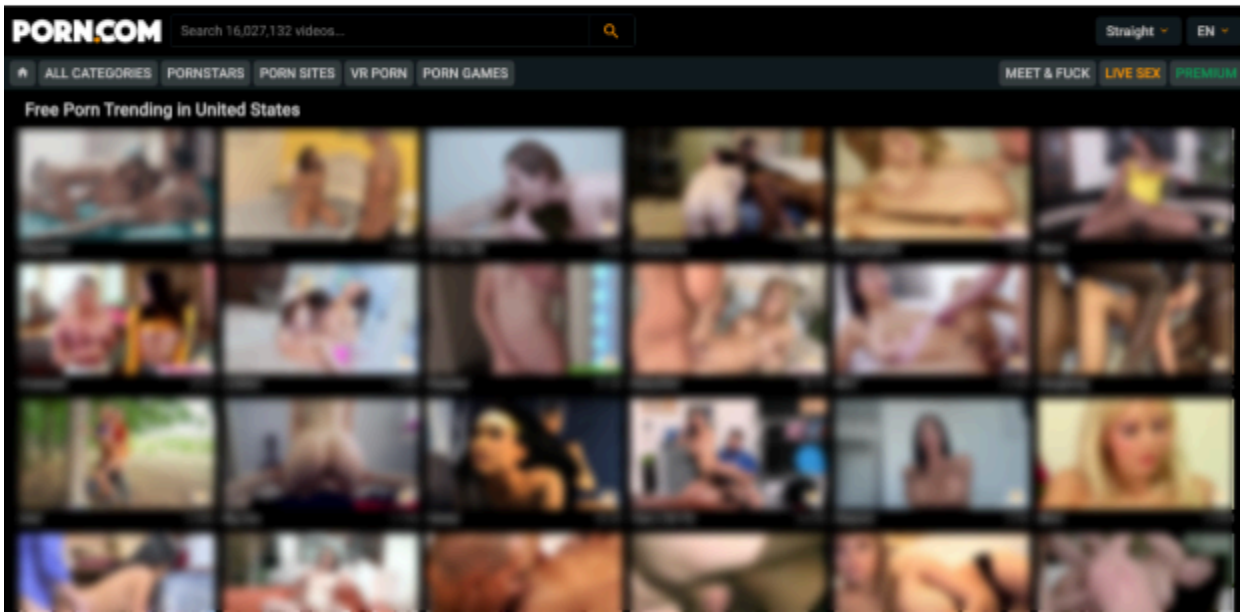
4.3.6.1 Characteristics and Analysis

Porn.com is an obvious name compared to some of the others. It takes its aesthetic colours and inspiration from Pornhub with black, white and yellow, see Figure 4.7 below. This website is far more simplified in some ways and not in others. Like Pornhub and YouPorn, it opens straight to the front page without a warning page to click through. The videos do not provide teasers or the Feedback that the users get on the other sites, and, like XNXX, the videos lead to the categories instead of specific videos. Also, the layout has no moving adverts. However, the site has moved away from the four-across grid structure to increase it to six. Replacing the missing adverts with more still images for navigation cancels out any simplicity achieved on the front page.

The buttons are rounded off again, like YouPorn, to look like buttons visually, and the font is bold, which makes the overall aesthetic visually clickable and invites the user to click without confusion. The search bar is again at the top, ready for the user to search, with the numerical invitation that states the total number of videos on the site, and the organisational is still much the same. There is the option to toggle between straight, gay and trans from a drop-down menu

on the top right corner of the page to satisfy Characteristic 2. The video thumbnails are as graphic as all the other sites thus far, and the recommendations on the front page still satisfy Characteristic 3. As with the others, advertising is throughout for Characteristic 5, and the content, though rougher, is still very similar to the other sites' user content for Characteristic 4.

Figure 4.7: Porn.com front page.



For Characteristic 1, clicking categories or any of the menu options on the top brings up a page with a long list of categories or pornstars that seem laborious to scroll through. Browsing through the categories might be helpful to a user, but they are alphabetised, which may not be the best option for someone still determining their search need. Other sites that categorise their categories by the sex act, finish, pornstar, and others, potentially help someone streamline what they are interested in without stumbling onto something else. Overall, Porn.com is a site that further solidifies the characteristics and design conventions found on the other sites. Very little is changed on this site to make it stand out. Even its domain name is simple and almost foolproof with its URL as name and logo.

4.3.7 XVideos

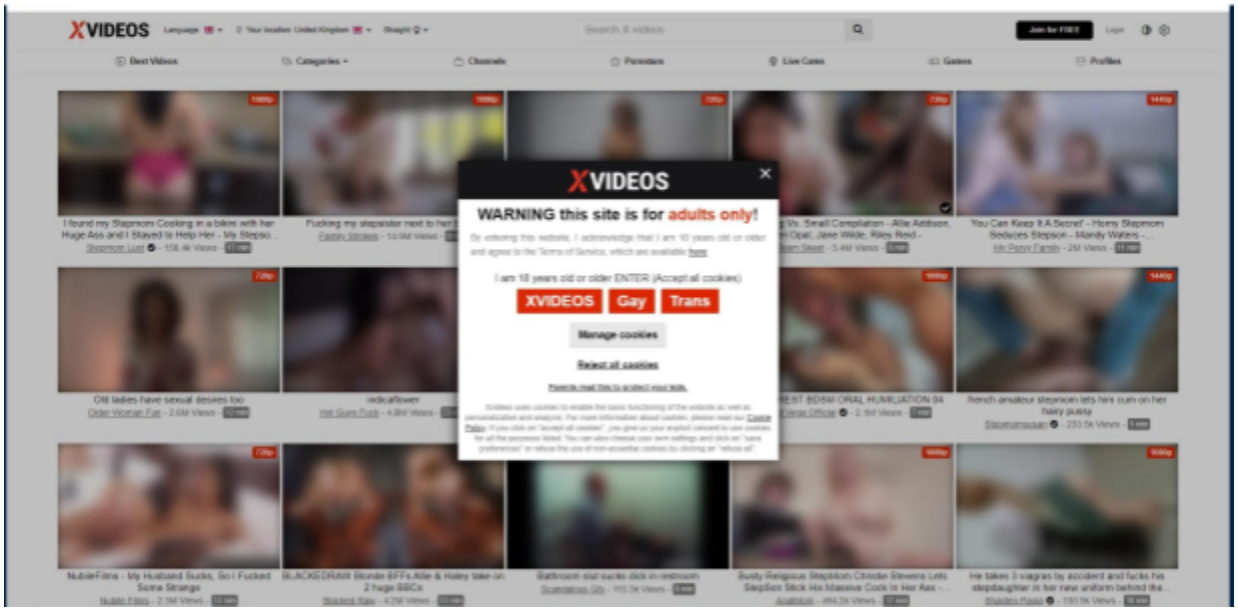
WGCZ owns XVideos, the same company as XNXX (Staff, 2018). The site was created in Paris in 2007 by Stephan Pacuaud, and they reported that Fabian Thylmann attempted to purchase it to make Manwin an online porn monopoly (XBiz, 2023). but the sale did not happen. At one time, in 2021, it was one of the most viewed websites in the world, and in November 2022, it

was the most visited porn site online and the 11th most visited website in the world, beating Pornhub and XNXX to the top spots (SimilarWeb, 2023). The impact of its popularity is exemplary and puts it in the same realm as Pornhub or XNXX within the sample.

4.3.7.1 Characteristics and Analysis

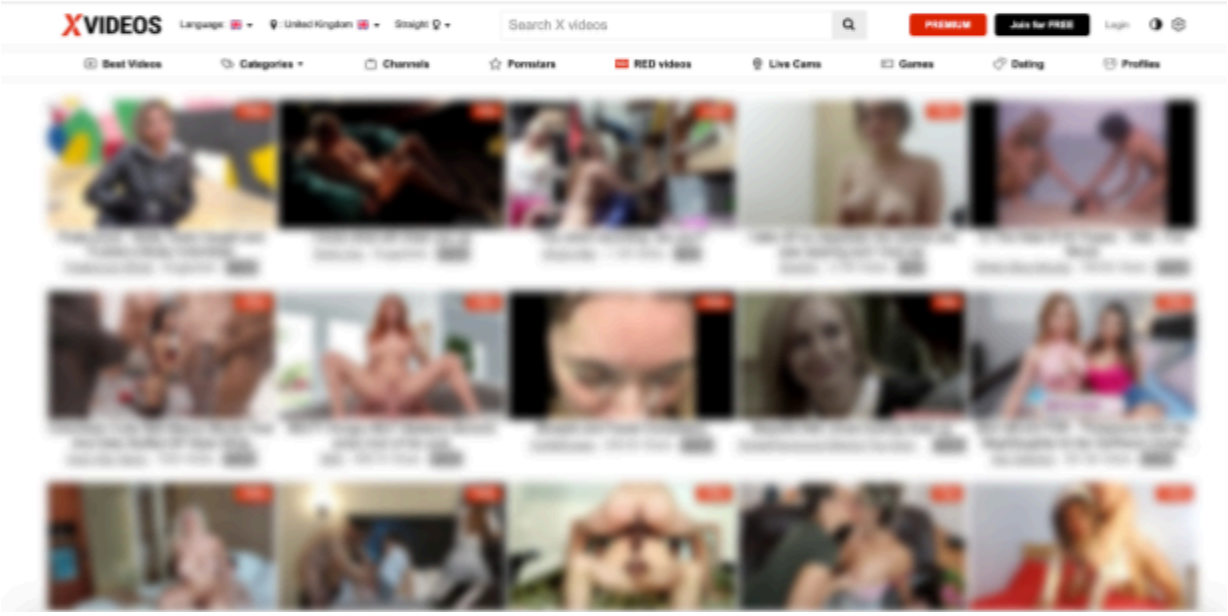
Like XNXX, XVideos opens with another ‘adults only’ warning on the site to deter those not over 18, shown below in Figure 4.8. However, like XNXX, it does not act as an age verification but instead, a place to select the partition of the site that suits the user, again, with the same choices as the XVideos, gay or trans content. Like XNXX, the warning looks like part of the site with its design, and the simplicity does little to deter any user of any age from gaining access to the site.

Figure 4.8: XVideos front page age verification warning prompt.



Once on the site, XVideos, described on the site as ‘The Best Free Porn Site’, has an even more basic structure to the front page. There are no sidebars and a few menus at the top of the page. The layout is a five-across grid that visually takes over the entire width of the screen and shows thumbnails of specific films, like Pornhub and YouPorn. It has a list of categories like Characteristic 1, at the top and a search bar that shows the total number of videos on the site. The tags hide on a white background with its simple red, white and black logo; this site looks the most like YouTube but has less features. The site also has a separate trans and gay portion, the ability to change the region and an option to subscribe; all defined in Characteristic 2.

Figure 4.9: XVideos front page.



The user can download the video and interact in other ways like up or down voting, saving it or sharing it, adding new features unavailable on other sites and their organisation systems. These features are further aided by the Affordances on the site, like the search bar and other video icons. There is no option to comment, and the rest of the page beneath the video has recommended videos. It shows no premium or subscription-only videos advertised to the viewer, like Characteristic 2. When taken to a video, more ads appear on the right side, and the tags defining that video page. It only shows free content, living up to its title of 'The Best Free Porn Site.' However, the site still has advertising to satisfy Characteristic 5.

The list of tags at the top of the page, like Characteristics 4, is limited to twenty and can be added to on the free portion of the site but feature a hierarchy in their structure, usually as follows; any porn star's name, the sexual act and then gender, race and other details. Being such a streamlined site allows users to find content quickly without busy advertising. However, with just a little metadata or information on user interaction, it is unclear how user videos, defined in Characteristic 3 make it to the front page other than viewership based on location. It is also hard to assess how accurate the tags are.

XVideos, one of the most viewed websites in the world, shows nothing different that sets it apart from the other sites. The visual and interactive elements are the same as many other sites, and

the design and layout are also very similar, even down to the colour scheme. Most of the characteristics are found on the page, but the options for searching seem limited compared to other sites, and there are fewer repetitions of options like with YouPorn or Porn.com.

4.3.8 Sites for Women

The following two sites discussed are created for and marketed towards women. They still maintain connections to the other sites and may have overlapping content, categories, and standard tags. However, there is an implication with both of these sites that they are seen as more ethical and less hardcore. They feature more options for films with storylines or a section for erotic stories. The options present a preference among women for certain types of erotic media, but this preference is not confirmed. The two sites chosen were ForHerTube, the first result when searching Google for '*Porn for Women*', and Bellesa is the second for being the second result and also well known for its creator, former porn star Candida Royalle. It is hypothesised that their characteristics will be the same as all the other porn sites but will have slight differences in their categorisation and organisation to suit its (perceived) softer approach.

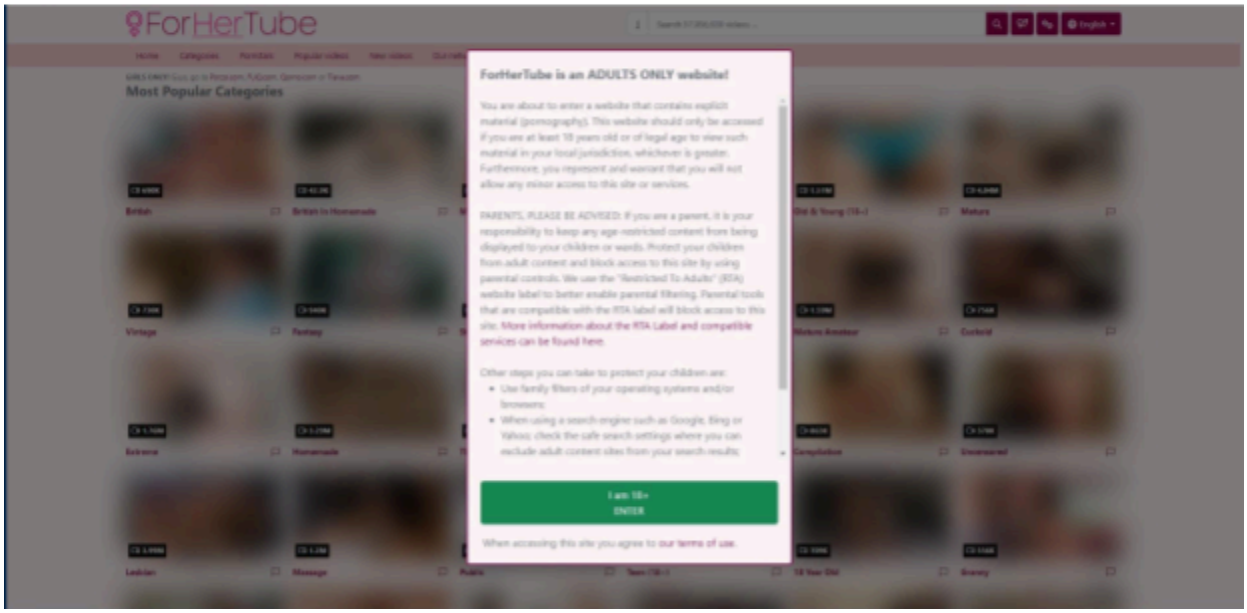
4.3.8.1 ForHerTube

Gauntlett writes, '*During the past 5 years, online sex has experienced phenomenal growth in sales and audience participation*' (Gauntlett, 2000, p. 123). This could be due to an increase in women viewership. If the statistics made the other sample sites impactful, the marketing and ethos make the following two sites for women impactful. ForHerTube has a global ranking of 6,262 but 291 in the specific adult category of websites, while Bellasa's global ranking is 4,643 and 251 in adult websites (SimilarWeb, 2023). These are far from the popular sites targeted at a more general audience. There is also little known about the history of these sites. ForHerTube has many site linkages, but there is no clear line to its origin or overall company.

4.3.8.1.1 Characteristics and Analysis

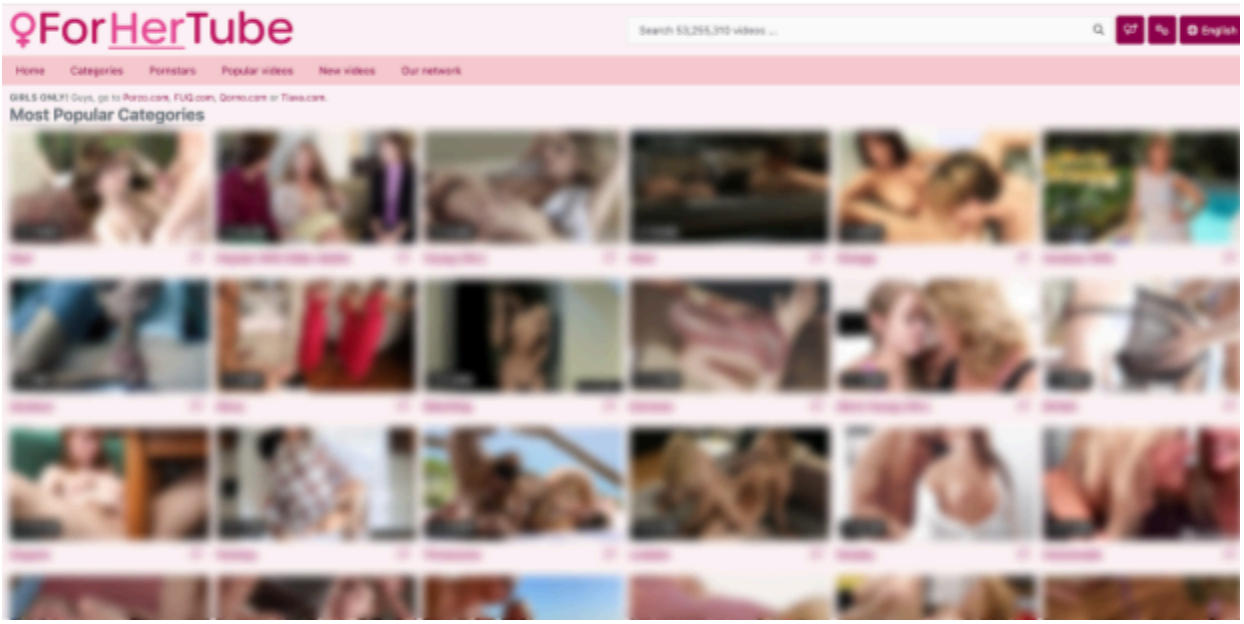
Once again, a site comes with an age verification page, shown in Figure 4.10 below. This time, ForHerTube actively asks that users above 18 enter the site rather than asking which part of the site they would like to reach. However, the warning that pops up is part of the site's overall aesthetic, and the visual of the bright green button, the only option to press, makes access even more straightforward. Looking back at Norman's ideas on Affordances, this example leaves only one option visible to the user with no other way to interact. Therefore, it still perpetuates the idea that these gates into porn sites are not about age verification at all.

Figure 4.10: ForHerTube with age verification prompt asking to confirm the user is 18 years old and clarifying the site is for 'ADULTS ONLY' instead of a warning.



From Figure 4.11 below, ForHerTube boasts '*For Girls Only!*' under the title with a list of sites men can visit, suggesting that there is nothing on the site for them. Visibly the site and logo are in various pinks; however, they look no different than any other porn site. The front page displays a six-grid formation with many recommended categories that play their dynamic thumbnails instead of videos, just like the feedback given on other sites to the users—a change from the grid of automatically recommended videos. However, a similar layout is defined in Characteristic 4. Many videos feature women in the same positions they would be in on the other sites. The categories that fit into Characteristic 1 are different, though, and feature tags like *'Beauty'* or '*Popular With Middle-Aged Women*' show the site's focus again. The most notable difference on the page is the lack of dynamic advertising. There is no advertising on the front page or when clicking a specific video. There also does not seem to be anywhere to sign up for a subscription on the site, making it unclear how it is monetised and fits into Characteristic 5.

Figure 4.11: ForHerTube front page.



However, far more features and options at the top of the page fit with Characteristic 2. Like the other sites, the search bar shows the total number of videos on the site. Still, the search bar has an extra information element that details how to use different phrases to create advanced searching so the user can find more detailed search results. Also, on the search bar, there is the option to change the videos to Straight, Gay, Trans, Straight and Gay, Straight and Trans, Gay and Trans and All, showing not just a partition within the site in its content but a further effort for users to combine and explore content based on even more preferences. These options are made clear to the user with logos and buttons and a quick reloading of the page as Feedback to show the change, although subtle, similar to Pornhub Gay. These partitions are the most organised system of any site surveyed. The last two options on the search bar include video viewing options, like a darkened background or image size and the option to change the language. The toggle bar is similar to the one found on Pornhub, which leads to specific categories, pornstars, or routes to certain recommended videos.

When clicking through to a video, the site reverts to an aggregator site that does not hold the content but hyperlinks to other websites. The videos are links to the user content, which satisfies Characteristic 3 but loses its interactions and organisation elements from Characteristic 2 at the video level. When clicking through to other videos, the site opens up a new tab of a window for the user and opens the video on another porn site not in the sample. It still needs to

be determined who curates ForHerTube as there is no option to sign up for the site, and, as all of its content is on other sites, the user cannot interact with the specific video through the site. It also not clear how the videos end up in the recommendations. However, the site has no data on specific video viewership or user activity; the site does record category viewership.

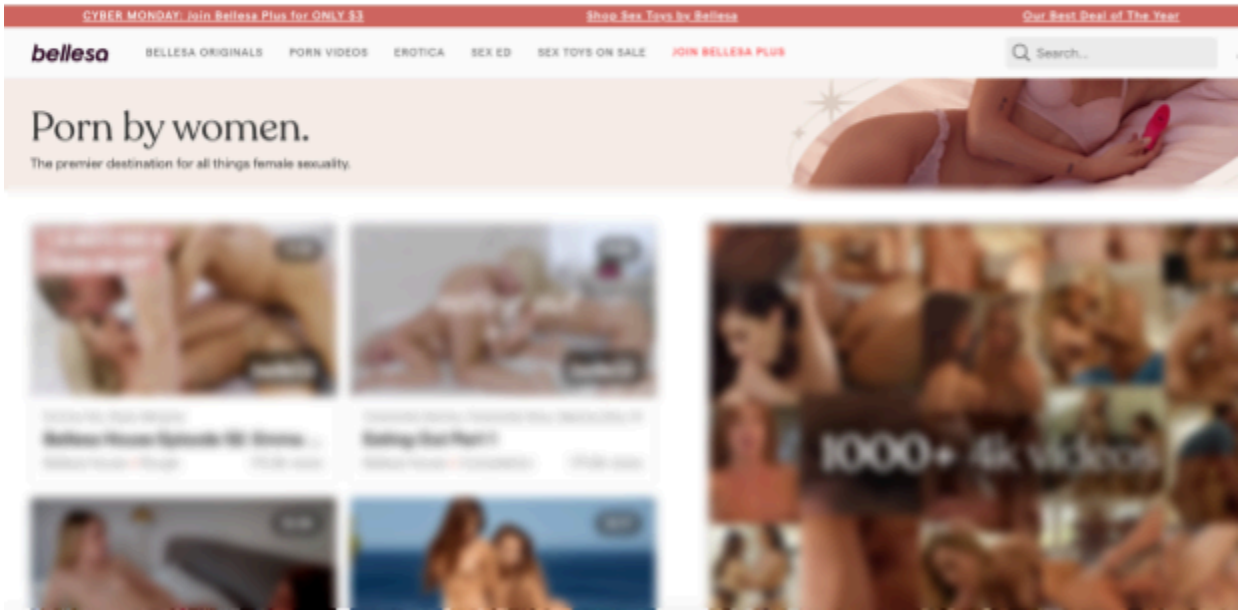
4.3.8.2 Bellesa

Bellesa, started in Canada in 2007 by a graduate student, Michelle Schneidman, who wanted to create a site that addressed the imbalance of porn sites that were specifically for men (Silverman, 2018). The main aim was to set up a site that would rebalance the internet, promote sex positivity and empower women to watch or take ownership of the porn they want to watch. Due to this openness, the site did open itself up to hosting pirating content and only focusing on its audiences rather than the actors in the videos. This issue has since been addressed, and a new content model is used to support both sides (Vice, 2022). Both of these sites are geared towards women and imply a level of ethics in the content and business, but they look vastly different in their design and elements.

4.3.8.2.1 Characteristics and Analysis

Where ForHerTube's design is simplified, Bellesa changes entirely. Being a standout amongst all the sites, it looks on the surface very similar in layout, shown in Figure 4.12, but the front page, like Characteristic 4, has different offerings. It has only a top banner for search options with the search bar on the far right, and the grid has just three across, which makes the thumbnails bigger. Boasting on the banner '*Porn by Women*' takes the porn for women ethos one step further and implies that it is not only porn for women but made by women and with women in mind. It further describes the site in the banner as '*the premier destination for all things female sexuality*'. Being one of the top search results when looking for '*Porn for women*, ' their content displayed is still user-driven, for Characteristic 3, but offers more videos with higher production values that go through some possible vetting or moderation process before being allowed on the site.

Figure 4.12: Bellesa front page.



Visually, the site looks similar to YouPorn and XVideos, with a top menu bar and a clean white background with the logo. Again, all the Affordances discussed in the other sites are also the mainstay for this site. For example, there are visual thumbnails and videos to click on. Clear menu options as buttons to press and a search bar that the user can further search. The ads move, the thumbnails are dynamic, and the user gets Feedback with a page change at every option. Each page leads to more Bellesa content, unlike ForHerTube, which leads to other external sites from other creators. Bellesa combats the ethical claims by creating a website that collates all of their content or curates content approved by them, ones they can vouch for fair payment of the actors and ethical production habits.

Again, it has dynamic moving ads within the grid, like Characteristic 5. For this site, the ad promotes another site or a sex toy, though the ad advertises more videos found on the site. Where ForHerTube makes users leave for another site, Bellesa makes every effort to keep users on the site and searching for more with their Feedback loop advertising.

The top menu bar also has many options not seen on other sites for Characteristic 2. The search bar does not boast about the many videos it has on the site but is just a standard search. However, the menu options on the menu bar offer a link to the website's original videos, *Bellesa Originals,* and then an option to search all the porn videos on the site in another option, followed

by an option to search '*erotica*' specifically featuring audio and e-books. Rounding off the rest of the menu options is an option labelled '*Sex Ed*' that leads to their subscription portion of the site that it described as working like Netflix. It also features free sex-positive videos and discussions and a podcast. The final two options are a '*Store*' option and a discount for sex toys, and finally, the subscription option for *Bellesa+*, more options in line with Characteristic 5. Based on all the other sites its options are more varied and offers many different types of media to its users. It clarifies where to find it; interestingly, not everything leads to a porn video – a possible attempt to keep users on the site longer.

It is also clear that the videos are organised differently. Rather than the top-rated videos on the front page being organised by category, in line with Characteristic 1, they are shown with their title, making it seem like they are not just randomly selected but may be the top-rated currently on the site. The same goes for all the categories of top films rated further down on the page. For example, after the top-rated video list, a section labelled passionate lists five videos. There is even an option to choose the tempo, which offers three: '*Sensual', 'Passionate'*, and '*Rough*.'

Searching all the porn videos still uses some standard categories and tags also seen on other sites. However, their organisation focuses on sexual position, sex act, location, how many people are involved and even story tropes. The site does not offer categories based on race, which sets it apart from the other sites and will be interrogated further in *Chapter Six*. It is a complete change to the exhaustive list of tags found on the other sites and organises them into clear sections that make it easy for a user to search through the facets. The content is also displayed in the various channels they have available as part of the subscription portion of the site.

Overall, Bellesa stands out from the rest of the websites, not so much for its look, similar to the others, but for displaying its information to the users. It aims to cover many things and does so clearly and concisely through its visual elements that condense the categories and streamline the search process. All the characteristics are still there and available like on the other sites. Still, the changes in the content to more professional rather than amateur and more options for searching to steer the user makes the site feels more like an active curation of films instead of a messy collection or vast library.

4.4 Standardisation

Throughout the section, the sample sites have been explored in two different methods, 1) the method of mapping them against a set of characteristics in Information Architecture to define and explain their function as a porn site and 2) mapping them against some of the elements and functions used in Norman's everyday design. All the sites have various features and layouts that make them similar and different. The tables below break down these comparisons.

Table 4.1 below collates all the site features of the characteristics in the first question. This table shows similarities and differences between the characteristics and how they appear on the sites. For the most part, many will overlap and show in the table as a reference to the previous description with '*same as above*'. The female-friendly sites are separated but still included as they differ most. All the sites satisfied all five characters, but not all show them the same way. The categorisation changes when switching to a partition of a site, as is the case with Pornhub and Pornhub Gay.

For the sites specifically for women, these characteristics were still evident but needed to be more visible and show the drive for these sites to set themselves apart from the mainstream ones. Bellesa sets itself apart in every characteristic, especially in content and categorisation. The content focuses more on videos with higher production values, and the organisation strips away any derogatory terms. However, it can show how these sites provide and offer content in various ways to catch various users. Their popularity waxes and wanes between them, but all remain some of the most popular websites on the entire internet.

Table 4.1: Porn Site Characterisics compared across the chosen sample sites.

Porn Site Characteristics Compared					
Porn Sites	**Categorisation [1]**	**Organisation [2]**	**User-Driven Content [3]**	**Front Page [4]**	**Monetization [5]**
Pornhub	List of categories on the sidebar with no hierarchy	Search bar, likes, dislikes, comments, percentage rating	Majority Amateur/user content	Grid of thumbnails for videos recommended to a user - based on popularity	Advertisement, subscription for members and premium account
Pornhub Gay	List of categories on the sidebar with no hierarchy - with more queer/gay terms	Same as above	Same as above	Same as above - with more queer/gay content	Same as above
XNXX	Same as above	Same as above	Same as above	Grid of thumbnails for videos recommended based to a user - based on popularity	Same as above
YouPorn	Same as above	Same as above	Same as above	Same as above	Same as above
Porn.com	Same as above	Same as above	Same as above	Same as above	Same as above
XVideos	A full but small list of categories are at the top of the page and become narrower as one is selected or remain the same.	Same as above	Same as above	Same as above	Same as above

Sites for Women					
ForHerTube	Categories incorporate more female-focused terms	Offer a variety of partitions for the site. But each video leads to an external site, so more organisation and interactions are needed.	Same as above	Same as above	No clear monetisation - leads to other sites for their advertising and external subscriptions
Bellesa	Categories are split thematically based on acts and preferences – not race, gender, etc.	The site is organised thematically, and search options are tailored to that. Limited interaction options; ratings and thumbs up/down voting	Content with more production value and featured from trusted sources/more professional production companies.	Frontpage videos are shown based on title and split between their categories and not recommended options	Subscriptions for premium content, advertising for products and other videos are available through the site

In Table 4.1, there is overlap with these elements same as the characteristics. The site elements functionally work similarly, and veering off this design too much could cause confusion for the user; thus, a sort of porn site standard starts to emerge. Norman states, *'Standardize the actions, outcomes, layout, displays. [...] The nice thing about standardization is that no matter how arbitrary the standardized mechanism, it has to be learned only once. People can learn it and use it effectively'* (Norman, 2002, p. 200). The more there is an established standard between these sites, the more users will learn and use the sites effectively.

Whether consciously or unconsciously, the elements on porn sites have presented themselves to a standard. They all have similar elements of Visibility, Feedback and Affordances that remain consistent for the user. This design and elements have worked for these sites for years and have been copied endlessly on other sites. They are now familiar to the user. Any change to the site could cause Errors in the page's navigation. Norman talks about designing for Errors as part of his seven abovementioned principles. He suggests that errors are part of the process, and a design should allow for them and ways to get out of them or fix them (Norman, 2002). In a website, this could manifest as a back or forward navigation button as an option on the page.

The elements on these sites aim to satisfy these seven principles. For Princple One, the sites used a user's knowledge of other sites online to aid in making the right action based on recognisable Affordances. The sites simplify the task structure by working with the Affordances and allowing for different routes to the same content adhering to Principle Two. Thus, reducing any risk of Error, in Principle Six, and bridging and gulfs mentioned in Principle Three – making all important things visible. The sites use Mapping, Principle Four, by clarifying where each action will go and what the site can and cannot do based on its constraints, for Principle Five. By the end, all the sites have fallen into line with similar designs and Standardisation, thus satisfying the fail-safe Principle Seven. This Standardisation has trained users to view their porn in a particular way and even on sites for women, the layout remains the same. To change now would be a possible risk Error and the need for re-mapping. But to not change could also see the stagnation in these site designs and reduce their effort to improve technology. Table 4.2 lays out the design elements by Donald Norman and looks at three elements that allow the site's design to invite users to search and interact: Visibility, Feedback and Affordances.

Table 4.2: Porn Site Design Elements Compared Across all the sample sites.

Porn Site Design Elements Compared			
Porn Sites	**Visibility**	**Feedback**	**Affordances**
Pornhub	• Black and yellow logo with black background • 4-wide grid • Display specific video thumbnails	• Dynamic Thumbnails • Video selection takes to a new page of main URL	• Search bar • Hyperlinked Text • Top bar menu
Pornhub Gay	• Black and yellow logo with a blue sticker with black background • 4-wide grid • Display specific video thumbnails	• Dynamic Thumbnails • Video selection takes to a new page of main URL	• Search bar • Hyperlinked Text • Top bar and sidebar menu
XNXX	• Blue and gold logo with blue background • 4-wide grid • Display thumbnails for categories	• Dynamic Thumbnails • Age verification page to enter • Video selection takes to a new page of main URL	• Search bar • Hyperlinked Text • Top bar and sidebar menu
YouPorn	• White and pink logo with a heart for an ‘o’ and white background • 4-wide grid • Display specific video thumbnails	• Dynamic Thumbnails • Video selection takes to a new page of main URL	• Search bar • Text Buttons • Top bar menu
Porn.com	• Black and yellow logo with black background • 6-wide grid • Display thumbnails for categories	• Dynamic Thumbnails • Video selection takes to a new page of main URL	• Search bar • Text Buttons • Top bar menu
XVideos	• Black, white and red logo with white background • 5-wide grid • Display specific video thumbnails	• Dynamic Thumbnails • Age verification page to enter	• Search bar • Hyperlinked Text • Top bar menu

Sites for Women			
ForHerTube	• Three-tone pink logo with pink background • 6-wide grid • Display specific video thumbnails	• Dynamic Thumbnails • Age verification page to enter • Video selection takes user to external site	• Search bar • Hyperlinked Text • Top bar menu
Bellesa	• Pink to purple faded logo with white background • 4-wide grid • Display specific video thumbnails	• Dynamic Thumbnails • Video selection takes to new page of main URL	• Search bar • Hyperlinked Text • Top bar menu

One of the main ways that these sites differ is through their logos. For example, the most famous and ubiquitous site, due to its marketing and merchandising, Pornhub has become a staple of the online porn environment and a symbol of all online porn. Compared to other video sites, like YouTube, Pornhub is dark – to give the site the appearance of being hidden or secret. It is an antithesis to YouTube's bright white and red logo and various recommendations. It is a far simpler site when compared to YouTube. YouTube has a subsection to its recommendations on the front page along with rentable movies, tag options to explore at the top and further features to the side. Pornhub has a similar setup but remains much flatter in structure, with only one level of recommended videos based on the most watched and a complete and unwieldy list of searchable tags on the left-hand side. The pay features are throughout, but the site's business comes from the dynamic advertising that both takes away and adds to the overall design. In short, the site is busy, but the features could be more sparse and superficial. The user has a few options, but then again, they are not there to search a vast array of media but to look for a niche or specific media on a specialised site.

Another example would be XNXX, one of the most popular websites for porn online. It is unclear what the logo's acronym stands for, but using three Xs in the URL and name makes it stealthy and clear that this site is not easy to find. It also looks like a typo. A miss-spelling for '*XXX*' is possibly an intentional miss-spelling for the site to exist yet conceal itself amongst other websites. The entire website is blue, as well as the logo sets it apart from the familiar black and white/yellow of the other porn websites.

This sample of porn sites shows the wide variety of online sites available despite barely being a small fraction of the total number of porn sites online. They range from popular, large in content, niche, mainstream, and more. They all show a vague interest in changing their design, logos and some of the characteristics discussed. Still, from the analysis, it becomes clear whether an overall standardisation of these sites has occurred intentionally or not. They have become familiar and comfortable for the many users that frequent them. From a commercial perspective, they streamline the user experience to ensure users return. A porn site may change its content or audience, but it will still look roughly the same as Pornhub, XNXX, XVideos, and others. These characteristics and elements could be points for further study on a large sample of sites.

4.5 Conclusion

Throughout this chapter, the definition of a porn site has been expanded and condensed. From the initial stages of looking at what a porn site is and what other sites are, to then focus on a specific type of porn site; video-streaming porn sites. The first question started with a macro-level investigation into various sites that cater to users looking for porn. It discussed the various types of sites available to a user for various reasons, with a parallel to emerging technology that contextualised how the sites grew out of demand and progress. From there, a selection of sites were chosen to provide an excellent example of historical and contemporary technological developments. A picture started to form, framing the diversity involved when defining a porn site, led to the focus specifically on video streaming porn sites. What set them apart was how they were organised and displayed, what they offer and how they operated. These ideas and theories from Information Architecture combined into a list of characteristics, thus, creating a modern definition of a video-streaming pornsite.

For the second question, the characteristics were tested against mainstream sites. Comparing the characteristics of different types of sites like aggregator, e-commerce, social media and entertainment sites, the website layouts and operations of a video porn site could be contextualised with other websites. Some sites overlapped more than others, but they all had shared characteristics. They were most like entertainment and aggregator sites, which will inform the focus for the rest of the thesis and provide a specific point of view.

The final question again mapped the characteristics onto other sites, this time onto popular porn video sites. With this closer look at specific examples, the question was answered on a more micro-level that discussed how the specific sites were designed with the characteristics in mind and how they compared and contrasted—bridging the gap between the website creator and the users with available options and features. The definition was tested using a sample of popular sites with some more niche sites specifically for women. Again, the characteristics showed different overlaps and design choices. The sites for women diverted slightly from the norm, like Bellesa, but a standard was created overall. By the end of this chapter, a definition of a porn site expands into a list of characteristics. Those characteristics have been tested and explored to assess their validity and move towards a standard for porn video sites that provides a further encompassing definition used in the rest of this thesis. The following sections will examine some of those characteristics and how they are presented using interactions and language.

PART TWO

CHAPTER FIVE: INTIMATE INTERACTIONS

5.0 Introduction

This chapter will focus on the interactions and searching on a porn site. A straightforward comparison and connection can be made between this chapter and *Chapter Four* by using the characteristics, definitions and sample sites from the previous chapter. Chapter Four's characteristics lay the foundation, this section will build upon that to better understand how the sites look and work. Web 1.0's static sites are a thing of the past. These porn sites are products of Web 2.0 and can now interact with their users. Since there are many recorded interactions on the site, this section will only focus on a brief selection before honing in on categories and tagging in the next chapter. This chapter answers Question Two through its three key subquestions:

2.0 How do users interact and search on a porn site?
- 2.1 How do characteristics of the site invite interaction?
- 2.2 How do the site's features support different types of interaction?
- 2.3 How do users use categories and tags for interacting and searching?

Video streaming porn sites have a driven focus on their content, and most of their traffic indicates that users access the site to watch that content quickly and repeatedly (Similar Web, 2020). However, even this minimal interaction can provide a fascinating insight into the user's journey with additional secondary data like the site's popularity, video popularity, and time on the site. The site collects all these metrics, as seen in Pornhub's regularly published Insights, as data points to adapt its pages and use them to learn how to cater to its users. The basic interaction data points collected for this project include video duration, time spent on the site and views per video —a discussion of these data points of secondary data with the primary data collected for this research project.

Beyond the most basic levels of interaction are other offerings on the sites like comments, upvoting, downvoting, hearts, commenting or adding tags. However, a small portion of the site's overall traffic – users to the site regularly – use these features. This disparity creates a gulf between many users who provide minimal interactions while only a few more involved users use everything on offer. It is necessary to differentiate between the types of users on this site to answer how the different features cater to each of them. These layers to the site provide invite a user by slowly revealing options. The design and the site's characteristics or the interactive elements entice users to interact based on their interests. From this speculations are made in the chapter about these layers, users and interactions as an overall journey on the sites.

By defining the interactive elements on the site and the different types of users, a greater understanding of how the site and its users collaborate to index the content and evolve the site. The main goal of the site and the primary interaction for all users is efficient searching. Looking closer at how the characteristics from *Chapter Four* work with the newly created list of interactive attributes from this chapter shows how they all work together as part of the user's journey to aid this mutual goal of finding media quickly. The search tactics differ from other sites where accuracy is a priority, but instead, prioritising efficiency. This section makes a case for connecting these primal search tactics for porn searching using the concepts of browsing, Berrypicking, and Information Foraging.

This final part will connect the search tactics to a specific type of characteristic and interaction attribute. By focusing on the category and tagging framework, connections can be made to the theory of Berrypicking and Information Foraging to describe the primal search behaviours of the users. Most, if not all, videos have categories that are added to the videos to place them in the pre-made categories defined on the site. The creators often add these categories when uploading or by the site itself with its automated system. However, some videos allow their users to add their tags. These act as keywords and finding aids that allow users to communicate with like-minded users to lay breadcrumbs to videos which others might be interested in using. Also, tagging is used as a way to create community connections. Both categories and tags offer a physically simplistic way of searching – one-handed or using three clicks, as *Chapter Two* defines. This form of navigation enriches and concludes the user journey by justifying the importance of categories and tags on these sites.

By the end of this chapter, a greater understanding of the different levels of interaction will coordinate with definitions or elements that define primary users from involved users. All their interactions will show how they influence the site. Categories and tags work as the primary search element that encompasses the different types of interactions and user encompassing their different search needs in a simple but effective way. Overall, it will create a sense of users' needs, tactics used to meet them, and how navigating the sites looks.

5.1 How do the characteristics of the sites invite different types of interaction?

The previous chapter set out the characteristics of porn sites and how they compare to mainstream sites. Then, after the characteristics were defined, with the focus that the site's primary purpose is for adult entertainment, the characteristics were tested by looking at specific popular porn sites. The descriptive ability of these characteristics was tested, and all the sites met the criteria in some way fitting the definition. This chapter will use these characteristics and sites again with the sample sites to build on them. The features that drive the site's organisation and user content will be explored by looking at their interactive attributes. This project will define these interactive attributes as the features available to a user that provide movement and Feedback throughout the user's navigation journey on the site. It will explore these features collected in the data and connect them to the characteristics. To reiterate, the list of defining characteristics includes:

1. *Categorisation System - for indexing*
2. *Organisation System - for search*
3. *User-Content Driven*
4. *Front Page with Recommendations*
5. *Monetisation*

These characteristics create the framework which can now be used to map interactive attributes. These attributes were found one level further into the site, at the video level, after selecting specific videos on the front page. Data based on these interactive attributes were collected from the top videos. Some sites in the sample had data on all the sites, but others only had a few options but were still enough to compare. The attributes are:

Main Category
Title
Duration
Views
Upload Date[4]
Upvote
Downvote
Hearts
Categories
Community Tags
Comments (only the number recorded)
Content (brief time-coded description of the film)

[4] If available.

These attributes will overlap between the characteristics showing the integration of interaction across all aspects of the site and its design.

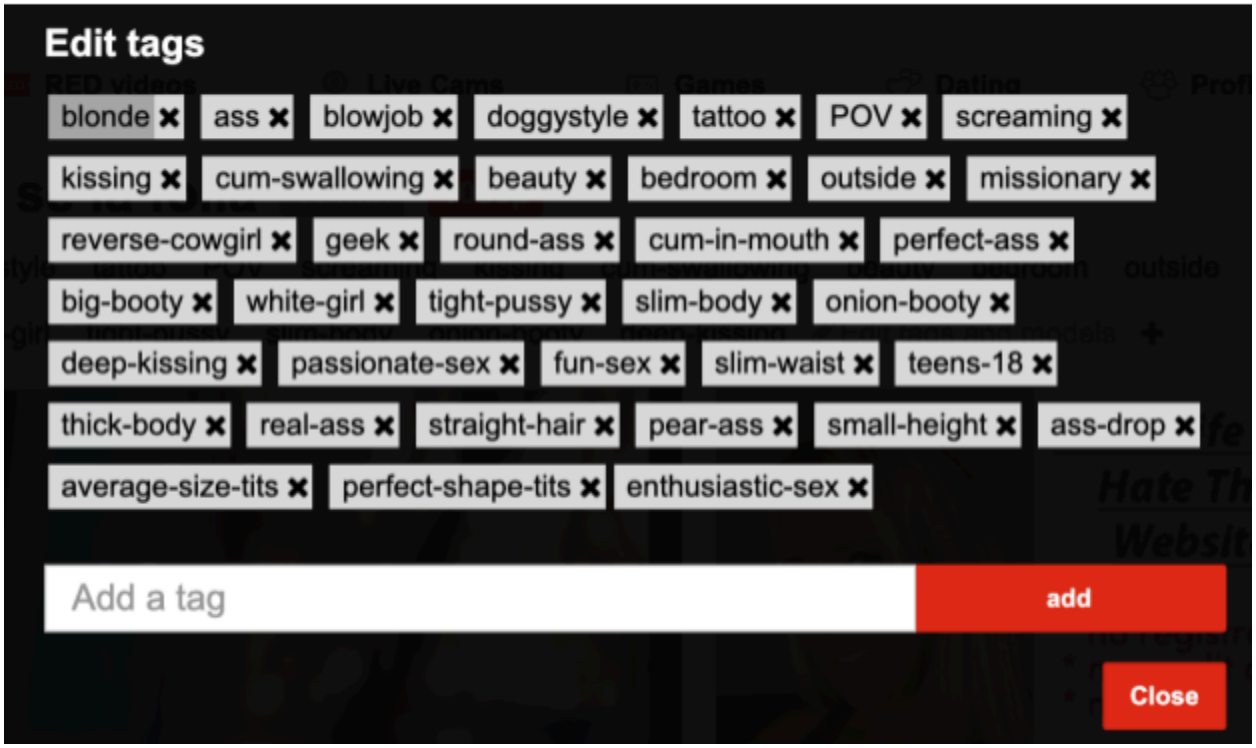
5.1.1 Categorisation System

The categorisation system relies on the site and the content creators to find ways to index their content and define the terminology. This system creates the categories and genres for the site that sort a large amount of content into themes for easier access. This characteristic of a porn site shows the priority given to them as they were immediately visible on the front page. When mapped against the interaction attributes collected, they are relevant to the attributes are:

Main Category
Title
Duration
Categories
Community Tags

The main category in the video appears on the front page. In contrast, the other categories may be added and seen when selecting the specific film. The other metadata, such as the title and duration, also help categorise the video by providing details of more information for searching. The title provides more information and may include these categories once again. At the same time, the duration gives the site the priority of which one rises to the top, as seen in the data analysis, with the average length videos being more prevalent on the front page. The community tags provide the final interaction attribute to this characteristic, allowing it to work together with the organisation system by further indexing the categories for searching. Figure 5.1, below, shows how XVideos displays their categories and allows adding tags on a video page. XVideos lists them all on the same level while still providing the option to add tags as interaction, which is explained further under user-driven content.

Figure 5.1: XVideos' categories and option to add tags as displayed on a video page.



5.1.2 Organisation System

The organisation system works with the categories to improve search functionality by organising content based on three main interactions:

Main Category
Categories
Community Tags

The site collects these interactions and creates the front page structure. These attributes of the organisational characteristic allow users to specify further the content they want to see, acting as filters and facets for their search. They can search without needing to use the search bar, promoting a browsing structure to the site that allows the user to stumble on new material just as much as find something they want to see. A user does this search by employing the Main Category defined on the front page and further defining their search with other category options and community tags available.

5.1.3 User-Content Driven

The nature of the porn site being user-content driven invites further interaction either in the form of users uploading content or following a particular content creator. Their interactions again

encompass elements like comments, forums, fan pages, creator or model pages, and rates or reviews. Where categories are broad, organisation systems allow the community to define further what they want. User content further invites a sense of community and specification in the interactions, which users can take advantage of, too. When mapped against the data-defined attributes, the following would fall under this characteristic:

Upvotes
Downvotes
Hearts
Community Tags
Comments
Content (brief time-coded description of the film)

Figure 5.2: Pornhub's interaction metrics as shown at the bottom of a video.

These interactions show that the content on the site is user-driven while providing feedback for that content. These types of interactions, which users can choose to use, help promote the site's prioritised community. Figure 5.2, above, shows an example of this data on a video page on Pornhub. It shows the number of views, the approval rating as a percentage, the upload date, upvotes, downvotes and the number of hearts. By taking advantage of the upvotes, downvotes, hearts, community tags and comments, users signal media they view as quality (based on personal choice) and help promote it to other users on the site. The upvotes, downvotes and hearts serve as simple interactions that users can do with one hand or a few clicks. The comments work as another opportunity for the user to leave their mark. The content of the film contextualises all the interactions and reactions around it.

5.1.4 Front Page with Recommendations

The front page is the initial guide and provides personalised recommendations to users, inviting them to explore, save, and tweak what they want to see. The curated selection of videos comes from the site's previous interactions with a single user and multiple other users. Regular testing and recording provide a tailored experience that engages the user and helps them navigate the site. The list of categories and recommended video thumbnails presented on the site in their grid formation change regularly due to many factors, particularly from the interactions with the site, from specific users and all users. When looking at the interactions available on the video

pages, the following interactive attributes could contribute to affecting the front page recommendations:

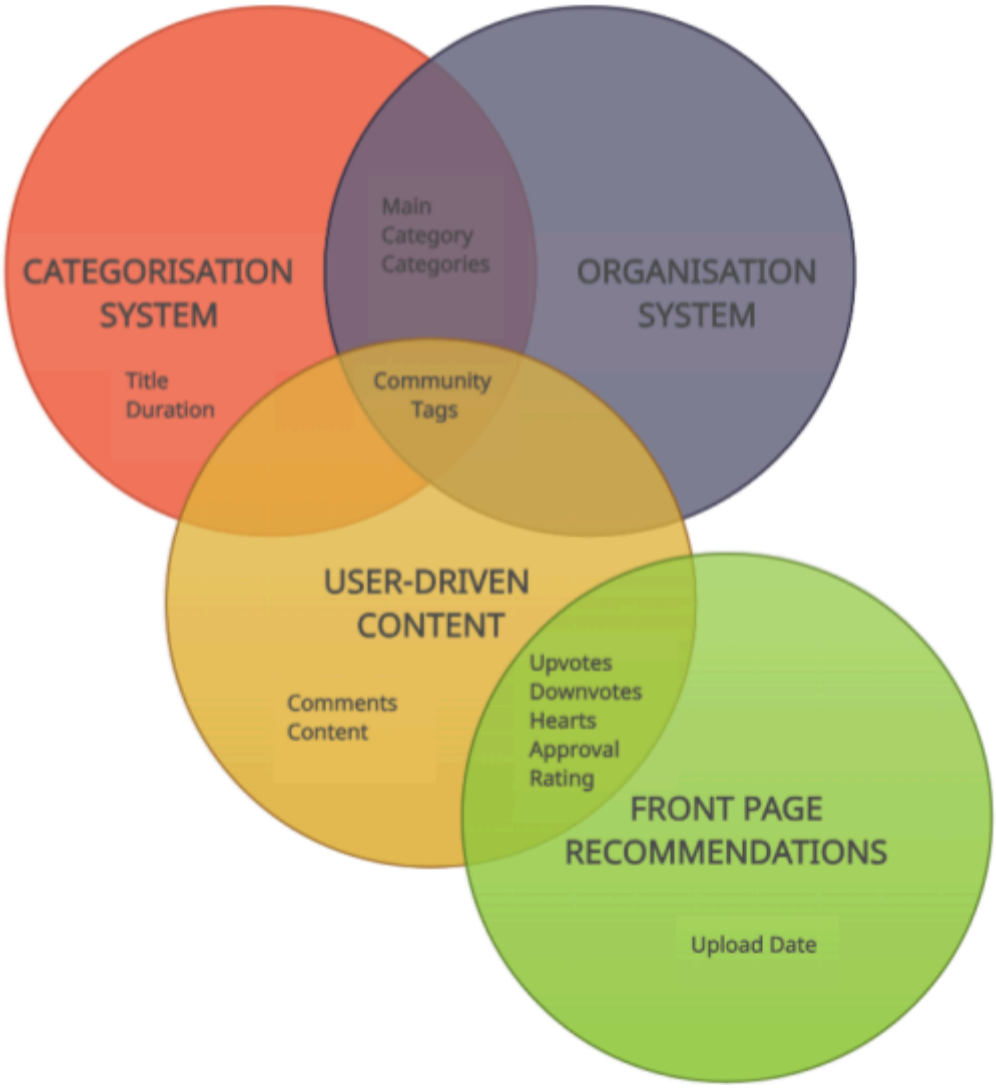
Upvotes
Downvotes
Hearts
Views
Approval Rating
Upload Date

As with the user-driven characteristic that encompasses upvotes, downvotes, and hearts, the front page retrospectively uses these interactions as metrics to cater to the video selection and assess popularity. They are combined with the quantitative number of views, the approval rating (if available), and the upload date (if available), favouring the more recent content. Getting from the front page to the video page only requires a single clickthrough to the video pages, but the interactions on that one layer more profoundly affect and change the front page. The front page is an invitation for searching and a gateway to further interaction beyond viewing, which will be discussed further in this chapter.

5.1.5 Monetisation

Finally, Monetisation is a clear transactional and commercial interaction between the user and the site. It allows them to create specific '*Premium*' accounts to gain exclusive access, extra benefits or content that non-paying users cannot access. This paid-for content potentially provides more of a sense of community but one that is more exclusive, highly invested and engaged in the site's entire content and features. This characteristic would include all the interaction attributes above with possibly more, but was outside the scope of this study. However, they would be exciting and worthy areas for further research and discussed in *Chapter Seven's* concluding chapter.

Figure 5.3: Shows the overlapping interaction attributes related to the defined video-streaming porn site characteristics.



The figure above shows the four characteristics considered for this chapter, excluding the fifth characteristic, monetisation. It shows where the interactive attributes of video streaming porn sites fit within the context of the characteristics and which ones overlap with mutual benefits and uses for each.

Overall, the different interactive elements of a porn site create routes for navigation, search functionality, recommendation systems, and community indexing. The interactive attributes invite the users to actively engage with the site, from the most simple interaction of watching a video, which requires some form of navigation and front page interaction, to far more involvement, like comments and reactions to other users.

5.2 Data Analysis to Support Interaction Invitation

This section will analyse the data used to answer the research questions and build on the methods introduced in *Chapter Three*. This chapter used primary and secondary data for its analysis, where the primary data was collected, and the secondary data supplements and supports it. The interactions on the site provide information on the environment, cultural forms and social practices (Burgess, 2009). The investigation into the interactive elements and how they are used will provide cultural and social insight into a porn site as it would for other sites like YouTube. First, breaking down each data point for interpretation can be synthesised and combined to find possible correlations and relationships. The interactions provide clues about the cultural and social aspects of the sites, comparable to social media sites, but only to a point. This section will discuss the data with visualisations, synthesise hypotheses and contextualise with conclusions to create a narrative of how users interact on porn sites.

5.2.1 Primary Data

The primary data used for this chapter is from the *Interactions Data*. The collection aimed to create a standard list of interactions for the video streaming porn sites that would capture the content of the video as well as the interactions associated with that video. This list was created by surveying a sample of videos created by taking the top ten videos of the top ten categories of each site for the *Front Page Data.* Some sites led to external sites and too many variations in interaction options, and others offered only eight top categories, creating just a sample of 560 videos. That culminated in this list of interactions:

Main Category
Title
Duration
Views
Approval Rating
Upload Date
Upvotes
Downvotes
Hearts
Categories
Community Tags
Content (brief time-coded description of the film)

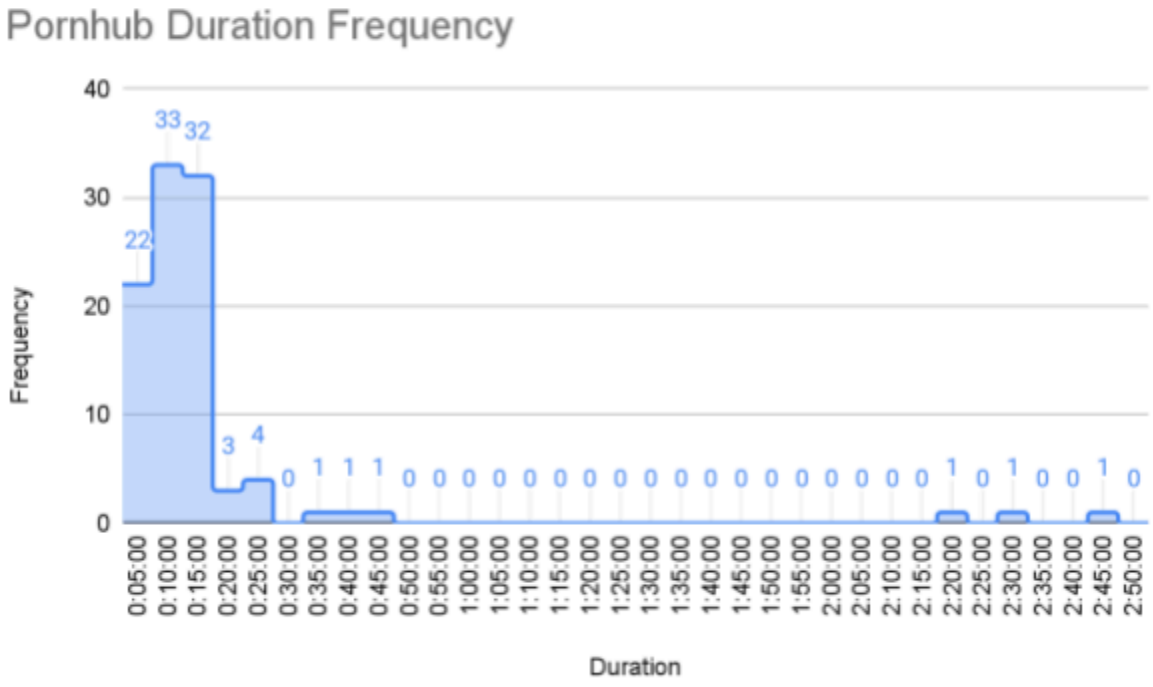
Each section below will break down each interaction with the collected data. Comparisons will be made to find any relationship or correlation between the interactions to provide further insight into the user's journey while searching.

5.2.1.1 Duration

Duration is one data point that quickly shows the type of content being prioritised on the site and whether they are long or short videos. The videos' duration will provide information on users' viewing habits by showing what video duration is uploaded more often to possibly cater to user needs.

In the chart below, Pornhub's videos are mainly between ten to fifteen-minute in duration. This is evident in their frequency, shown in Figure 5.4. However, three extreme outliers are over two hours long. This would skew the average duration of the videos to be higher. With the three outliers removed, the average duration of the video drops from 00:13:37 to 0:09:31. That's a full four-minute reduction in the average duration, further emphasising the priority to shorter videos around the ten-minute mark in the sample of videos surveyed. When the median is calculated, it drops even further to 00:08:19.

Figure 5.4: Pornhub's video duration frequency.



As for the rest of the sites, there are fewer outliers in their sample, making the averages more consistent than Pornhub's. Detailed in Table 5.1 below and specific graphs in Appendix One, YouPorn's sample videos are mainly between ten and fifteen minutes, with a twelve-minute (12:11) average. XNXX, XVideos and Pornhub Gay have a smaller range of video lengths and a

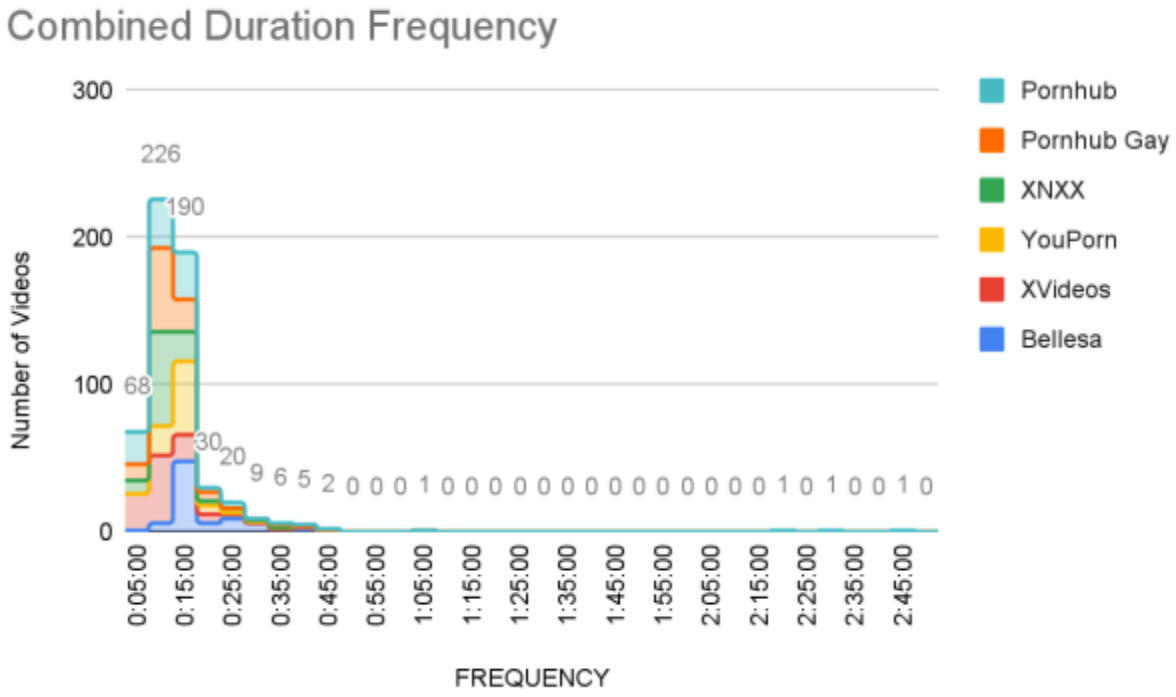
standard deviation with more videos in the five to fifteen range, no outliers and a majority in the ten-minute bracket with an eight-minute average. Finally, Bellesa's videos mainly spread from fifteen to thirty minutes, making their average of just over fifteen minutes. The increase in length is expected because the videos on all sites but Bellesa show mostly amateur or bootleg content that is incomplete or short with little production. Bellesa, a site that aims to be ethical and for women, shows only studio-produced films that are typically around thirty minutes. This would cause the average duration to be much higher than the other mainstream sites in the sample.

Table 5.1: Average duration of sample videos for each site.

Average Duration of Sample Videos	
Website	**Average Duration (mins)**
Pornhub	00:13:37
Pornhub Gay	00:08:28
XNXX	00:08:43
YouPorn	00:12:11
XVideos	00:08:28
Bellesa	00:15:22

Figure 5.5 below combines all the sample sites and the duration frequency for the videos surveyed. Most sites are at the ten to fifteen-minute range before they trail off to only a few videos with longer durations to the right of the graph. This relationship follows an approximate Zipf distribution curve with a spike of videos at a specific duration before the frequency of videos curves downwards. It tapers off as the duration along the x-axis increases. This relation creates an inverse relationship between the videos and the duration. The shortest videos surveyed, less than five minutes, break the trend, making it imperfect.

Figure 5.5: All the sample sites' video duration frequency combined.

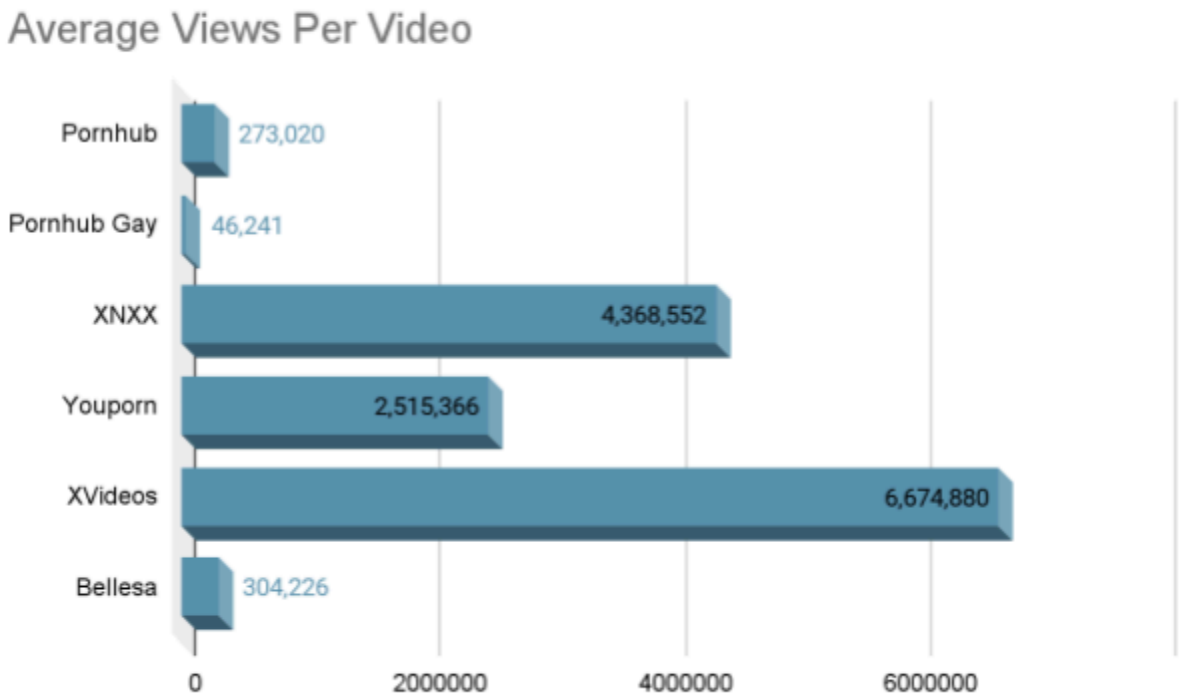


This curve could occur because there is a possible "sweet spot" in the length of a video for viewers that the content creators are more likely to respond to. Videos that are too short do not provide enough entertainment or enticement to viewers to make them worth uploading to the site. Videos in the ten to fifteen-minute range hit that duration "sweet spot." Any content longer than that is not often found on the site and may take too much effort or is not engaging to the site's users. This priority to videos at this length will next be compared to their views to assess popularity with viewers.

5.2.1.2 Views

The number of views is another essential and reliable way to see interaction on these sites. Like YouTube, the number is recorded with the videos along with their other interactions. However, unlike those other interactions, the number of views communicates popularity much faster to other users. Most sample sites show the views on a video, possibly knowing this is what it communicates. The sample videos from each site that recorded their viewership were averaged to create the chart below.

Figure 5.6: Average views on a sample of videos for each sample site.



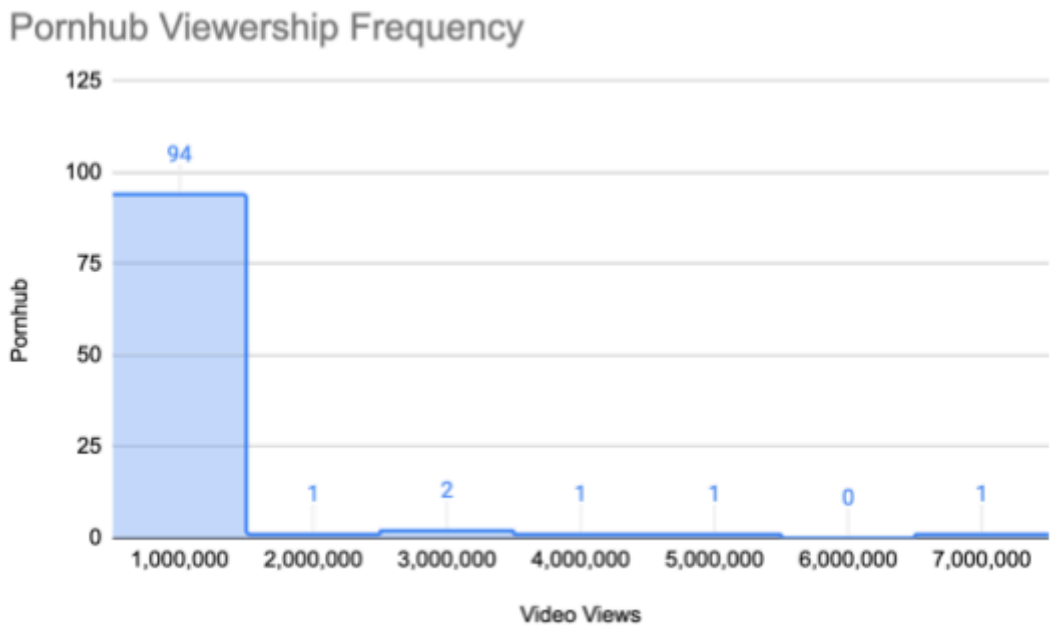
When interpreting Figure 5.6 to compare the sites, Pornhub and Bellesa are nearly alike in their average views per video. This similarity is interesting because Pornhub has predominantly amateur content, and Bellesa has a majority of professional content. This observed similarity is of equal interest in the two types of content or equal popularity between the sites. The similarity could be due to how often the front page is updated compared to the other sites. Nevertheless, this would need to be studied further. The other three sites, YouPorn, XVideos, and XNXX, are very close in their viewership and almost double that of Pornhub and Bellesa. XVideos stands out as the front runner and lives up to its name as probably 'The Best Free Porn Site' or at least the most popular. Pornhub Gay, the most significant outlier, has the smallest number of views, with an average of less than fifty thousand, but this could be due to the site being a partition of its parent site, Pornhub.

There are still other factors that could affect these views, however. For example, the popularity of each site differs, and viewership is based on the site's popularity, which could change how Figure 5.6 looks. There is also the issue of the amount of content that could play a role in video popularity. Some video streaming sites may have fewer videos, affecting how often they get recommended or how often users find them. The final reason could be the age of the website or

video, which could affect the length of time it could be accessed and viewed. Unfortunately, for this project, the upload date could not be recorded for most of the videos. However, the few higher in viewership did have older upload dates that would suggest this. From this speculation, viewership may only sometimes beget popularity. So, there must be other ways to look at these sites to balance it.

When reinterpreting the data for frequency, the spread of views changes. Take Figure 5.7 below, which shows the spread of viewership frequency for Pornhub, with most (94) out of the 100 films surveyed having up to one million views, with the other six videos showing a small spread of 1 video with two million views, two videos with three million, one video with four million, one video with five million and one with seven million. As the videos were taken from the front page and top video recommendations, this could reflect the changing popularity cycle in recommendations that appear in these top results, showing a higher dominance with videos with less than a million views. These videos are newer to the site and have yet to have the time to rack up the viewership that would be expected. In comparison, the videos on the far right of the scale have been on the site longer. This curve again supports the data where many videos were recorded to be uploaded a few weeks before the data collection. In contrast, those with higher viewership recorded for videos uploaded a year or two before.

Figure 5.7: Pornhub's viewership frequency showing that most of the sample videos have up to one million views and only six videos having more.



In Figure 5.8 (below), it is clear that there are associations between the frequency of views and the top videos surveyed. YouPorn again shows a dominant number of videos with up to three million views before tapering off. Most of the videos sampled and collected were uploaded in 2020 or 2021, while the one with the most significant number of views (53,000,000) was uploaded in 2014.

Figure 5.8: YouPorn's viewership frequency showing most of the sample videos had up to three million views and some up to seventeen million with one outlier with fifty-three million.

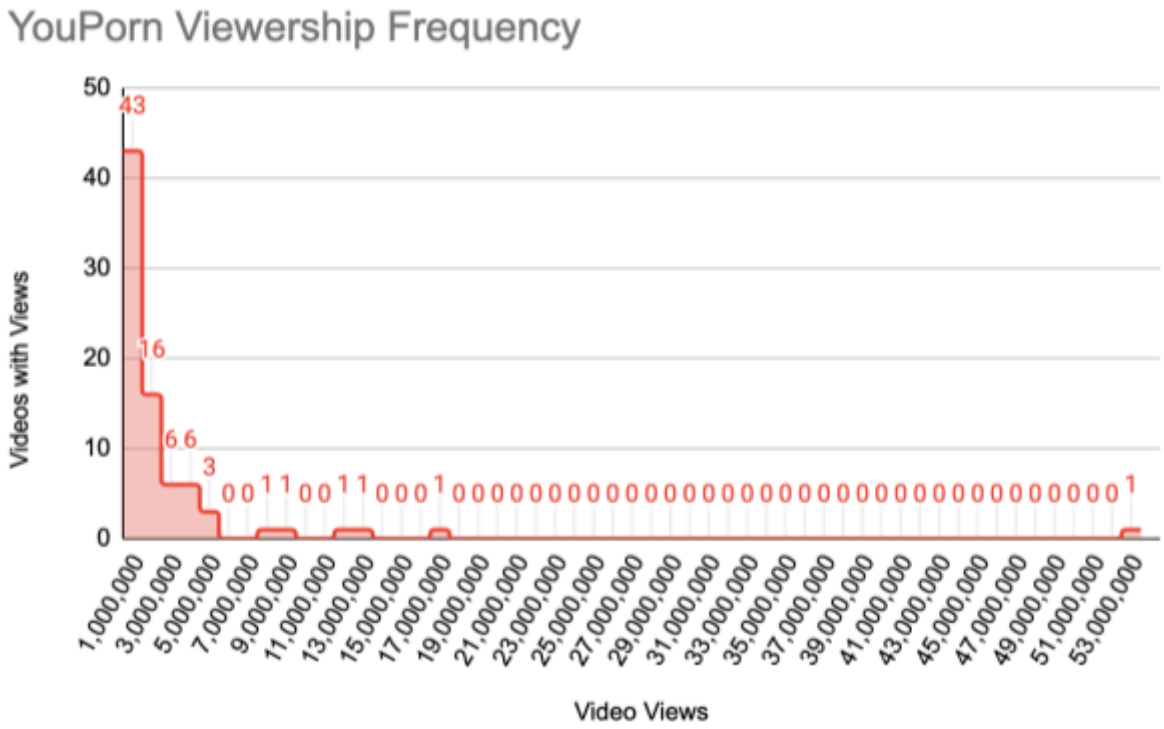
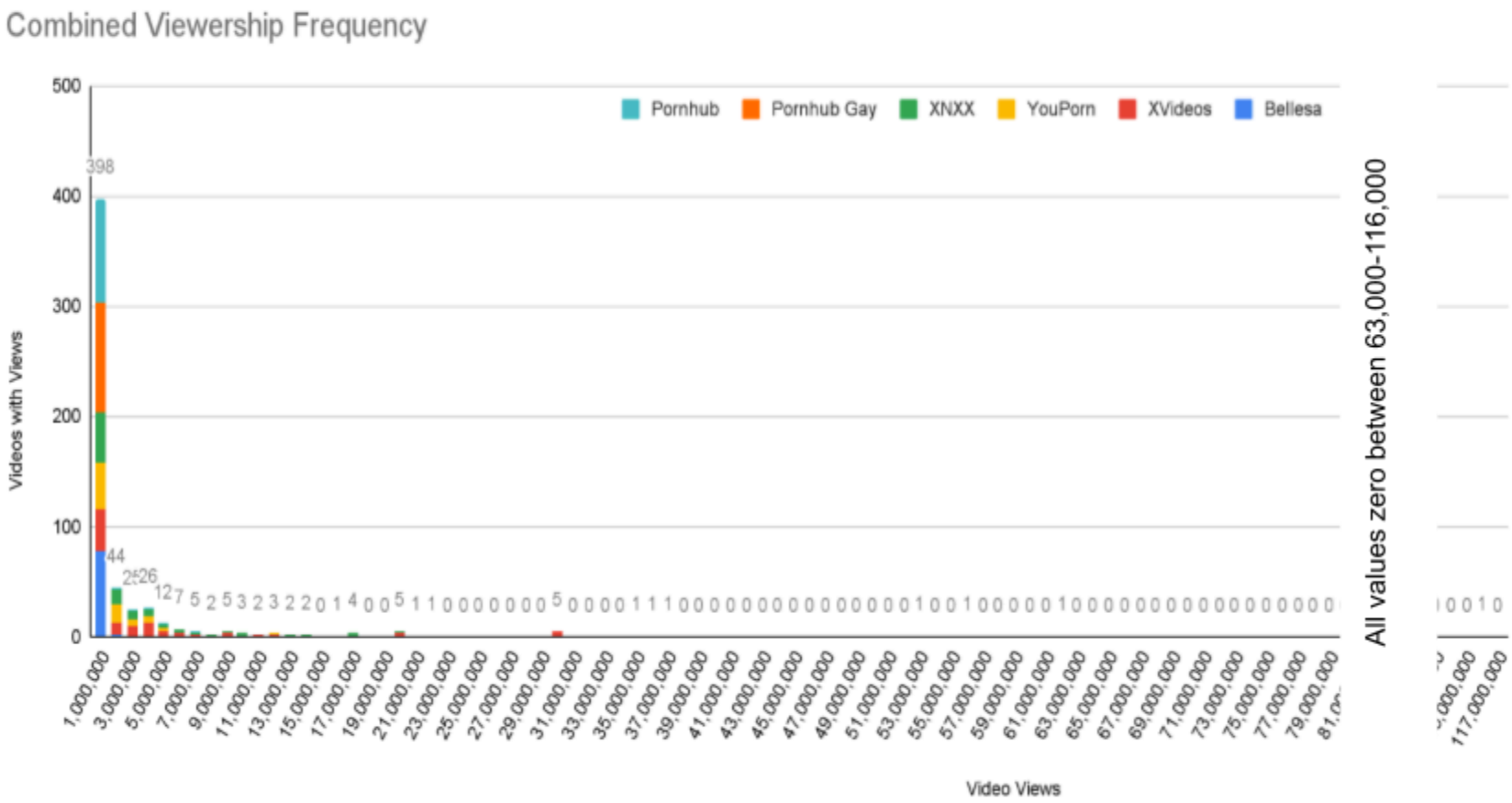


Figure 5.9, next page, combines all of the website's video views to further solidify and establish the viewership frequency on each site. This data analysis again trends with a Zipf distribution, this time more accurate than duration, with the frequency of the videos decreasing as the number of views increases. They showed that most of the films surveyed had a lower proportion of views, with only some outliers. This low viewership could be because they were top videos and possibly uploaded on a more recent date. Nevertheless, as this top video collection was done the same for each site, all of them follow a similar pattern and their individual figures can be found in the Appendix.

Figure 5.9: The Combined Viewership Frequency of all the videos surveyed shows most videos with up to one million views.



The trend in this curve shows that more than half of the videos surveyed, 398 out of 560, had up to one million views. This curve could be due to the upload date of the videos, but future study the upload dates for videos need to be more accurate and comparable across the sites as they are displayed differently or not at all. The video with the most views at 115,000,000 views was from XVideos, which does not display the upload date for their videos. The overall trend could also be affected by the content and whether it cycles from the front page to being buried with the site's categories, making them more challenging to find. Alternatively, the dwindling popularity of the videos could be affected by a lack of interaction, and the videos maximise their viewership before losing popularity and then getting pushed deeper into the site. Now that viewership and duration trends of the video are established, the next step is to test if there is a relationship between the duration and views to compare them to other interactions in the following sections.

5.2.1.3 Duration vs Views

The two data points, duration and views, can now be compared and analysed to show if there is any relationship between the two. The graphs for both data points above show a dominance for shorter videos and fewer views, so speculatively, there will be a specific duration of video that will show more views than others. There is a “sweet spot” for the video length with an established viewership that will follow similar curves and provide some relation when compared. Below, Table 5.2 shows the average duration and average views for the sample videos as they relate to each sample site. These show the ranking of these data points between the sites but still include the outliers that skew the data, like Pornhub’s duration. Though these averages are affected by their outliers, they still show the relationship between duration and viewership.

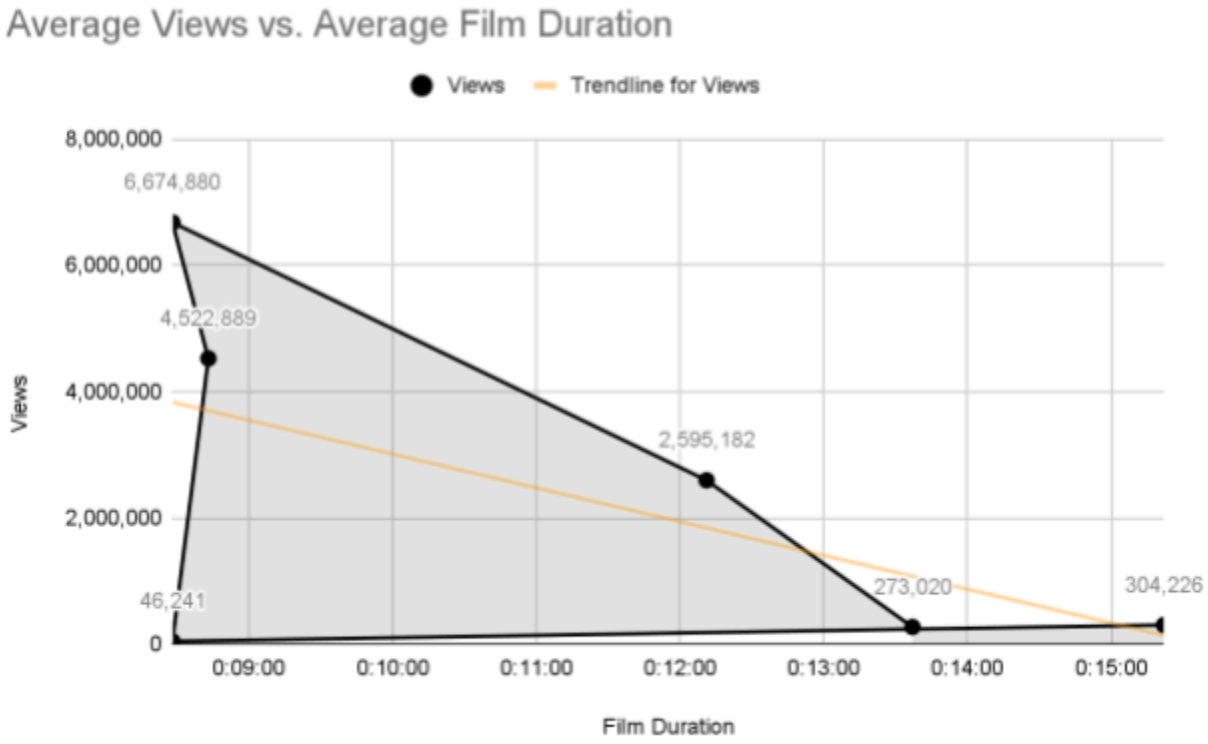
Table 5.2: Average duration vs average views for each website

Average Duration and Average Views for Each Sample Site		
Website	**Average Duration (mins)**	**Average Views**
Pornhub	00:13:37	273,020
Pornhub Gay	00:08:28	46,241
XNXX	00:08:43	4,552,889
XVideos	00:08:28	6,674,880
YouPorn	00:12:11	2,595,182
Bellesa	00:15:22	304,226

Table 5.2 provides a spread for these two factors. For duration, the spread of the data covers a small span of around seven minutes from the shortest to the longest duration average. The views, however, show a much larger spread and start at 46,241 average views for Pornhub Gay to 6,674,880 for XVideos. This large span of views across the sites shows possible reactions to site popularity and content. This point will be returned to with the secondary data. However, this shows that for all the sites and videos surveyed, there is a large concentration of viewing happening in a condensed duration on these sites.

The final chart visualises these averages across the sites as a curve. In Figure 5.10, the shaded portion shows where the most viewed videos are placed based on their duration, showing an unusual crossover that tails off at the thirteen-and-a-half-minute mark. The trend line and the shaded portion of the chart again show the relationship between shorter videos and higher viewership—the shorter the video, the higher the views. However, the graph shows a dip in length that decreases viewership before tapering off as the duration increases. Site users predominantly watch, search and find these videos more often, creating these popular durations. Content creators on the site, either aware or not, use this idea and the curve to tailor what they upload to the site. This alluding to awareness also supports the idea that the content creators and users are working together to create videos that fit the “sweet spot” in duration and attract the most views. Many variables have been mentioned in this section that would need to be studied further with a larger sample. Regardless, the picture of the user’s journey starts to take shape with these ideas over overall preferences and popularity. Some of the other user interactions will be discussed further to expand on this.

Figure 5.10: Average views for each site versus average film duration – each site creates the curve where the shaded area shows where most of the viewership occurs based on duration.



5.2.1.4 Upvotes, Downvotes and Hearts

There are other, more minor interactions also available on these sites. These *Simple Interactions* are defined here as interactions that take little effort and use one hand and one click of a mouse or trackpad. Upvotes and downvotes act as simple buttons which communicate to their users the approval of content between users. Hearts are used to do the same but also act as a save button for personal use for users to refer back to later. Pornhub, XVideos and Pornhub Gay all allow users to rate content in three ways: upvotes, downvotes and hearts. XNXX also allows users to have their say with simple upvotes and downvotes. These Simple Interactions require just one click from a user and provide further insight for the site's creators on whether the content is highly rated. Bellesa offers no interactions but will still be included whenever possible as a comparator due to its difference in content and ethos.

The number of interactions is in the thousands, and some of the most common interactions will be discussed later. Below are two charts, Figures 5.11 and 5.12, which show the culmination of these interaction options. In the first chart, the total number of interactions is combined to show

the amount of interaction across all the sample sites. This comparison of interactions shows some sites like Pornhub, XNXX and Pornhub Gay favouring upvotes over downvotes, which is similar to other sites like Youtube. It is likely the dominance of upvotes is because users are more likely to give a Thumbs Up rather than a Thumbs Down and would instead just navigate away from it. The second chart shows a similar distribution that also favours upvotes.

As for hearts, only Pornhub, XVideos, and Pornhub Gay offer this as a separate interaction from Upvoting. However, XVideos lists their upvotes and downvotes interactions as an overall percentage, and the hearts incorporate that data with their hearts data, making them difficult to separate. The figures and data show a significant skew towards heart interactions on XVideos that may not be true and need further comparisons to assess the popularity of their interaction.

Figure 5.11: Total number of Upvotes, Downvotes and Hearts on all videos sampled per site.

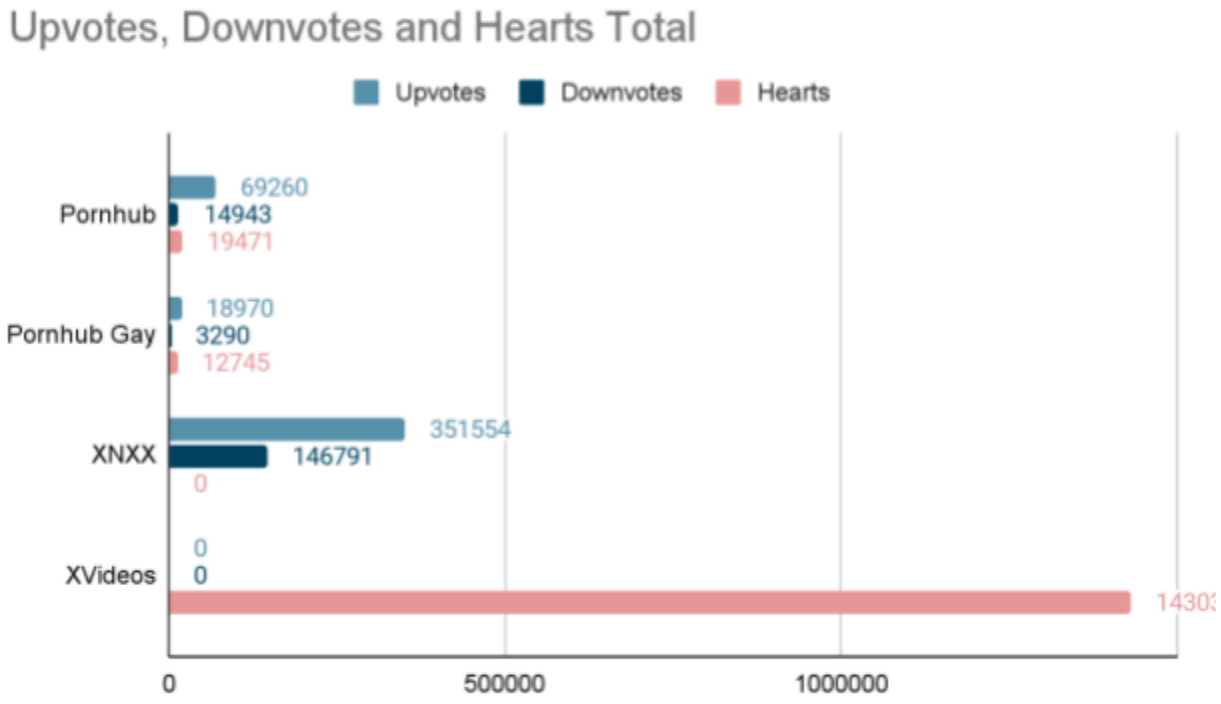
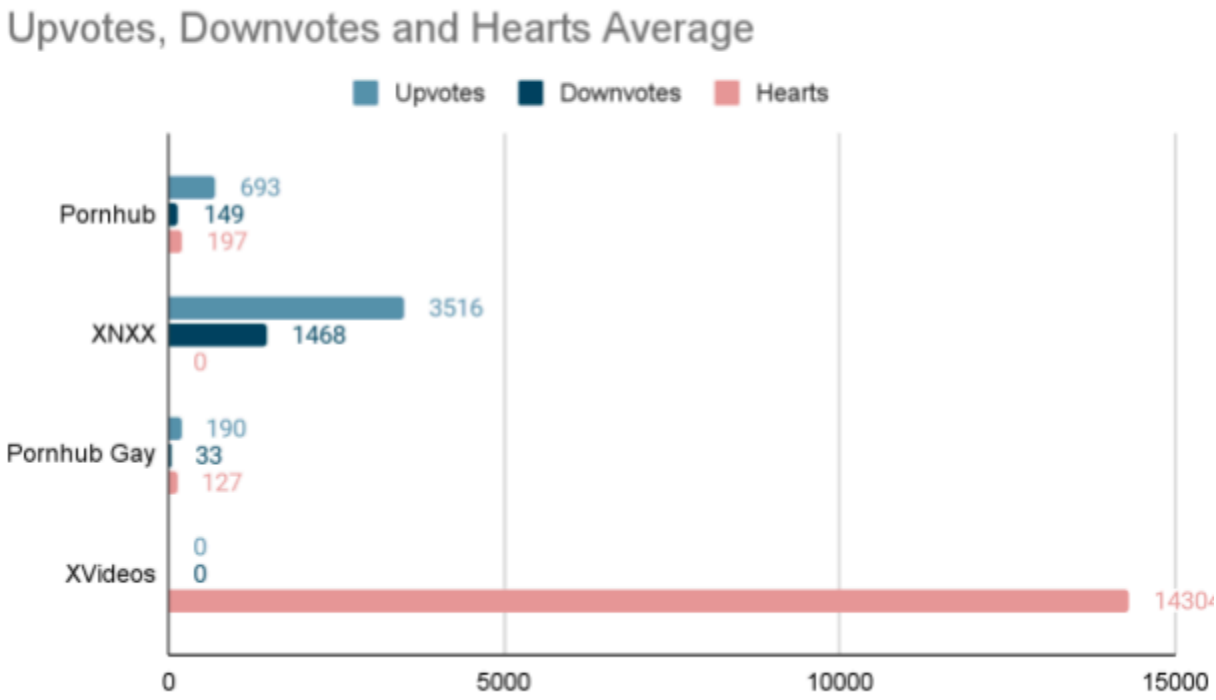


Figure 5.12: Average number of Upvotes, Downvotes, and Hearts for the sample of videos for each site.



Both figures, 5.11 and 5.12, show some form of simple interaction across all the sites that offer the option. The popularity and usage of these interactions will be compared and assessed later once the other complex interactions are defined.

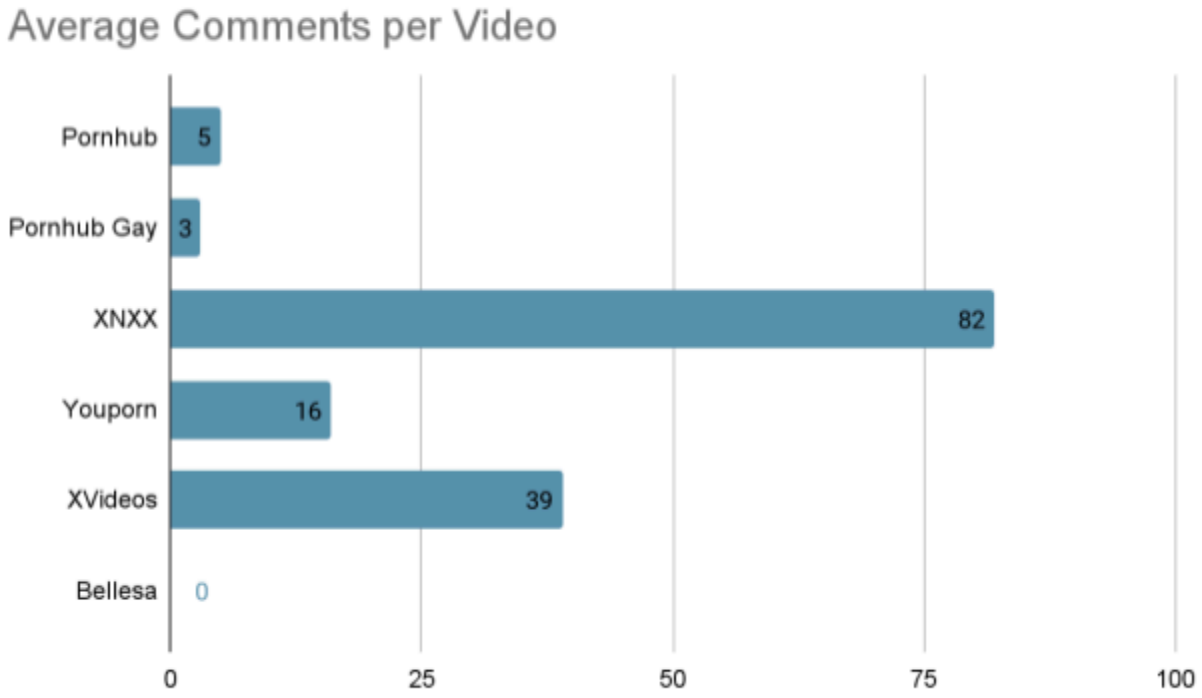
5.2.1.5 Video Comments

The next interaction collected was comments. Unlike views on a video, the comment has to be done with a little more effort and is defined as a *Complex Interaction* – an interaction that uses two hands and needs more than two clicks or keystrokes to complete. For the most part, comments are typed messages that can be left on videos with an anonymous account or through a profile, free or paid. These comments are often in response to other videos or other comments. Some comments are spam, promote other content or pages, or simply react or respond to the video or other comments without a real structure. A quick scan of some of the comment content (not recorded for this project) will show many comments asking, *"Who is she?"* or "*What is her name?*" in apparent reference to the female actress in the video. Bellesa does not offer a comment section to its users to possibly lessen the target on the female performers

from the site users. But this is, again, just speculation based on the site's ethos as an ethical site marketed for women as users and consumers.

Figure 5.13 below, displays the average number of comments for each site. Like the number of views, this shows user interaction with the site. The lowest level of interaction was with the videos on Pornhub and Pornhub Gay. The low number for Pornhub Gay is not surprising based on their lower viewership from before and the overall lower number of videos on its partition. However, Pornhub's parent site is only slightly higher, showing a possible trend for users to that specific site overall.

Figure 5.13: Average comments for video sample for each site. Bellesa shown here as '0' as it is not an option on the site.



For YouPorn to XVideos to XNXX, the number of comments spans from 16 to 39 to 82, respectively. These sites' content is primarily amateur videos made and uploaded by users, so interaction could be invited more often, like YouTube, with the dominance of user content driving this interaction. That still would not explain why Pornhub, which also fits these characteristics, is still so low. However, the views are lower on Pornhub, so the number of overall users willing to comment could be lower based on that. That theory works until looking at XNXX. The site has far more comments on average than any other site, but its view count was lower than XVideos.

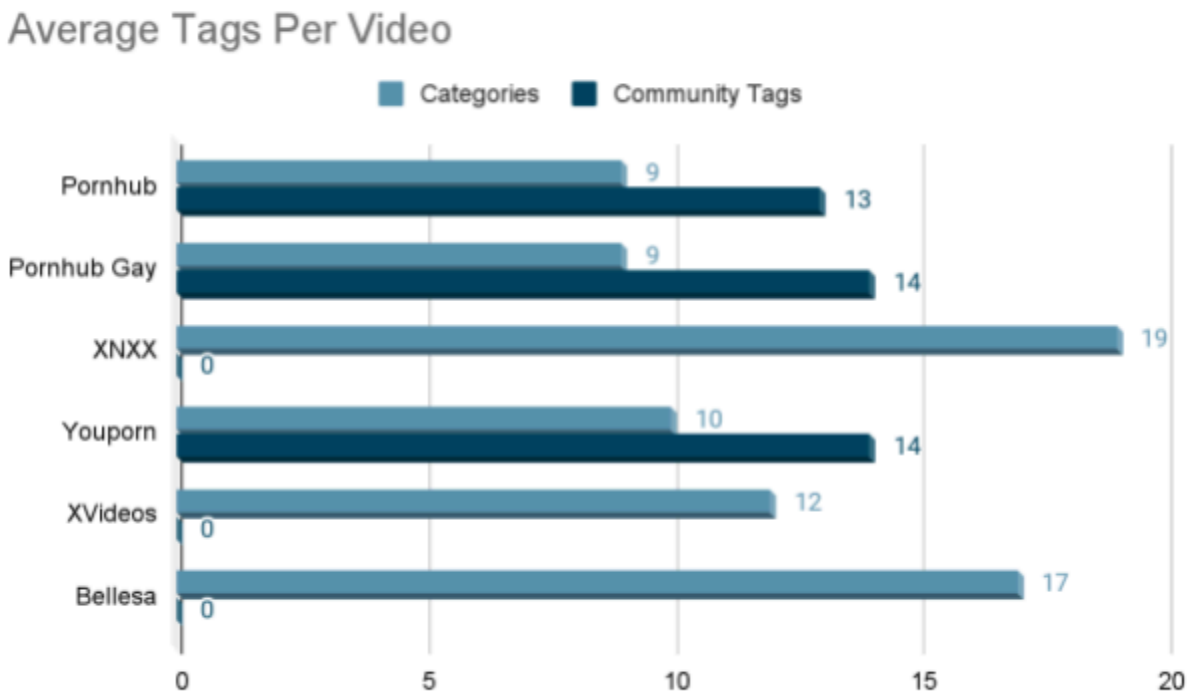
The site's organisational characteristics are identical to Pornhub. The site's organisation will be explored further when combining and looking at all the interactions.

5.2.1.6 Video Categories and Tags

The last two complex interactions explored in the primary data are tags and categories. This was recorded as quantitative and qualitative data as the number of categories, tags, and words during the collection. The visualisation of the quantitative data will be used here to provide an overview of their use. The more qualitative word data is used in the next chapter.

Below is a chart with the average number of categories and keywords added to a video by the content creator and the average number of tags added to a video by the users of the sites. All the sites had categories, but some sites (XVideos, XNXX, and Bellesa) did not have the option to add tags, so they were recorded as zero. The average categories for each site vary, with Pornhub, YouPorn, XVideos and Pornhub Gay having around the same amount (9, 10, 9 respectively). At the same time, XVideos, XNXX and Bellsa have a slightly higher amount (12, 19, and 17, respectively), possibly due to their lack of tagging options.

Figure 5.14: Average categories and average tags for each sample video from each site.



The number of categories varies across the sites, with the only similar sites being Pornhub and Pornhub Gay. Again, as one is a partition of the other site and is connected, this is unsurprising and expected. YouPorn shows a similar number of categories, which also makes sense when taking into account that these three sites offer the option to add tags, while the other sites do not. As speculation would suggest, the other sites have more dominance towards categories, with XVideo having a higher average and XNXX and Bellesa having the most by a large margin. The community-added tags for the three sites that allow them are all roughly the same average, thirteen or fourteen, further connecting YouPorn to Pornhub and Pornhub to its child site, Pornhub Gay. The consistent average shows they are organised or work in similar ways. For these sites that allow community tagging, the averages for both categories and tags are roughly the same. However, the sites where the users cannot add their tags skews the data towards a dominance of categories probably because a certain number of terms are needed to define and index the videos.

For porn sites, a video can have a certain amount of tags and categories that create its metadata. Because the content these sites contain, pornography, is not often searched for elsewhere, there is a need for more categories incorporated into the index and metadata description. The increase in categories lessens the need for additional metadata and lowers users' time needed to peruse to find their preferred content. Categories are created and added for speed in searching and finding. However, other uses for tags could be searching, community finding, content connections, extra information, and more. These uses and search tactics will be explored in the questions that follow.

5.2.1.7 Combined Data and Correlations

Below, the *Interaction Data* is combined through correlations calculations to find relationships between attributes like duration with Simple Interactions like views, voting, and hearts or Complex Interactions like comments and tags. Doing this will show any trends or predictions that could be made from the data to provide insight into the human interaction on these sites, which will be interrogated further in the rest of the chapter.

5.2.1.7.1 Combined

By combining the data, an overall picture will form of the total interactions on the site rather than before, where they were discussed separately or compared to just one other. The first way of synthesising the data was to get an overall picture of the interactions. Table 5.3 below details insights for all the sites and 560 videos surveyed. For example, the total duration of films

surveyed totalled four days, seven hours, forty-two minutes and twenty seconds. When converted into seconds, this totalled 373,340 seconds. This condensing into a single number was done for all of the interactions, as shown in Table 5.3.

Table 5.3: The total number of insights with some comparisons between interactions.

Totals for 560 Videos	
Total Duration	103:42:20
Upvotes	439784
Down Votes	165024
Hearts	1462599
Comments	14111
Community Tags	3,763
Total Duration in Seconds	373,340
Total Interactions	2085281
Interactions per Second	6
Seconds per Interaction	0.18
Total Views	1,382,848,870
% of total	0.15%

This data becomes valuable when comparing it to the total number of interactions across all the sites. It was calculated by adding the total number of upvotes, downvotes, hearts, comments and community tags, totalling 2,085,281 interactions across all the videos. Thus, the formula below was used to understand how many interactions were happening per second across all the site videos.

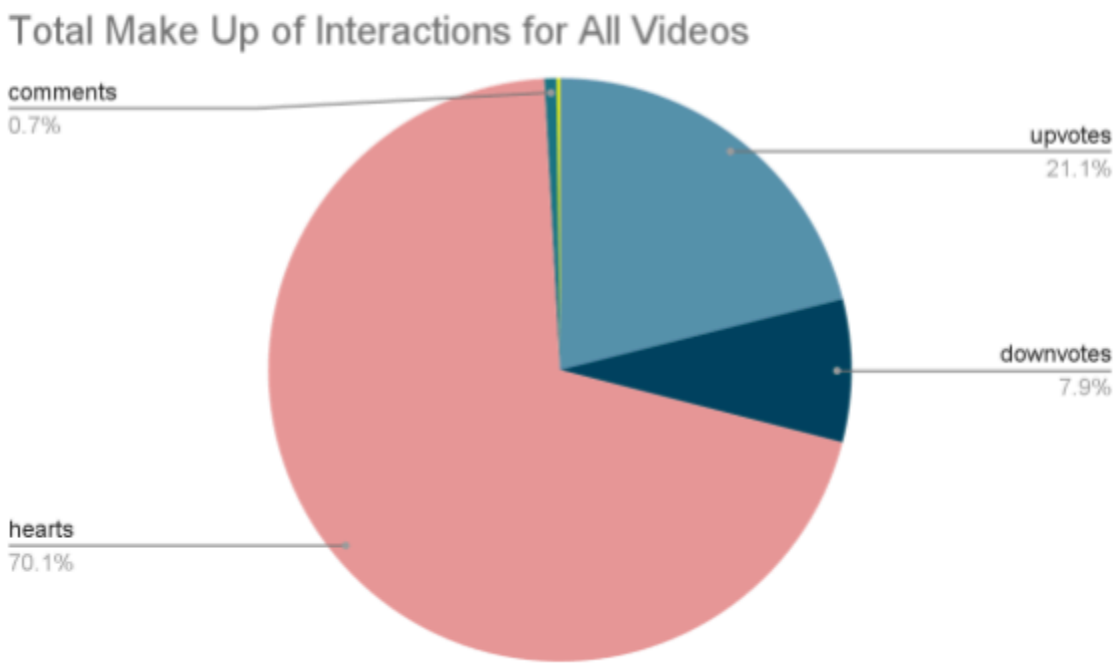
$$\frac{\textbf{Upvotes + Downvotes + Hearts + Comments + Community Tags}}{\textbf{Duration in Seconds}} = \textbf{Interaction per Second}$$

This data means that around six interactions occurred per second of video across these sites. Some sites saw more interactions per second, while some saw fewer. Compared to the total number of views for all the videos (1,382,848,870), the number of interactions becomes less impressive. It only amounts to 0.15% of all views become interactions with the videos. This percentage shows that only a small portion of views on the sample sites turned into interactions beyond viewing, and the majority (85%) were viewing. It should also be clear in this instance

that each view is not an independent user and could be multiple views from the same user from one or multiple sittings. It does not imply the full film was watched either. The total number of interactions was far from the number of views across these videos. There is a dominance for users that use the sites to view, and only a minority of users interact, in any form, beyond it.

The figure below uses this data in another way. It uses the total number of interactions as individual data points (upvotes 439,784, downvotes 165,024, hearts 1,462,599, comments 14,111, community tags 3,763) and compares them to the total number of interactions (2,085,281). This comparison shows the makeup of all interactions. The vast majority, at 70%, are hearts, but as discussed above, XVideos skews the data by combining their hearts data with their upvotes and downvotes. The second most popular interaction is upvotes at 21.1%, followed by 7.9% for downvotes and nearly 1% (0.7%) for comments. The minor portion of Figure 5.15 below shows community tags total 0.18% in the tiny yellow sliver on the pie chart and shows the dominance of the other interactions. However, this could be due to not all the sites offering community tagging, with just Pornhub, Pornhub Gay and YouPorn offering it to its users. Another reason could be that tagging and comments are Complex Interactions that take more effort than others and are less common.

Figure 5.15: The percentage of each interaction based on the totals taken from all the sample videos from the sample sites.



Based on Figure 5.15, users are likelier to use Simple Interactions like hearts, upvotes, and downvotes, as they only require a single one-handed click. In contrast, the other interactions require typing, as the chart reflects, despite the XVideo sample skewing the data. As hearts are the most significant portion of the chart above, this could be due to the reasons for their usage that differ from other interactions. An upvote or downvote could indicate a binary opinion on a video. A heart communicates more when it indicates approval and acts as a 'save for later' option that the user can refer to. This most significant portion of the chart favouring hearts is that XVideo's collation of their upvotes and downvotes with their heart totals could still affect this large proportion and could be further investigated in future studies.

5.2.1.7.2 Correlations

The following section will show any further trends assessed from the data. When comparing these variables discussed above, duration, upvotes, downvotes, hearts, comments and community tags to the views or duration data, provide correlation data for further analysis. This relationship will show whether there is a direct or inverse relationship to the total number of views for the videos surveyed.

The data was first tested for normality. Using the SPSS program, the Shapiro-Wilk test was run with the *Interaction Data* set for each site. When tested separately or together, every type of interaction provided a significance of <.001. This significance shows that the data was not normal. These calculations are shown below in Table 5.4. The data was tested using the Spearman calculation for its ability to handle non-normal data and incorporate outliers. Again, this was done through SPSS, and both equations were carried out to test the data on its linearity further by comparing the two. Based on the lack of normality in the data, Spearman's calculation takes precedence and is discussed below. All the calculations show promise in the data, possibly stronger relationships emerging with a more extensive data set or a more randomised sample not taken just from the front page.

Table 5.4: The Shapiro-Wilk test for all of the data showing all the significance as <.001 as not normal. The sample size (shown in the 'df' column) is different as not all sites had the same number of data points or options to record.

Tests of Normality			
	Shapiro-Wilk		
	Statistic	df	Sig.
Duration	.439	560	<.001
Upvotes	.381	300	<.001
Downvotes	.377	300	<.001
Hearts	.219	300	<.001
Comments	.260	380	<.001
Tags	.281	380	<.001
Views	.306	560	<.001

Once the data was calculated, correlations were found, and interpreted to find strong correlations. Table 5.5 below shows the highlights from the data and the interactions with strong correlations, any relationships with a value over 0.7 and a significance of .001, to show that the relationship was not random. The correlations are listed by strength for each site, starting with the strongest. The complete correlation tables for all of the sites can be found in the Appendix.

Table 5.5: Strong correlations (above 0.7) listed by site and then listed in order of strength. They have been colour-coded below to highlight similar relationships for comparison.
** Highlights the strongest relationships across the sites.

Spearman Correlations		
Site	**Relationship**	**Correlation**
Pornhub	Views – Upvotes	0.931**
	Views – Downvotes	0.927**
	Downvotes – Upvotes	0.879
	Upvotes – Hearts	0.788
	Views – Hearts	0.717
Pornhub Gay	Hearts – Upvotes	0.916**
	Views – Upvotes	0.881
	Views – Downvotes	0.852
	Downvotes – Upvotes	0.820
	Views – Hearts	0.766
	Hearts – Downvotes	0.739
XNXX	Downvotes – Upvotes	0.986**
	Views – Upvotes	0.943**
	Views – Downvotes	0.940**
YouPorn	Views – Comments	0.789
XVideos	Views – Hearts	0.889
	Views – Comments	0.878
	Comments – Hearts	0.816

Five out of eight of the sample sites surveyed could be tested. These five sites show very strong correlations, sometimes nearly one-to-one relationships between the data on interaction collected. The strongest correlation found on any of the sites was the relationship between downvotes and upvotes on XNXX, with a high correlation of 0.986. The same relationship on other sites also shows a notable correlation, though not as strong, with Pornhub's at 0.879 and

Pornhub Gay at 0.820. This relationship shows that the upvotes and downvotes are closely related. This was also true for when the data was combined and showed a correlation of 0.954. It is not surprising, based on the above interaction data establishing these two interactions as some of the most used on the sites. Their one-click and one-handed ease of use shows the possibility of users becoming accustomed to adding, in their opinion, both positive (up) and negative (down) through this simple voting review system. They may be more inclined to vote down if they vote up and vice versa, showing an increase overall.

The second strongest correlation is also from XNXX between views and upvotes, with a strong correlation of 0.943. Again, this finding supports the above correlation with the speculation that users are more inclined to provide input through these simple interactions based on their views. In fact, across all of the correlation data, views strongly correlated to the other interactions; downvotes, hearts and comments all showed strengths above 0.800 for many of them. This consistency further supports the idea of interactions and viewership being a test of numbers. The more users or independent video viewers, the more likely users will be inclined to interact. The lack of correlation between viewership and tagging also fits as it is the least used interaction in the sample data and is likely too low or random to show any strong relationship.

When looked at together, the strength in correlations between the views and the upvotes and downvotes could be occurring for a few speculative reasons that need further exploration to make any solid conclusions. As a user can only upvote or downvote, not both, this indicates an increase in these interactions within users overall. The relationship between upvoting and downvoting also shows a strong correlation that shows a possible mutual invitation to vote in any direction. The relationship to views could also indicate that the more views a video has, the more interactions it will collect.

The correlations show strength between this chapter's views and simple interactions. Many show one-to-one solid relationships that could lead to real-world predictability and hypotheses. As the data is not normal and may skewed toward more popular or recently uploaded videos, the test could be rerun with a new and improved data set to address these issues. In this instance though, they show the start of these relationships and support the ideas around interactions and speculations made above.

5.2.2 Secondary Data

The following section will add secondary data to supplement the primary data above. Some of the extra data was collected here for comparison with data points like site traffic, average time spent on the site, and the total number of visits on the site per month, all collected from SimlilarWeb and recorded in the table below. The secondary data is crucial for analysing the relationship between the average video length and the average time on the site. Unfortunately, in this instance, the average number of monthly visits is not comparable across all the sites but is left in to reiterate the sites' popularity.

5.2.2.1 Video Duration and Time on Site

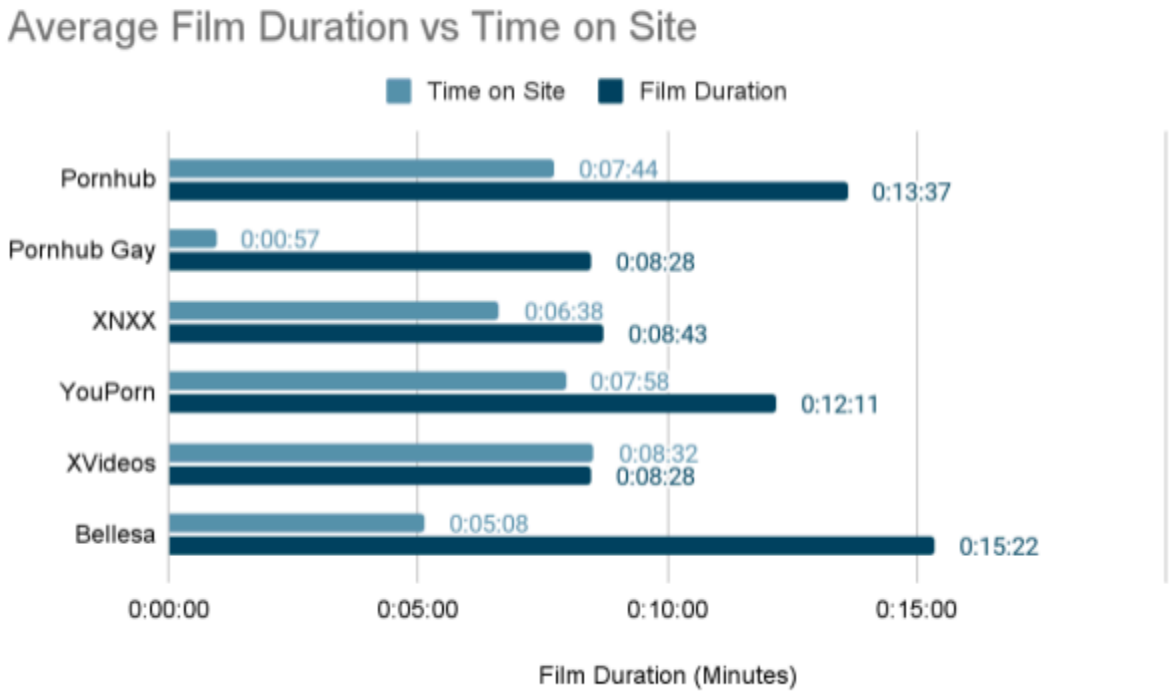
One of the main features of the videos surveyed is the duration, and a porn site heavily prioritises its users to find what they want as fast and as efficiently as possible – building the picture of a user not typically spending much time on the site. The average site user typically only spends ten minutes. See Table 5.6 below, users take brief time to search, find and watch content before closing the site again. So, the sites and videos should theoretically reflect this quick nature to access the content. In Table 5.6, the average views and average duration are taken from the primary data and listed with the secondary data points' average Time on Site and Total Number of Visits per Month. These additional data points collected were for all the sites despite not being used with the other primary data. When compared to each other, they all vary widely, but all stay well below the ten-minute mark.

Table 5.6: The averages for views and duration (from Table 5.2) supplemented with secondary data from SimilarWeb to compare the average time on the site per user and the total number of monthly visits.

Video Averages with Secondary Site Data				
Porn Sites	**Average Video Views**	**Average Film Duration (mins)**	**Average Time on Site**	**Total Number of Visits (Month)**
Pornhub	273,020	13:37	7:44	2.6 billion
Pornhub Gay	46,241	9:22	0:57	112.1 k
XNXX	4,552,889	8:43	6:38	2.3 billion
YouPorn	2,595,182	12:11	7:58	183.8 million
Porn.com	NA	NA	4:58	11.0 million
XVideos	6,674,880	8:28	8:32	2.9 billion
Sites for Women				
ForHerTube	NA	NA	8:57	6.6million
Bellesa	304,226	15:22	5:08	12.07million

This relationship immediately draws up a disparity between the average “sweet spot” duration of videos found on the sites and the length of stay on the website. The duration of the videos means that visitors are watching videos at a certain length but may not be watching the full video. The reason for this may be that the users have not found what they are looking for, they have found content that does not arouse them, the content could be inaccurate to what it was indexed as or titled, the content could show just an advertisement for the whole content or the user could have skipped through to the part of the video that aroused them for faster satisfaction. They could also be clicking through a few videos and racking up many views on many of these videos before leaving the site. Below, Figure 5.16 visualises the differences between the average duration and the average length of stay. From this chart, the difference between the two data points shows that all but one site, XVideos, shows the length of stay on the site as less than the average duration.

Figure 5.16: Average film duration compared to the average time the user spends on the site.



There are many reasons why the average time on the site could also differ across the sample sites. One of the factors could be outliers incorporated into Similarweb's metrics that skew the data. Based on the sites sampled, Pornhub Gay looks to suffer from that possibility as their average site is the lowest at less than one minute. Though this would need further research, this could be due to the nature of the site and possible quick curiosity searches of a few seconds from people exploring for or coming to terms with their sexuality rather than solely for entertainment purposes. The other sites range from 4:58 minutes to 8:57 minutes. There is little time difference between them, but the minor differences could be down to the efficiency of searching on the sites. The less efficient the site is at indexing the content, the longer the users stay to search.

This smaller data was also tested for correlations, and though the data was small, it showed some normality in the data and the correlations were not significant enough to be notable but are included in the Appendix with the other correlation calculations.

5.3 How do site features support different types of interaction?

A user can interact with a porn site in many ways, as observed by the interaction data. Like YouTube, it is *'a site of participatory culture'* (Burgess, 2008). Each type of interaction provides some kind of participation at every level, whether a user is searching or reacting to a video. All interactions incorporate some aspect of browsing, searching and viewing within the design aspects of the site. The seeking of sexual information goes hand in hand with the tactics around it. Spink and Jansen say, *'The baseline elements in Internet sexual information seeking are the searching characteristics of the online user'* (Spink & Jansen, 2004). Some users react to the site's design, as stated by Norman's definitions from the literature review. Some users merely see a Standardised site and use this to their advantage to search, view the video, and then leave. Others may cursor over thumbnails that provide them Feedback and tease content while they browse, select, go back, select again, repeat or view and leave. The entire site incorporates Affordances that lead the user by providing clues on how it works and what to do on each page. Some users are so enticed by the options that they take advantage of them to interact even further using Simple or Complex Interactions.

This section first defines the two layers of interactions to contextualise the interaction data based on the patterns observed above. This section will also explain the different needs of the users and how they are met within the site's characteristics and interaction attributes now defined in this study. By doing this, the focus draws attention to how these defined users interact and search based on their different information needs and search tactics.

5.3.1 The Two Layers of Interactions

For this study, the interactions were divided into two layers: The Basic Interaction Layer, for viewing, and The Involved Layer, where users start to use more interactive features. The two levels show how the site provides options within its design to cater to different users. These two layers are just the first step to defining and breaking down the rest of a porn site's elements and can be expanded further in future research. For now, the Basic Interaction Layer is the first introductory and most used layer to navigate using the site's organisation and categorisation features. Those who were more active, take advantage of the Involved Interaction Layer take the opportunity to give their opinion on a video with an upvote, downvote, comment or contribute to the site with their tags.

5.3.1.1 Basic Interaction Layer

The first page a user encounters is the front page. Before they even devise how to get to the content they want, they reach the front page, which will send them toward their search. The front page is standardised across these sites, looking about the same as the list of recommendations and options for video selection. Many sites offer up their categories as keywords to inspire clicks and the option of searching without the search bar. With just one hand needed to search, Basic Interactions allow users to browse the dynamic thumbnails, select categories and narrow their search through tags. The dynamic thumbnails give them Feedback (Norman, 1988) on videos that may be of interest to their needs and help them to make informed decisions on their selection. If they select a video they do not want, they can treat it like an Error (Norman, 1988) on the website and go back and start again. Their search takes them from the front page to the video page, back to the front page, sideways to another video page or closing the site entirely.

These Basic Interactions create the narrative for defining the usual visitor to the sites. They are the user who interacts with the site only as much as they need to view content. The Basic Interactions are defined by three types of interaction attributes:

1. Searching and Browsing
2. Content Preview
3. Viewing Content

In Table 5.7 below, these three types of interactions are defined by the attributes that draw focus to the content of the video. They include the title, categories, duration, views, and upload date, if available. All of these attributes provide the user with details about viewing that offer them Affordances in being able to choose content quickly. Their interactions are content-driven and focused, so they neither focus nor benefit from the additional, extraneous features on the sites.

5.3.1.2 Involved Interaction Layer

The second layer of interaction, the Involved Layer of Interactions, uses both the Basic Interactions and the remaining interaction attributes. They are when the users take on a more active role with the site and explore more of the available features while still interacting with all the features on the Basic Layer. These users view the content but are compelled to interact more. They start interacting with the content with simple interactions and eventually move on to complex interactions like commenting and tagging videos. These features allow the users to express their preferences and provide Feedback to start influencing their front page while

engaging with others in their community. This allows them to interact with the content in real-time and further personalise their preferences.

In Table 5.7, the Involved User incorporates all the Types of Interactions the Basic User does but adds in three more that define how they use the sites differently. These additional types are:

4. Interaction with the Content
5. Personal Interactions
6. Organisation Interaction

These additional three Types of Interactions also incorporate the remaining interaction attributes, see Table 5.7 below. The Involved Interactions lead the user from the front page to the video page, then linger on the video page after watching the content and provide their feedback through upvotes, downvotes or hearts. From there, they can either return to the front page or move sideways to another video site. A user may look at one or many videos, interact with them with the one-click options, and then move to comment. They could find patterns in the content they are looking up and may tag the videos either with a general tag so others can find it or a personal tag to aid in searching. Though comments and tags are less common as interactions, they define the Involved User as content-focused, like the Basic Interactions, and driven by personalisation and community finding.

Table 5.7: Shows the different interactions and how they relate to two types of users on a porn site, with the Basic Interactions focus on content and quick interactions and the Involved Interactions on more interactive elements and Feedback on the website.

	Layers of Interactions		
	Types of Interactions	**Basic Layer**	**Involved Layer**
Content-Driven	Searching and Browsing - *Titles* - *Categories*	x	x
	Content Preview - *Duration* - *Views* - *Approval Rating* - *Upload Date*[5]	x	x
	Viewing Content - *Content*	x	x
Personal and Community-Driven	Interaction with Content - *Upvotes* - *Downvotes* - *Hearts*		x
	Personal Interactions - *Comments*		x
	Organisation Interaction - *Community Tags*		x

The Basic Interaction Layer and the Involved Interactions Layer have much overlap. However, where the Basic options offer the site's pre-defined options and interactions, the Involved ones offer more of an active role with the ability to curate and change their options. These interactions show how users can get involved with the site with the two interest levels. Some users may use less and others may user more and that can even change so each site visit. These interactions react to the Feedback from the site and provide Feedback in return to affect recommendation algorithms and possibly, over time, design elements to suit their needs better.

[5] If recorded.

5.4 How do users use categories and tags for interacting and searching?

This question explores the different ways people browse when searching for porn and specifically uses two browsing tactics: Berrypicking or Information Foraging. Their search tactics stem from a preference for speed over accuracy, established earlier with the low length of stay on the sites. This result was expected based on the nature of the sites and shared knowledge of these sites rarely being openly browsable in all environments. It also stemmed from exploring the two layers of interactions that explore these sites. Both offer the ability to search, but the Involved Interaction layer promotes lingering on the site and takes more time to interact or search, while the Basic Interaction layer offers fast navigation for more superficial needs.

Users of a porn sites may not expect accuracy based on how the site is displayed and organised. The tree structure recommended for browsing, that Bates refers to (2005), is only two levels on a porn site. It incorporates a hierarchy between its categories and tags, which Morville and Rosenfeld (2007) suggest is good practice in Information Architecture. But users encounter Errors, have to undo their action and try again. (Norman, 1988) Through hyperlinked navigation between categories to tags and videos to videos the user is sent down the meandering path of Berrypicking and Information Foraging. It is also speculated that both layers of interaction allow for searching with just one hand while the other hand masturbates and deals with the physiological arousal from the search. This idea leads to a dominance in searching with the clicks of a mouse rather than typing into a search bar. The Basic Interaction Layer promotes the environment for displaying berrypatches to the berrypicker who may focus on one patch in their search with a particular focus on that area. It is the initial scent and options available to both types of users. The Involved Interactions foster more interaction and the leaving of breadcrumbs with tags that communicate again to both types of searchers but may draw particular interest from the forager who may pick up on the aspects of these clues as evidence of environment enrichment and information scent (Pirolli, 2007) – promoting their search to go between information patches.

The next section will define the structure employed on the site that supports searching, categories and tags. By understanding how the site employs these features, it will cross-examine how a user could employ them via the types of interactions examined in this chapter.

5.4.1 Categories vs Tagging

Categories and tags work together but differ in the context of Information Seeking in further the context of porn sites. Overall, they serve a similar purpose. '*With area scanning, one may either follow the exact arrangement of the classification scheme by reading linearly along the shelves or alternatively, and, I suspect, more commonly, deliberately not follow that order. In practice, one of the most useful aspects of area scanning is that one can visually scan in a random manner over the shelves in a subject area of interest'* (Bates, 1989). In line with Bates' ideas around browsing, both allow for area scanning and exploration. The front page display of multiple videos or many categories creates this scanning process naturally with categories being the more linear shelf and tags facilitating a more random order.

Categories and tags, especially on porn sites, are implemented differently. Despite the purpose of all tags not being hierarchical in structure, many categories act as tags but with more power than community-added tags. They provide a description and contextual information in a two-layered hierarchical structure with categories to describe content to aid in its findability later. '*The mutually exclusive subdivisions and parent-child relationships of hierarchies are simple and familiar. [...] Because of this pervasiveness of hierarchy, users can easily and quickly understand websites that use hierarchical organization models'* (Morville & Rosenfeld, 2007). The categories as the main entry point for the content and the tags as the refiners of that content provide the familiar framework for searching, finding and interacting. Their structure is immediately understandable, even on the Basic Interaction Layer, and can be employed immediately for searching.

5.4.2 How Categories are Used

The videos on these sites are organised through their use of language. All sites have categories, but not all sites have community tagging or the ability for their users to interact with videos by adding tags. *'Predetermined vocabularies of preferred terms that describe a specific domain (e.g., auto racing or orthopaedic surgery); typically include variant terms (e.g. "brewskie" is a variant term for "beer"). Thesauri are controlled vocabularies that generally include links to broader and narrower terms, related terms, and descriptions of preferred terms (aka "scope notes")'* (Morville & Rosenfeld, 2007). Categories are Controlled Vocabulary, the thesauri and the keywords on a porn site. A content creator adds and uses them for the front page recommendations and to index their uploaded videos. The categories are a fast and easy way to split all the content into manageable parts to aid faster searching for the user. Because the

content creator primarily creates them, they hold more power on the site and provide the backbone for searching and for tags to be added. The categories index the content across the site and provide the genres that appear on the front page. Each video can have more than one category or usually have an average like the data showed: Pornhub 9, YouPorn 10, XVideos 12, XNXX 19, Pornhub Gay 9, Bellesa 17. The categories remain standardised and consistent on the site, so the videos continue to appear in searches, and their multiple categories allow them to appear in multiple searches. It also allows the user to get used to the site's language and better understand where to find content aligning with their interests – to be discussed more in *Chapter Six*.

Overall, a porn site is designed around exploratory search and discovery – in line with Marchionini's (1995) ideas of exploratory search that goes beyond the linear query-response route. Above, the idea of exploratory search is split in two on a porn site with searching with multiple categories linked to an Information Foraging tactic. The searcher selects one category at a time and bounces back and forth to search as many categories as possible to weigh up options and content. With each category change, they weigh the cost-benefit of their change, taking in how many videos are listed in that category and the approval rating or viewership of the videos to assess popularity and success with other views. They may also be within a category using tags or breadcrumbs, and following the information scent (Pirolli, 2007) to find more content they like in an area, they were already successful in before exhausting that category and moving to the next one and carrying out the same tactic. Finally, they could combine the two in tandem or between visits to test which areas of the site or categories they find most fruitful before sticking to their preferred foraging tactic to find the most efficient results.

5.4.3 How Tags Are Used

Tags require more effort and are user-generated as a form to label and provide more specific details about the content or for community finding. Tags on porn sites can be to provide additional descriptive information about videos beyond the standardised categories, such as acts, fetishes, performers, or other relevant details. Applying this classification helps create a rich and detailed tagging system that allows users to explore content with only a few clicks. Tags are subjective and based on the user's interpretations and understanding of the content. Some tags will repeat some of the same information in the categories but in a different way or with more specifics, sometimes creating a parent-child relationship between a category and some of the tags. Having more specific tags allows for more niche interests to be tagged and catered to

and a more diverse range of interests recorded on the site. Specifying niche content becomes a collaborative effort within the Involved Interaction Layer on the site to create communities around shared interests.

From this, a list of five reasons or motivations someone would tag a video on a porn site is created:

1. Content Description
2. Categorisation
3. Personal Preferences
4. Community connection
5. Hide content

These five motivations that someone would tag the content lead to an overall enhancement in understanding user experience by better defining and honing their search. They work with Categories to offer multi-level options on the site for multiple types of users. Many tags will incorporate description of the content of the video as a preview and to incorporate information not found in the title or categories. The tags could also further supplement the categories by adding more categories that the content creator left out or adding the same category again. *'Redundancy is not an issue when indexing'* (Bates, 2005) as it further emphasises that category for the video and allows it to strengthen its connection to other videos on both levels of the hierarchy. Personal preferences in tagging incorporate opinions or adjectives that express what the tagger has thought about the video creating a quick review that supplements the up or downvoting. Tags that are created for community connection focus on the fetish or kink communities around a term or may even use vernacular or slang only known to that group. The final possible motivation for tagging included here is nefarious but notable. It further adds to the niche tagging specifically for communities only the terms are only known for a very small group and tagged with the intention of avoiding the website's moderators with terms used as "code" that may be harder to censor.[6] At the same time, users that use categories have a more limited use that focuses more on search navigation.

Both categories and tags help users define, interact, navigate and search for content on porn sites. Categories act as the general framework and base-level vocabulary for the site. At the same time, the tags offer a more granular and nuanced addition to the language and search options for the content. They provide *'information enrichment'* (Pirolli, 2007) to the metada and

[6] Tumblr users used the "citrus code", which labeled content with terms like *orange, lemon, lime, grapefruit* to tag porn content. As the terms were everyday words it made it hard to censor.

indexing on the site to supplement its structure and aid its search options. For porn sites, users can search for specific videos using the category framework or hone in on more specific content using the tag structure through specific searching or other information-seeking and browsing techniques, Berrypicking or Information Foraging. Pirolli's idea of collaborative tagging for foragers incorporates tagging when he states, '*A variety of technologies have emerged to exploit or enhance, in some measure, social information foraging. To some extent, the Web, blogs, e-mail, Internet groups, collaborative tagging, and other mundane technologies are all aimed at supporting cooperative information sharing and their success implies their effectiveness'* (Pirolli, 2007, p. 163). Pirolli argues that collaborative tagging breeds social Information Foraging. However, his study was based on a more structured tagging situation, a library, with a common goal of knowledge exchange. There are many more motivations, explained above, for tags that need to be taken into account that differ from a library. However, the common goal is to re-find information, either as a group or as an individual, that benefits the forager who will search where they have already found content they were looking for and continue to pick at the same category or berrypatch. This is speculation and would need further interrogation but these search tactics applied to these sites provide expressive explanations to real-world actions.

5.4.4 Categories and Tags Relate to Search Behaviour

Throughout this chapter, the idea of the user browsing the front page for the video they want has become the most recognisable interaction. This section will look at two forms of browsing: Berrypicking and Information Foraging. These theories can be applied to the information needs of porn site users, especially when searching using categories and tags. Priolli and Card's Information Foraging tactic is to search for and gather information based on the user's needs most efficiently or optimally possible. The basis of Information Foraging theory is based on the cost and benefit of a search (Priolli, Card, 1999). When searching for porn in a short amount of time, an optimal tactic of finding a high amount of material with the least amount of effort – hunting and gathering information with little or no feedback from previous searches to find content quickly. Foragers pick up on clues and previous knowledge to provide insight into where to direct their search. Bates' proposal of the concept of Berrypicking suggests that information seekers engage in a process where they gather information incrementally as they navigate through various sources and documents. Berrypicking has a more fluid approach when the user adapts or changes their information needs while collecting their content and gradually growing their selection. Both Berrypicking and Information Foraging can be true of many porn site users,

and looking at how the categories and tags function on the sites is one way to offer different browsing options available to users.

The Front Page is the environment for which the search begins. It is the woods where the berries grow –to follow the metaphor. The categories are the many types of “berrypatches” available to the users, offering different types, options, flavours and information scents. The tags, or the berries, hone in on a specific category/patch and cater to that specific taste and content. The forager navigates from category to category or patch to patch, navigating back and forth between the Front Page and the video page. Sometimes, they may move sideways within the category to another video, but their actions are swift and collect for quick satisfaction. The berry picker finds a category they want and collects many different berries from there – watching videos from the same site area and leaving reactions or tags to highlight later.

Overall, the theory of Information Foraging and Berrypicking highlights the incremental and active nature of Information Seeking – finding content bit by bit to collect an overall information diet (Pirolli, 2007). Berrypicking and Information Foraging are both active searching methods, and users can adapt and change each time they navigate the sites. However, arguably, Information Foraging is more varied in its approach.

5.4.4.1 Basic Interaction Layer Applied to Searching

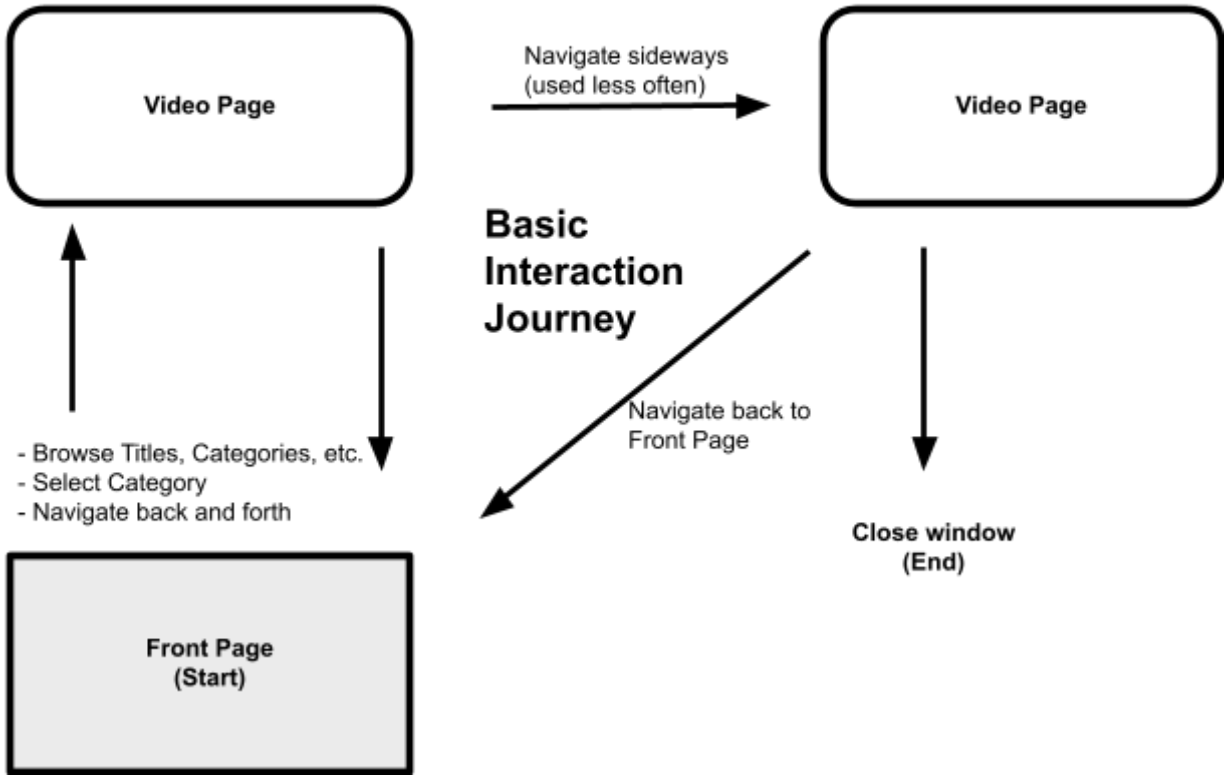
In the context of porn sites, users search for specific content by using search functions and entering keywords or phrases. Berrypicking takes its lead from the website and mostly goes where the site wants the user to go. *‘Sexual searchers viewed more pages than non-sexual searchers. Most non-sexual searchers do not view much beyond the first or second page of ten Web sites. For example, a typical sexual information seeker was seeking images of nude women and may view more than 20 pages of Web sites’* (Spink & Jansen, 2004). Information Foraging allows the user to be more in control and other more efficient searching methods to get to the content quicker. Neither implies any experience or novice to the site. Being more efficient as a forager one day could mean they are a berrypicker the next day. The information-seeking behaviour on a porn site is not always the same each visit. With new video content added all the time, a sense of exploration remains consistent between these two types of browsing.

Classification theory emphasises the importance of creating meaningful and effective categories to facilitate information retrieval. Categories tend to be broad and encompass an entire genre, so adding multiple categories does not create too much overlap or repetition in meaning,

making them more related to a facet structure. For example, categories can include "*Lesbian*", "*Anal*", "*Interracial*", and "*MILF*, and a video can have all four of these categories affiliated to it without doubling up on information about what the video includes. Alternatively, four separate videos could have one of these categories and still provide helpful information about the video content.

The figure below shows a flow chart of the Basic Interaction Layer Journey where they start at the front page and can navigate to a video page, watch the video, and then move back to the front page or sideways to another page. They repeat these quick steps in their search for content before they close the window and log out.

Figure 5.17: Flowchart mapping a Basic Interaction Level Journey employing one level.



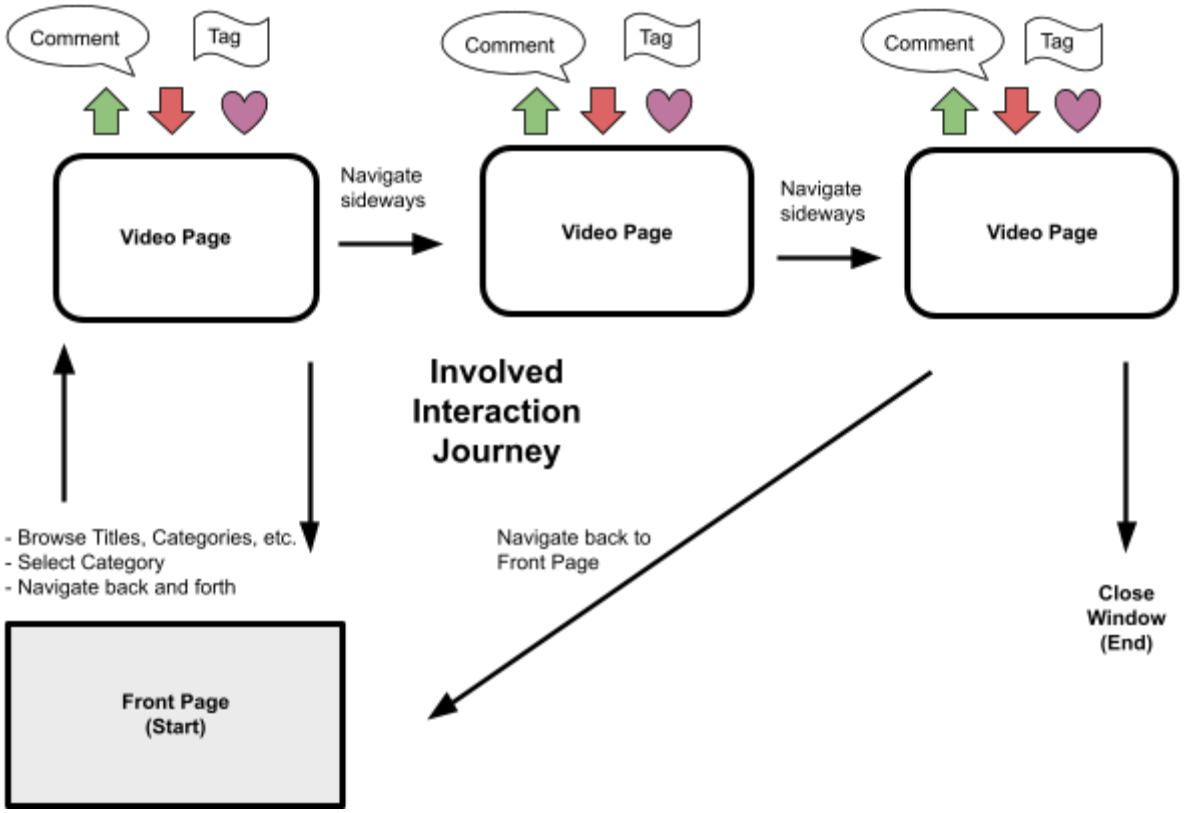
The Basic Interaction Layer employs categories to navigate. They gather and consume the media they want quickly, then leave the site. Their information needs to look mainly at the top level and some possible tag-level selections to narrow the search, but they leave no trace behind. It focuses on one berrypatch and uses little extraneous navigation or interactions to supplement the search.

5.4.4.2 Involved Interaction Layer Applied to Searching

The Involved Interaction Layer with a video has many benefits. These features aid in the user finding the content again or providing preferences for the site to learn better what the user wants to see. These interactions create trails back to the berrypatches where they found the content they liked. The searcher is exposed to various related areas, some of which, because of the jumping around, may be related in unexpected ways – thus producing serendipitous discoveries (Bates, 1989). The involved journey remains focused on a berrypatch or category, and they take the time to interact and signal to others about the berrypatch through their interactions. The searcher can look directly at the full text of the materials, on the front page and flip through the pages and view here and there (Bates, 1989).

In the flowchart in Figure 5.18 below, the Involved Interaction journey looks similar to the Basic Interaction Layer, only here it has more options. They will often navigate sideways more often as they focus on a specific category. The sideways navigation can continue endlessly but is only illustrated twice in Figure 5.18. They also have an additional layer on each video with the simple and complex interactions they might use to help them save or find the video again. They will then cycle through these steps before ending their journey and closing the window.

Figure 5.18: Flowchart mapping Involved Interaction Layer Journey showing more interactions used in addition to the Basic Interaction Layer.



Some interactions discussed above benefit just the singular user and focus on personalisation on the site. These interactions act as breadcrumbs to the individual and the community on the site. The interactions become the evidence of a successful search that is communicated to the broader community while also acting as a bookmark for the individual searcher, either a berrypicker or forager, saving them from having to search again for successful information gathering.

5.5 Conclusion

This chapter has provided a greater understanding of the different elements of interaction that are available to porn site users. It incorporated the types of interactive attributes they can employ, how the interactions define the two different types of users and how all of these work together for searching and Information Seeking on a video streaming porn site. The details in all of these sections shed light on the main question, 2.0 How do users interact and search on a porn site?

First, the data was described and analysed, providing more detail and visuals to the methods in *Chapter Three*. It provided the necessary backup evidence for some of the claims and speculations supporting the chapter. Frequency and averages were calculated to assess any relationship between these interactive elements and the surveyed sites. Some secondary data was added to further contextualise the information with more clues about the users and usage of these sights, like the length of stay or number of visits, to build up a picture of the site's popularity and the user's experience. These interactions were then mapped against the characteristics created to define a porn site in *Chapter Four.* These five characteristics have corresponding interaction attributes that detail how the site built its design and how the user would experience it. Some attributes overlapped and showed how these elements are fluid with each other as the site is dynamic and has many uses and users.

It then became clear that there would be different types of users that would use different attributes. Thus the types of users of a porn site were split in two and defined as Basic and Involved User to help split the attributes between the two, providing a better picture of who would interact just for search or for searching and commenting. Interactive Attributes were assigned to each type of user; however, the overlap for both types of users was based heavily on the search and indexing elements on the site.

The final question explored this search within the framework of information-seeking literature, further defining the two types of users by the two different ways of searching, Berrypicking and Information Foraging. These theories explained how some users could only use the site to search while others were enticed to review or add metadata and interact more. These two primal ways of searching provided the concepts needed to explain these different behaviours.

PART THREE

CHAPTER SIX: LUSTY LANGUAGE WHEN SEARCHING FOR SEX

6.0 Introduction

The human need to categorise is part of human nature, and the need to categorise sex dates back to the Victorian era. The Victorian need to categorise and label sexual practices started pinning down the terms for fetishes and paraphilias that we still use today. It was due to the need to define things for moral purposes by further defining what counts in a respectable society (Kendrick, 1997). Advancements in the scientific and psychological field further interrogated the need to pathologise these sexual practices, identities, and preferences. These categories started the language that would eventually be adopted by porn. Like a library with thematically organised shelves based on practices or identities in fields of literature, the video shops and XXX cinemas have started to organise themselves into these types of groupings (Kuhn, 2017). As with libraries, video rental shop owners had to find some categorisation system that worked for them. Categories like *Leather, Lesbian* and *Anal* started making their way to the shelves so renters could find and explore their proclivities (Kuhn, 2017). Even in the physical space, it is categorised with a velvet curtain to separate the *Hardcore* materials from the more mainstream.

This categorisation continues today on porn sites. Navigation and searching are ruled by the categories and tags on the site. They organise the content and act as the central communication between the content creators who categorise their videos, the site creators who organise the content for display and the users who search with or add to the categories with tagging. This chapter will look at how porn's categories have changed on a specific site, Pornhub, by tracking the categories throughout the years. Thus, continuing the long-established tradition of categorising sex and sexual terms. The established uses of categories and tags from the previous chapter with a new set of data will answer the following questions by splitting the first question into two parts:

3. How does a porn site's categories and their organisation change over time?
    - 3.1 How have the category vocabulary changed?
    - 3.2 How are the categories organised?

Looking specifically at Pornhub.com as a case study, the paper will use *The Pornhub Category Data*, which employed a novel approach in collecting data over a long time via the Internet Archive. Pornhub was chosen for its stability and ubiquity since its creation in 2007. Pornhub is also the benchmark site that many other sites follow in terms of design and organisation. To understand how Pornhub is changing would shed light on how other sites might. Tracking these trends and changes is essential to see how terms are updated to reflect modern-day acceptable vernacular and predict future changes. This chapter will first discuss the data, organise it into a

timeline, and then analyse these changes as findings to answer and support the question. The changes in categories will highlight categories added or deleted and allude to the changing attitudes to gender, sexuality and race in porn by observing how the categories organisation will show the changes in priorities on the site.

This aspect will then relate to the characteristics defined in *Chapter Four* and the features and search tactics laid out in *Chapter Five*. It will also show how categories morph based on tagging's language patterns and how they fit into the website's architecture and organisation. All of this provides greater insight into the current categories of porn and what organisation system can or could be applied to aid in search efficiency. The chapter will conclude with anecdotal evidence with accounts from the industry from secondary sources to further contextualise the morphing of Controlled Vocabulary on the site.

6.1 *Pornhub Category Data* Analysis

It is easy for users of mainstream sites to simply keyword search and find what they are looking for or find something at least close to it. For a porn site, the sexually charged language dominates where it would otherwise get censored. One of the main elements of the category characteristic that defines porn sites is language. It sets it apart from the rest of the internet and creates the framework for teaching its users how to search and add to the language more with community tags.

Focusing on Pornhub's categories throughout the years provides a set of novel data. The analysis benefits from the lens of time by using the Wayback Machine internet archive. The Wayback Machine archives websites based on traffic and other factors. Using it as a tool to access the past versions of the site to its creation, like 2007 for Pornhub, provides unique and longitudinal insight through a retrospective study by using existing data collected in a short amount of time. This retrospective method encompasses time and opens up the ability to track changes – the main reason for choosing the method. By surveying the categories for each year the site was archived through the Wayback Machine, it provides data that shows growth, changes, and constants. These changes show the changes to the categories over the years and how the Controlled Vocabulary forms.

A snapshot selected from the same month in each year recorded the categories from the site. The same month, June, was chosen for an equal spread between years and changes. The

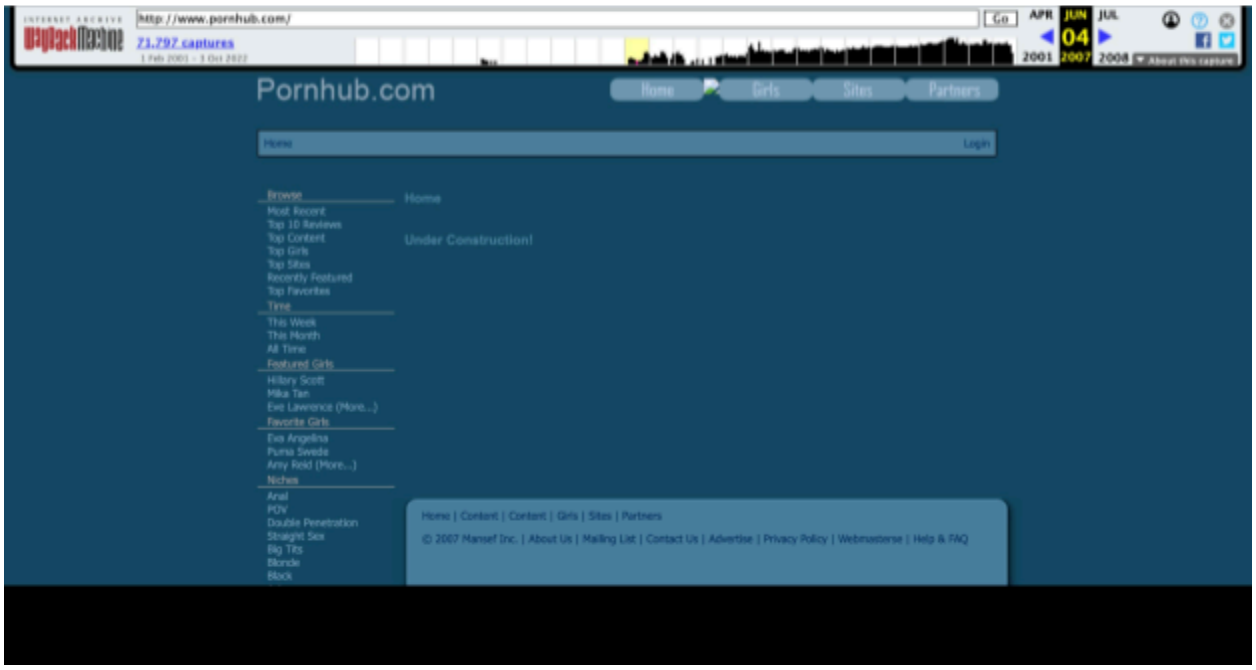
Wayback Machine was not without its faults; some things like stylesheets, images, videos, links or total pages did not display. Nevertheless, for the most part, data was collected for each year the site was active, when possible.[7] The data that was collected was qualitative and took the shape of many lists of categories in their original order as they appeared on the site. From 2008-2012, the listed categories were consistently in alphabetical order. In 2013, that changed, and the categories were in a seemingly random order that can only be assumed to reflect the category's popularity, viewership or other factors on the website's backend. The data was then analysed to track changes while maintaining their chronological order. This analysis culminated in a timeline that will be analysed further in the next section.

6.1.1 Timeline

During the initial creation of Pornhub in 2007, the site looked a lot different than it does today. Figure 6.1 is a screenshot from the first data collection point that shows the site's first interaction, where the first steps towards some recognisable characteristics are starting to take shape but are not all there yet. The site has organisation systems like a sidebar on the left to start a search. There is a front page, but it is "*under construction*" and essentially empty—a far cry from the front pages today with dynamic thumbnails, adverts, options and categories. As the front page is empty, there are currently no categories listed with videos to entice the user and no specific category page. The site's recognisable logo and black and yellow colourway did not exist yet. This first source for category data from 2007 turns up fruitless in this instance and is shown as zero. However, it is still useful in showing the initial growth.

[7] The only years that were unable to be collected were 2007 and 2010.

FIgure 6.1: Screenshot of the Wayback Machine's snapshot capture of Pornhub.com in 2007 when it was first created.



After 2007, Pornhub's look and style started to look as it does today, with the categories immediately visible on the front page. The timeline in Table 6.1 splits the categories into groups where the added terms are separate from those deleted, with a special division for those deleted and returned to the overall list. Splitting the lists up this way was an effective way to see what years showed many changes or significant shifts in terminology. For the most part, many years show terms added, while the columns for terms deleted or returned to the vocabulary are less common.

The timeline will inform the findings for the next section and act as a comparator for the rest of the chapter. By looking at the data, speculations and connections will be made to the search tactics ideas introduced in the previous chapter. Basic and Involved Interactions use and benefit from categories for searching and content understanding. By connecting this idea to the formation of the categories and overall Controlled Vocabulary, relationships between the user, the content creator, and the site show the mutual effects of changing the lang As the years on the timeline progress, the terms will, speculatively, reflect more inclusive language. Specific derogatory terms for race or gender will morph into more contemporarily appropriate terms. This chapter will assess this with its potential drivers and motivations.

Table 6.1: Timeline of category changes from the front page snapshots of Pornhub.com on the Wayback Machine.

Timeline of Changing Categories on Pornhub				
Year	**Total Number of Categories**	**Categories Added**	**Categories Deleted**	**Categories Returned**
2007[8]	0	0	0	0
2008	37	0	0	0
2009	40	POV, Redhead, Vintage	0	0
2010[9]	0	0	0	0
2011	54	BBW, Camel Toe, Compilation, Double Penetration, Euro, Female Friendly, Gay, Orgy, Outdoor, Party, Rough Sex, Sex, Shemale, Small Tits, Squirt, Threesome, Webcam	Group, Large Ladies, Public	0
2012	54	College, Gangbang, Massage, Uniforms	Camel Toe, Dancing, Sex, Small Tits	0
2013	60	Bisexual, HD Porn, Indian, Japanese, Solo Male	0	Small tits
2014	60	For Women, Porn	Female Friendly, HD Porn	0
2015	79	Arab, Babysitter, Big Ass, Brazillian, British, Cartoon,	Ass, Outdoor, Porn	HD Porn, Public

[8] Matt Keezer started Pornhub in 2007 under Interhub in which Mansef was also a partner.
[9] This year was not able to be captured due to a lack of website data captured on the Wayback Machine.

		Casting, Czech, Exclusive, Feet, French, German, Italian, Korean, Music, Public, Pussy Licking, Russian, School, Smoking, Verified Amateur		
2016	86	60fps, Behind the Scenes, Old/Young, Parody, Pissing, SFW, Virtual Reality	0	0
2017	90	Cosplay, Cuckold, Described Video, Panda Style	0	0
2018	95	Interactive, Popular With Women, Roleplay, Romantic, Solo Female, Tattooed Women, Transgender, Verified Couples, Verified Models	For Women, Panda Style, Shemale, Uniforms	0
2019	104	Closed Captions, Female Orgasm, Fingering, Muscular Men, Scissoring, Strap On, Trans Male, Trans with Girl, Trans with Guy	0	0
2020	100	0	Scissoring, Trans Male, Trans with Girl, Trans with Guy	0
2021	100	Teen (18+)	Teen	
2022	100	Babysitter (18+), College (18+), School (18+), Step Fantasy	Babysitter, Gay, Old/Young, School	0

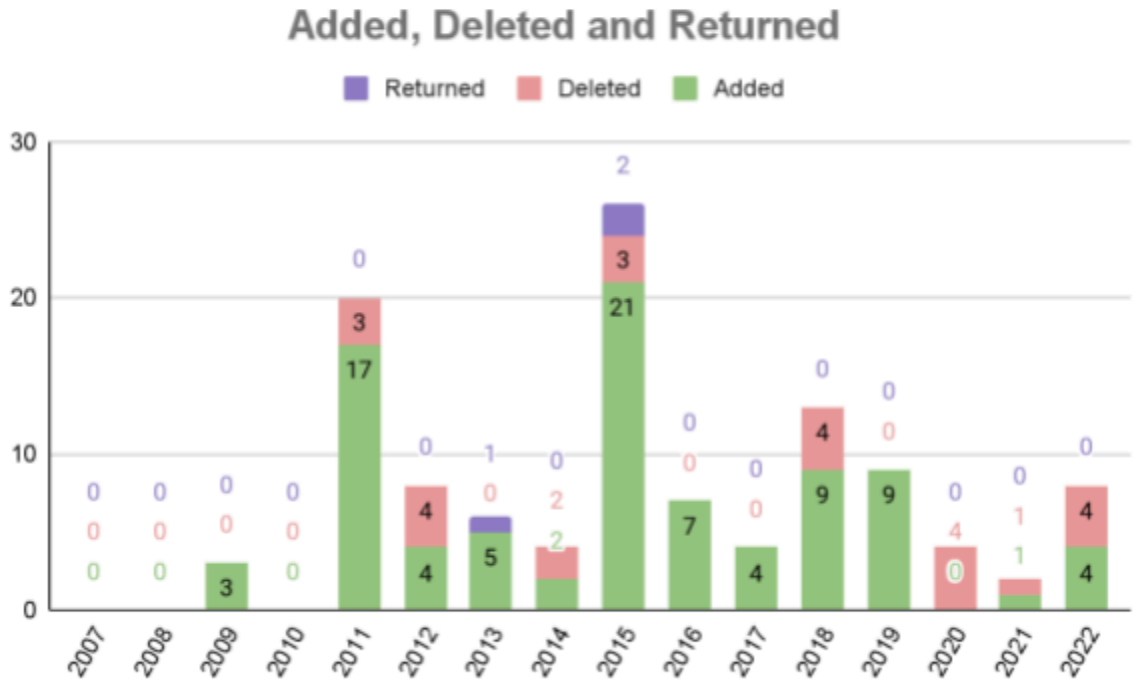
6.1.2 Findings

By choosing a site known for its popularity and ubiquity, Pornhub, the data was able to show the evolution of categories on the site since its creation in 2007. For example, Pornhub started with just 65 categories, and it slowly expanded to 110 before being reduced to 100 and maintained at that amount. The beginning categories on Pornhub started when the site's infancy in 2008, when it just started to get popular. It starts with a total of 37 categories organised alphabetically and with some data about the total number of views and the view count for that day. The site has a search bar, but these categories aid in searching and act as initial instructions to the user on what keywords they can use. This section examines the data closely by combining it to see where the changes occur and what they look like across the separately added, deleted and returned terms. These three changes, regarding their qualitative properties, will be discussed and analysed further in the following sections.

Websites often present high-level categories to help users externalize what they seek. This category display is also accurate for porn sites. More recently, eBay and Amazon have provided searchers with higher-level categories to define what type of object they are looking for before browsing with richer metadata (Wilson, 2011, p. 150). The categories teach the users the site's language and introduce them to the terms they can use to search. This user education is even more necessary for porn sites that employ language that is unique to their genre. It is doubtful that Pornhub and eBay, and Amazon would use the same language. Porn categories work to define and confine the genre to a set area for ease of finding and ease of separating from the rest of the internet.

In Figure 6.2, the changes are collated and visualised to show where the most changes occurred over the years. The chart shows that the initial stages of the website were slow to change and started to pick up pace in 2011. Over the years, added terms have been the most common change, with the most changes added in 2011 (17) and again in 2015 (21).

Figure 6.2: Comparison between the terms added, deleted and returned to the controlled vocabulary each year.



Quantitatively, Pornhub's categories have shown a lot of growth and development in the number of categories it incorporates today. However, qualitatively, some changes that could be seen as progressive, or at the very least a step in the right direction, have a ways to go to catch up to more inclusive real-world vernacular. However, these changes show the flexibility of the Controlled Vocabulary and the three main ways it is changed. The social aspects of changes to the categories and how they could continue to change are discussed below.

6.1.2.1 Added

The site maintains its categories as Controlled Vocabulary, which remains consistent and works as a top layer over tags to define the growing number of videos over the years. In 2008, the categories expanded from the initial 37 categories to 60 in 2013, but there was a point where the number of categories stopped growing and remained consistent. In 2019 Pornhub had 104 categories to choose from before returning to just 100 and remaining at 100 til today. This increase and decrease in categories suggests that 100 might be the right number of categories for navigation on the site, with any categories over that being confusing or causing the user to make errors when searching.

In 2015, Pornhub added 21 terms: *Arab, Babysitter, Big Ass, Brazillian, British, Cartoon, Casting, Czech, Exclusive, Feet, French, German, Italian, Korean, Music, Public, Pussy Licking, Russian, School, Smoking, Verified Amateur*. These categories cover various themes that would eventually be split into attributes, as explained below. They cover themes like occupation (like *Babysitter*), body parts (like *Feet*), actions (like *Smoking*), scenarios (like *Casting*) or ethnicity. The theme with the most added is ethnicity, with nine out of the twenty-one related to ethnicity or a country of origin: *Arab, Brazillian, British, Czech, French, German, Italian, Korean, and Russian*. This expansion of ethnically-coded categories could symbolise the globalisation of Pornhub and the need to cater to broader, more international types of users. Though traditionally, terms that deal with ethnicity refer to an actor, in this instance, it could also refer to the video's origin, opening up the idea of production or fetish as it relates to these categories. Over the next four years, Pornhub only added another 21 categories. The ones added in 2015 remained consistent, with a majority still being part of the categories today, showing their popularity and consistent use.

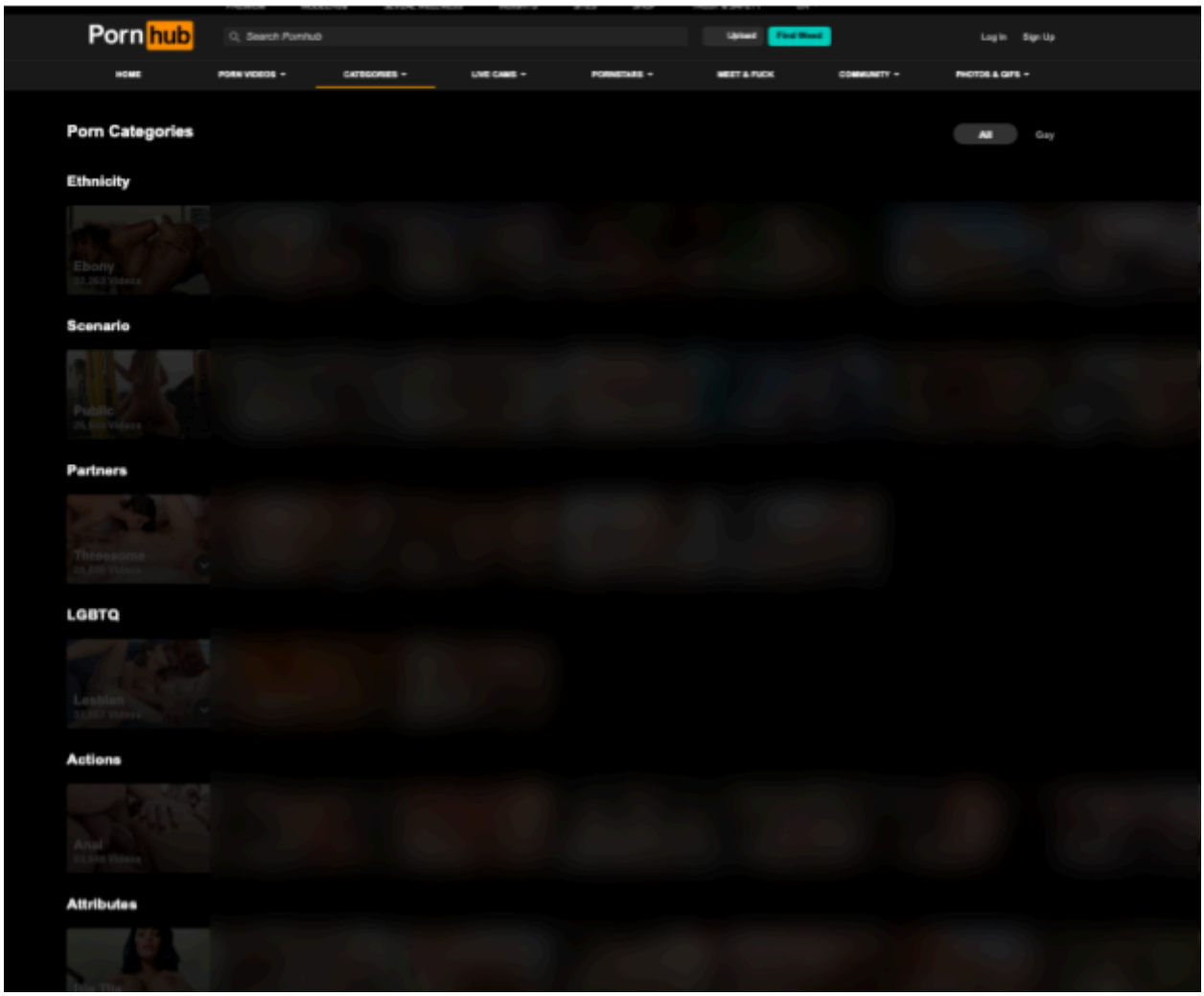
In 2022, the categories were split based on attributes like *'finish'* (a reference to the sexual act that finished the video, e.g. *Bukkake*, *Cumshot*), *'ethnicity'* (a reference to the racial or national background of the actors, usually the female actress in straight porn), and *'scenario'* (a reference to the situation or scene the actors are in to create the fantasy narrative). These attributes are not shown in the timeline but in Figure 6.3 below. These attributes split the now well-established categories into themes or facets. The constant 100 established categories are nested into nine different 'attributes' in a parent-child relationship with little crossover – in line with Raganathan's (1960) theory on facets. It creates more of a hierarchy on the site with this faceted structure that starts to build a tree-like structure that Bates (2007), Morville and Rosenfeld (2007) refer to when talking about Information Architecture. The attributes, or facets, split up the categories encompassing the tags, creating the three layers for search navigation:

Attributes → Categories → Tags

Visually, this looks like a small change; after recording the data, there was little change to the categories. It creates another layer of depth to the site's hierarchy of pages but it is hard to see how this aids in anything other than organising them in a new way from chronological or by most popular. The facets now become the broader parent terms encompassing all the relevant ones,

while the categories become the narrower child terms. This usefulness is questionable and will be assessed later, as the facets were only used on the site for one year.

Figure 6.3: Pornhub's Categories further defined by a facetted structure with their attributes.



To sum up, the organisation of the categories on Pornhub have been relatively consistent. Usually displayed as a list on the website, they were organised alphabetically, still in list form, in another way. All community tags are nested within the category tags for each video if added at all. The most significant change in an organisation was in 2022, with the addition of attributes, which only served to categorise the categories with one parent layer of attributes.

6.1.2.2 Deleted

While the added terms bulk out and work towards the formation of the vocabulary, the deleted terms work towards fine-tuning. Though the exact reasons for the deletions are unknown,

speculations can be made based on context, with the overarching theory being that they get deleted to more accurately reflect the vernacular of real life. In chart one, there are only eight years where terms were deleted (2011, 2012, 2014, 2015, 2018, 2020, 2021, 2022) and in all of these years, the deletions stayed at most four terms per year.

The only terms deleted entirely and are no longer on the site today are Camel Toe (deleted in 2011), Dancing (2008-2011), Panda Style (2017), Scissoring (2019), Sex (2011), and Uniforms (2012-2017). These terms may be too niche in taste to warrant being a category and could be demoted to a tag. They are also not replaced by relatable terms, further supporting this idea. Finally, the term could also be too vague, like *'Sex'* and remain too broad to keep it as a category that is useful for searching. They could also refer to a phrase or act that is no longer relevant, like *'Panda Style*.'

Some of the terms were deleted and added in a new way. This swap occurs in apparent situations where terms need more signifiers to define them; for example, in 2022, the terms 'Teen' and 'Babysitter' were deleted. Simultaneously, 'Teen(+18)' and 'Babysitter (+18)' are added. This definition is a direct reaction and change in the language where deleting the old terms makes way for the new. In fact, out of the 37 categories in 2008, only four not listed today are '*Ass*', *'Group'*, '*Large Ladies*' and *'Teen'*, which became '*Big Ass*', *'Orgy'*, *'BBW'* and '*Teen (+18)*' today. Specific examples of exact terms will be interrogated below based on themes like Age, Race and Gender. Still, it is essential to define and clarify that the deleted terms are not often deleted forever and are merely changed and returned with contemporary clarification.

6.1.2.3 Returned

Categories deleted but returned in a new form, not counted here, but with deleted terms above. *Returned categories* were defined as such only if the category returned in its exact form as before without additional defining words. Returned terms were the rarest change recorded and only occurred in 2013 and 2015. In 2013 the category '*Small Tits*' returned after initially being added to the site in 2011 and then taken off in 2012. In 2015, the category '*HD Porn*' and *'Public'* were both re-added to the list of categories in 2015. '*HD Porn*' was added to the site in 2013, deleted in 2014 and then re-added in 2015. *'Public'* was added to the site early in 2008, then deleted in 2010 and re-added.

There could be a few reasons why these categories would be added back in. 2015 is the year that coincides with the most growth in terms of the list of categories, so it makes sense that this would be when the structure of the site and the categories start to expand and experiment. These terms return precisely how they were when they were first added without any clarification attributes to define them, which also implies a possible mistake for web designers. It was a mistake for them to take it off the site in the first place, but one they admit to by adding it back. Though more challenging to find, they could also be reactions to user tags that continued to use these terms and express their popularity and preferences with site users. The fact that these terms can still be found on the websites is a testament to their usefulness.

6.2 How has the category vocabulary changed?

This section will delve deeper and answer how these categories have changed. By looking at the terms thematically, a better inspection and closer connection to the changes in the findings can assess the previous speculations. These themes include categories '*For Women*' defined as categories that cater to female users of the site and imply a different, typically softer, in contrast to hardcore, content from the rest of the site. The theme '*Trans*' focuses on a term that ebbed and flowed in the data throughout the years and eventually gained its partition on the site, like Pornhub Gay. The last three themes were '*Age*' – referring to the legal age signifiers in porn categories, '*Race*' – referring to the ethnicity and skin colour of the actors and '*Technology*' – which incorporates the categories that provide information on the production or video quality. These themes refer to the changing attitudes to sexuality, gender, consent, safety, race and technology. Each theme assessed added new terms, deleted terms that returned as synonyms, and what these outputs conceptually mean for the categories or users.

6.2.1 For Women

Deleting and replacing some categories were the main findings in the data for terms that incorporated a female focus just like the marketing taglines found on ForHerTube and Bellesa described in *Chapter Four.* The category '*Female Friendly*' was added in 2011, then taken away in 2013, and replaced by *'For Women*' from 2014-2017 before finally stabilising with 'Popular With Women' in 2018 to today. This shows a semantic broadening of the vocabulary of Pornhub for women. The category '*Female Friendly*' implies a minority of the content suitable for women, while also implying the main content is "*unfriendly*." The second iteration of the category, '*For Women*', again implies a segregated portion of the content made for women. However, it is

more direct this time and evokes a distinct feeling. The rest of the site is "*for men*", but this content is also "*not for men*."

The third category used today, '*Popular with Women*,' addresses these issues of segregation of the content organised based on the belief of two binary sexes. The content is still available to women, but here, the connotations are that the rest of the site is also for women, but some content has a more female-oriented perspective. It is also a phrase that negates men's interests and could be an invitation to explore and streamline a specific search route to what women might want. This expansion in the language of just this simple category change over the years is interesting because it shows growth and a thought process by the website creators about specific terminology and their users. It does not imply that it is perfect or foolproof, and there is the possibility that it will change again.

6.2.2 Trans

Though the changes in the '*Popular with Women*' category show a step in a positive and inclusive direction, categories that incorporate trans identity and usage have had a harder time finding the right words. Terms like *'Shemale'* that existed from 2011-2016 only went through a small change. They became *'Transgender'* in 2017, with additional specific categories like '*Trans Male*', '*Trans with Girl*', and '*Trans with Guy*' existing for just one year, 2019, before being removed again. The term shemale is not the contemporary accepted vernacular. Replacing it with Transgender could be argued, but it is still a category that fetishises a group of people. However, a possible argument for it is that if it fetishes a group of people, then a porn site is the right environment for it to do so while framed within categories that evoke fantasy instead of reality.

The disappearance of the three Trans categories added to specify details like *'Male'*, '*with Girl*' or '*with Guy*' would suggest that the terms were not helpful or no longer needed. It is also possible that the site created a new partition for this category as it provides for gay content on Pornhub Gay. When looking back at the website's history, despite the terms disappearing in 2019, it would take another three years for the new orientation partition on the site to appear. Deleting the terms did not directly react to the new orientation on the newly created partition of the site. However, it all led to an interest in trans content that warrants the separate partition. As shown below in Figure 6.4, this partition also uses the confirmed term from the category

'Transgender', further showing the acceptance, by the site creators, of the terms into the agreed Controlled Vocabulary.

Figure 6.4: 2022 screenshot of Pornhub's options showing in 2022 for All, Gay and Transgender that leads to the separate partitioned child sites with catered content.

6.2.3 Age

One of the most popular categories on Pornhub is *'Teen'* and consistently categorised as *'Teen'* from 2008-2020 before being semantically changed to '*Teen (+18)*'. This change is subtle and directly reacts to Pornhub's recent issues with verifying their content creators and age verification system.[10] The use of +18 is a signifier for content that confirms the actor's ages align with the age of consent, which is 18 for the US and other countries. The terms address the issue and ensure it is legal and safe, implying that it protects the actors and the website users. Whether this is accurate is debatable, but it shows a breaking of convention with the need to maintain the fantasy for the user. This change carried over to categories like *'Babysitter'*, *'College'*, '*Old/Young*', and *'School'*. In the final two years recorded, 2021 to 2022, there are only

[10] In 2020, Pornhub was accused of having non-consensual material on the site from unverified accounts. They reacted to this allegation by deleting a large portion of their videos from the site and allowing only approved verified accounts the ability to upload content so that an actor's details, like age, could be checked.

four changes to the categories, and all of them are the addition of the signifier (+18) on *'College'*, '*Old/Young*', *'School'* and *'Teen'*.

The further definition of these categories communicates a push for safety and consent on the site that was not initially there. The site has shown evidence of transparent changes to address these past issues, with the changes made to the system to carry out age checks and account verification. However, a category and the content are only sometimes linked, and the use of the category does nothing to confirm the age or safety. However, the language change is a clue, signalling they are addressing their issues that only happened recently.

6.2.4 Race

Race, which also incorporates ethnicity, is a theme of categories that shows a lot of growth in its offering but minimal adaptations. The added terms stay those terms up to today. None get deleted after being added; all are still in the one hundred standardised categories today. From the beginning of the site, three main categories fit this theme: *'Asian'*, *'Ebony'* and *'Latina*.' all three of these terms refer to the performers' race, and typically the female performer in the video. Like the Trans categories, these terms are also outdated and fetishise specific groups of people. *'Asian'* is typically a popular category, but *'Ebony'* is an outdated category term, like *'Shemale'*, -- considered derogatory in the real world.

In 2013, *'Japanese'* and *'Indian'* were added to the site. In 2015, *'Arab'*, *'Brazilian'*, *'British'*, *'Czech'*, *'French'*, *'German'*, *'Korean'* and *'Russian'* were all added. All of these terms were new and unique to what was on the site at the time they were added and are unique to each other. Most of them happen to be based on ethnicity rather than race and serve to further differentiate from the main racial terms. These consistent terms that incorporate race and ethnicity play on the idea of the globalisation of Pornhub as a website and a brand. The more categories for different countries show their offerings to those countries. However, the content tends to play on stereotypes and upholds the fetishisation of these different groups of people. Though the categories serve to separate them accurately and efficiently, it is unclear whether it is with good intentions.

6.2.5 Technology

The last theme for assessment is technology. In the Literature Review in *Chapter Two* and defining pornography in *Chapter Four*, the discussion around porn and technology showed a

mutual and beneficial relationship in its history. The categories in Pornhub also reflect this in the growth of their terms. In this instance, '*Behind the Scenes*', *'Amateur'* and *'Vintage'* were not included as they primarily refer to a particular aesthetic that plays into the video's storyline rather than look. The technological terms refer to an aesthetic more centred around the medium.

For example, the first technological category added in 2011 was '*Virtual Reality*', showing the advancement from introductory video. '*HD Porn*', a prevalent category on Pornhub, was added in 2015. This term shows the advancement of video quality despite high-definition video being available since 1998. It shows the website's advancement, offering more bandwidth to legitimately offer better video quality. In 2016, '*60fps*' was added, furthering the advancement of video quality. 2016 also saw the addition of *'Webcam'* was also added. Though Webcamming has been around since the 1990s, 2016 shows the rise of specifically designed camming websites referred to in Chapter Four. The final two categories are two terms that show the advancement of technology with the aim for accessibility with '*Described Video*' and '*Closed Captioning*'. These two categories offer options for videos that provide additional information, giving those with disabilities to watch.

6.2.6 Overall

The changes to categories stem from many motivations. Many terms are reactions to possible popularity on the site. Other motivations include a possible need to reflect on contemporary terminology. However, these changes could be more consistent across all the abovementioned themes. For example, terms for women changed, but those for race were added to and not changed. This priority and focus on women leads to the possible primary motivation for commercial purposes and finding the most straightforward solutions to indexing the content and providing easy searching. The need for efficiency likely stems from the site's inability to change too much to maintain its functionality with its high traffic and short stays on the site by its users. On average, the site users would only be able to handle a minor change at once while trying to navigate the site in less than ten minutes.

The references to the fetishisation of these groups also point to a reaction to what people want, as well as the site viewing them as emerging markets. A popular search happens that highlights each site creator users' fetishes. Expanding the race categories shows the site's international reach and the new markets it aims to cater to, and the same is the motivation for all of the

changes made. The mutual benefit between the site creators and users moulds and changes the categories to be sexually and commercially viable. They remain content-focused rather than socially or morally focused.

6.3 How are the categories organised?

The previous section answered how the vocabulary of the categories, separated into themes, changed in many ways. Whether a term was added as a new term, deleted entirely, returned as a synonym or with a modifier, the categories have changed to reflect the site users' and site creators' needs. This section will expand outwardly, look at the organisation of these categories and tags on the page, and discuss their changes, efficiency, and possible factors that affect them.

In Mazières, Trachman, Cointet, Coulmont and Prieur's work, the move towards pathologisation and categorisation online, especially in pornography, led to their work in collecting data on categories of thousands of porn videos with the hopes of exploring 'the possibility that 'porn tags inform pornography' and *'… focus on the underlying classification systems and the structural differences they imply'* (Mazièresa et al., 2014). From there, they aimed to '*… reveal the diversity behind hegemonic categories, and the means by which the interactions within them are assembled into niches'* (Mazièresa et al., 2014). This work in the dominant categorisation terms furthered Spink and Jansen's (2004) work on sexual searching by looking specifically at categories and tags and established websites like XNXX and XVideos.

By allowing '*uploaders to index their videos with numerous keywords, XNXX possesses a corpus of over 70,000 tags. Among the most common pornographic platforms, XNXX is the only one to have such a corpus of descriptive keywords'* (Mazièresa et al., 2014). By collecting a large amount of data for the categories, they could see how users have progressed to creating their system on these websites and how the website helps perpetuate the advances. They describe the development as such,

> *They are fundamental elements of the contemporary web: they sort content into menus and lists. They are the basis of the algorithms that allow content to be indexed in such a way as to improve the searching and browsing experiences of users. [...] The keywords define the degree of semantic diversity available to uploaders in their content descriptions, and to viewers in their search queries* (Mazièresa et al., 2014).

Their approach to the category-tag relationship prioritised the bottom-up tags or those created by the community, the *'Folksonomy'* (Mazièresa et al., 2014). Their bottom-up approach expands on the conclusions of the previous chapters on interactions and the users' effects on the site. The site adapts its organisation system through speculation and tracked changes to suit the users' needs. Below, this is discussed further, looking at organisational and semantic changes proposing, from *Chapter Five*, interactions as the catalyst for many of these changes.

6.3.1 Category Facets

During the beginning years of the site, all the categories are listed alphabetically on a single flat page for easy scrolling and selecting for the searcher. From 2013 onwards, the categories are listed based on various popularity metrics. As surmised in the previous chapter, these categories experience a flux in popularity based on the many factors and interactions, user information and content that dictate the order. Having the order seem random promotes browsing even further by allowing users to stumble on content. If the categories were in alphabetical order, the search tactic could change, and users may have to scroll with specific prompts in mind with little to no experimentation.

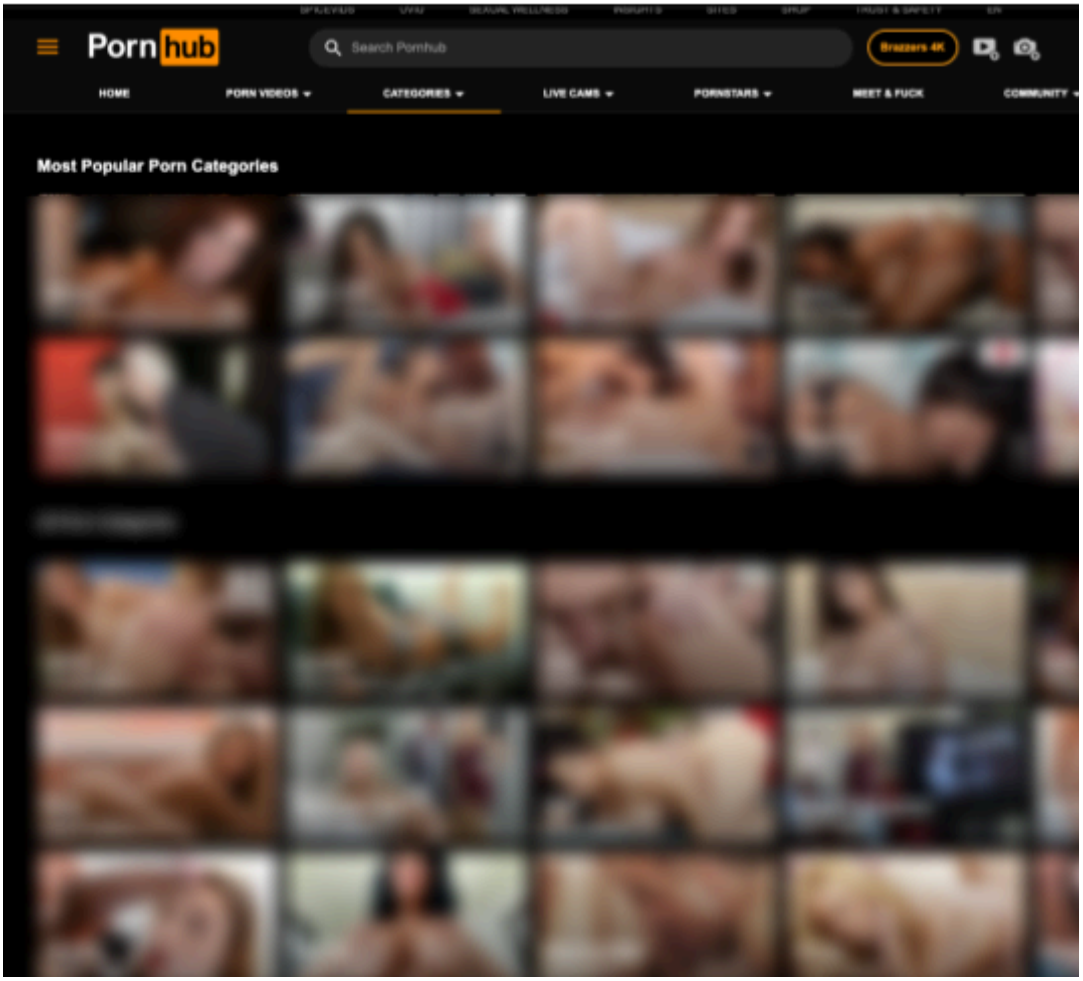
This flat, one-level display of all their categories became the staple on the site until 2022. The categories then change to have a more faceted structure where the categories are split thematically into nine facets. Splitting the content into these terms creates a short-lived top layer to the hierarchy in addition to category-tag layers that already exist. These facets include:

- Ethnicity
- Scenario
- Partners
- LGBTQ+
- Actions
- Attributes
- Age
- Production
- Misc.

These groupings become the parent to the one hundred child categories on the site. They define the terms intending to give them more clues about the types of categories and content they contain.

This technique for classifying the content further on the sites is usually a good idea. Makri states that for browsing environments, 'Facets make navigation easier by parsing the information landscape into smaller and more manageable subsets of information' (Race & Makri, 2016, p. 69). However, in 2023, the site's categories are back to their original system of a flat structure; see Figure 6.5 below. Reverting to this structure shows a backward step in the website's organisation. However, this could be due to functionality and the fact that any split in the categories shows a sense of experimentation to see what works best. The return to the complete list of categories is evidence that it works best for the primary purpose of the site, which is searching.

Figure 6.5: Pornhub's category display in 2023, back to the flat structure and just a list of categories without attributes.



The themes that split the categories could have been more descriptive and understandable. *'Ethnicity'* and *'Scenario'* make sense to the type of actors, the scene set up, and the video's expectations. *'Partners'* is vague on whether it refers to the sexuality or the number of partners.

'LGBTQ+' may be too redundant when there is a full Pornhub Gay that the gay category would divert a user. Also, the use of the LGBTQ+ parent category had predominantly gay male content and was not wholly inclusive, as the use of the full acronym would suggest. *'Actions'* and *'Attributes'*, again, are vague and encompass a lot of sexual kinks and fetishes that may not be immediately obvious how they split between these two. *'Age'* is a simple theme; however, having the age bracketed undoes the work that the category signifiers when discussed above by making it a top search priority again. With this theme, they can again promote content that favours younger actors. *'Production'* is similar to the Technology theme in this thesis, but it is unclear if someone would search by production style. Finally, '*Miscellaneous'* is a non-descriptor that communicates nothing to the user and needs to be more precise and functional.

Just as Norman discusses the use of Error in design when saying, *'If an error is possible, someone will make it. The designer must assume that all possible errors will occur and design so as to minimise the chance of the error in the first place, or its effects once it gets made'* (Norman, 2002, p. 36). These facets to the categories would cause user confusion and Error. The language and definition of the facets have yet to be discovered or agreed upon for use. This lack of structure creates confusion and shows that the flat structure of categories works best for now. It allows terms to be fluid and change without too much risk of Error, while still allowing users to find certain things.

6.3.2 Consistency in Category Language

This change in the organisation leads to the case for consistency in the language, if possible. Bates states that inconsistencies are par for the course regarding indexing. '*We cannot reduce that sort of variety, because that is not variety of expression, but rather variety of meaning. We do not want to merge conceptually distinct topics in an indexing language; to do so would be to impoverish the language's ability to describe the distinct topics we want to be able to retrieve on'* (Bates, 2016, p. 48). So, a category system must allow for language overlap while maintaining the site's categories, which is vital for the users. Categories will have differing definitions for users, creating the challenge of consistency and the need for refinement in language and organisation. Morville states, '*Ambiguity of "subjective" organisation schemes divide information into categories that defy exact definition. They are mired in the ambiguity of language and organisation, not to mention human subjectivity. They are difficult to design and maintain'* (Morville, 2007, p. 61). This challenge also causes the design, organisation, and categories to change based on the site users' behaviours and interpretations.

Below the Table 6.2 will examine how this language compares across the sample sites with data from *Front Page Data*. The data shown is the top ten collated categories taken taken from the sample of vidoes. Each category was added up based on the number of times it was used in each sample. Below is a chart of the top ten categories most frequently used. In Table 6.2, the numbers next to the categories were the times they were used to describe the one hundred films surveyed. Finally, adding colour coding tracked any of the same categories in the lists.

Table 6.2: Top categories from all sample sites colour-coded to show the similar categories across the sites. The (numbers) indicate the frequency and how many times it was included in the sample of videos.

Top Ten Categories Most Frequently Used in Films Surveyed (Frequency)					
Pornhub	**Pornhub Gay**	**XNXX**	**Youporn**	**XVideos**	**Bellesa**
HD Porn (88)	Gay (99)	Mom (120)	Amateur (67)	Ass (53)	Orgasm (104)
Amateur (85)	Hd Porn (90)	Family (80)	Hd (62)	Blowjob (50)	Porn (100)
Verified Amateur (44)	Amateur (83)	Daughter (69)	Blowjob (48)	Tits (48)	Sex (71)
Big Tits (36)	Big Dick (58)	MILF (51)	Teen (44)	Teen (36)	Eating (62)
Teen (27)	Verified Amateur (51)	Dad (43)	Big Tits (41)	Cock (33)	Fingering (56)
Blowjob/ Big Ass (26)	Cumshot (46)	Ebony (39)	Big Dick (35)	Hardcore (32)	Hd Porn (44)
Hardcore/Exclusive (25)	Blowjob (44)	Taboo (29)	Big Butt (31)	Amateur (28)	Clit Stimulation/ Women (43)
Threesome (22)	Bareback (41)	Free Use (19)	Verified Amateur (30)	Porn (24)	Hot Guy (42)
MILF (21)	Twink (38)	Big Tits (18)	Blonde (25)	Butt (22)	Natural Breast (39)
Anal/Pornstar /Cumshot(19)	Rough Sex (31)	Black Girls (16)	Brunette (24)	Boobs/ MILF (20)	Riding (33)

The chart shows some consistency in the language between these sites and some big differences. '*HD Porn*' was the top category on Pornhub, as it can probably be combined easily with any other category. Still, HD Porn or other variations like 'HD' can also be found on Youporn, Pornhub Gay and Bellesa. Almost all Pornhub, Pornhub Gay, Youporn, and XVideos category tags can be found on at least one other site surveyed. They all include categories that detail sexual acts, body parts, people-type descriptions and types of production. Unlike regular mainstream films or online content, the genre is secondary on a porn site. Such categories like fiction, fantasy, and sci-fi do not come into play with porn site categories nor appear in the community tags later.

XNXX and Bellesa only have two out of ten categories found on other sites. Their other eight unique categories are evidence that these two outlying sites offer different types of content to the other sites. XNXX's top categories show dominance for familial categories like *'Mom'*, *'Family'*, *'Daughter'*, and *'Dad'*, showing a disposition to incestuous taboo, further cemented with the seventh category being *'Taboo'*. XNXX predominates for categories that incorporate familial relations more often than the other sites. That is not to say that the other sites do not have these video categories, but they were not familiar enough to be captured in the top ten most popular from the videos surveyed. The remaining categories that differ are racially based and are *'Ebony'* and '*Black Girls*'. These two racially charged terms were found on XNXX, showing a preference for this theme of content, whereas the other websites show a preference for sexual acts or body parts. They are terms that have been weeded out of the language recently. The change in language over the years means many terms that were once acceptable on most sites are changed to ones deemed less offensive. XNXX seems to have fallen behind on these changes.

Bellesa's categories differ entirely due to the nature of the site. The site has already established itself as a more ethical option that caters more to women than any other out of the sample. In the top category, data here further shows that. The only two categories that it shares with other websites are fundamental and general; 'Porn' and 'HD Porn'. The other categories offer up sexual acts and body parts, like the other sites, but here are more female-centred. There is no mention of racial features, extreme acts or extreme body parts. Bellesa's category organisation also differ from the other sites. Table 6.3 below shows the split between the categories and how site users can search through them. The number of categories is far less than Pornhub's.

However, it recommends where to start the search with facet options like '*Top Categories*', meaning the most popular on the site, and '*Trending Categories*', for the most recently popular.

Table 6.3: Bellesa categories as they appear on the site under their split.

Bellesa Categories		
Top Categories	**Trending Categories**	**Categories**
Sensual	Amateur	Sensual
Passionate	Lesbian	Passionate
Rough	Massage	Rough
Girl on Girl	HD Porn	Girl on Girl
Homemade	Erotic Stories	Eating Out
Eating Out		Homemade
Hot Guy		Hot Guy
Big Cock		Anal
		Big Cock
		Guy on Guy
		Threesome (FMF)
		Threesome (MFM)
		Orgy
		Story
		Squirt
		Bondage
		Amateur
		Lesbian
		Massage

Bellesa's organisation goes one step further in the language change and limits their categories to a smaller amount. This constraint helps organise them and keep the language in agreement with what Bellesa defines as more *'ethical language'*. The chart details how Bellesa organises its

categories on its site. The *Top Categories* are listed in one column with only eight beneath it. This small selection contrasts the roughly one hundred top categories often listed on other sites. The *Trending Categories* is also a small list of only five; finally, the complete list is only nineteen. All the categories follow the exact outline of the other sites like Pornhub and YouPorn and have categories that encompass sexual acts, body parts, physical description and production.

Bellesa does add more of a genre attribute into its language, though with terms like *'Sensual'*, *'Passionate'* and *'Erotic Stories*' that are more general and gentle in their description. However, arguably, the difference between these three categories is whether all three are necessary when the site's vocabulary is already small. However, no categories mention racial attributes, relational situations, terms that could be derogatory or any proxy acronyms. The lack of acronyms eliminates any confusion in the language and stops categories from possibly taking on a different meaning that could be offensive. For example, a popular acronym *'MILF'* (Mother I Would Like to Fuck) is nowhere to be found on Bellesa, along with any category found on XNXX that resembled anything close to it, like *'Daughter'*, *'Dad'*, *'Family'* or *'Mom*.' The taboo of incest is found on many porn sites, often with the term Step- in front of it, but Bellesa has none of those terms. The language stands out from the other sites it incorporates due to being a site that aims to be ethical and implying the other sites and their language are not.

From the sites surveyed and the two charts, the language for these categories split into these characteristics with the primary category characteristic used to define porn sites:

1. Sexual acts
2. Physical description
3. People-type descriptions
4. Types of productions

Some are only found on some sites but not on Bellesa.

5. Familial terms
6. Racial Descriptors

These facets could be employed again if they are slowly introduced over time and the terminology and site stay the same simultaneously.

6.3.3 Tagging

As referenced in the literature review, a tag is often used to incorporate a Folksonomy or reflect the people's language, in this case, the site's users. Many of the tags incorporate a lot of slang terms and acronyms. Nevertheless, the language also incorporates the site's vocabulary from its

categories. The categories provide the foundations in language for the community tags. Tagging is also often used on sites as a way to connect and find community as much as it is about describing the video, though not in the sense of connecting with a community like with social media; it is a way of signalling and signposting to other like-minded people on relevant content.

Morville discusses free tagging, or community tagging, also employed on Pornhub. Though not tracked and discussed in this thesis, it is still important to touch upon as the categories introduce the user to the tagging system and invite them to add their own. Morville states: *'The tags are public and serve as pivots for social navigation. Users can move fluidly between objects, authors, tags, and indexers. And when large numbers of people get involved, interesting opportunities arise to transform user behaviour and tagging patterns into a new organization and navigation systems'* (Morville & Rosenfeld, 2007, p. 77). Tagging further categorises the site for the user and by the user and allows the system to adapt and maintain international appeal, as tags can incorporate cultural or language differences.

The Involved Interaction Layer, defined in *Chapter Five*, are those that may tag on porn sites and videos for various reasons. In addition to the categories defined by the site and used by the content creators, users can add tags to create further content descriptions. A user may be compelled to tag a video to provide more accurate information about its content. When users tag a video on a porn site, they may do so based on the performative aspects of gender, such as specific gender roles, identities, or presentations depicted in the video. Tags could reflect users' desires for specific genders, performances, fetishes, kinks and other preferences. This additional description is one of the main ways tags communicate to other users on where to find content.

Sometimes, these community connections find and hide hardcore or extreme content on the page in plain sight. As referenced in the previous chapter, some tags can be encoded to dodge censorship while remaining functional for navigation. However, this is hard to track without knowledge of these niche groups. This underground tactic could be valid for videos with certain now-censored acts like *'groping'*, *'upskirting'* or other terms that are now flagged and pop up with warnings on the site. Though not much content on a porn site is censored due to it already being adult entertainment, this hiding-in-plain-sight kind of tagging can still be present and is worth mentioning. When tagging a video, users may also consider the power dynamics portrayed within the content, including aspects like consent, negotiation, or the representation of

power imbalances. Tags related to consent or power dynamics can signal users' concerns about ethical and consensual sexual interactions or show the continued demand for the content. The motivation for tagging is not always clear as it is with categories.

Where the categories create the backbone for language on the site and teach users that language, tags bulk out the vocabulary by offering an opportunity for freedom and interaction. The users can express their terminology by adding tags. In the last chapter, this was a less frequent interaction on the site, yet it is still important for the categorisation characteristic of the site. Tags enrich the categories and provide more opportunities to add language to the standardised one hundred tags. This part will focus on the top tags on the sites surveyed, looking at the data also taken from the *Pornhub Category Data*. It will show what words stand out and how they also build the language that creates the overall language found on these sites.

Table 6.4 shows the top tags added to the videos surveyed. The only three sites to offer community tagging were Pornhub, YouPorn and Pornhub Gay. Like the categories, the tags that were added show a strong connection across the sites between Pornhub and YouPorn. Pornhub Gay only has three of the same tags as the others, while its other tags focus on more gay-centric tags. The tags overall continue the pattern of using body parts and actions. This consistent pattern in terms shows a connection between the categories and tags, but it is impossible to establish the origin of the terms on the site in this instance. The tags define the content with additional information. For example, Pornhub's most used category was '*HD Porn*', which offers little information, but for tags, the top is *'Anal'*, which starts to focus on specific content and interests.

Table 6.4: Top tags found on the video samples from the *Front Page Data*, with colour-coding for the same tags used across the sites.

Top Ten Community Tags Most Frequently Used in Films Surveyed (Frequency)		
Pornhub	**Pornhub Gay**	**Youporn**
Anal (34)	Gay (316)	Pussy (36)
Pussy (33)	Big Cock (43)	Blowjob (33)
Amateur (30)	Anal (41)	Big Boobs (27)
Big Boobs (26)	Big Dick (31)	Big Tits (24)
Blowjob (25)	Bareback (25)	Butt (21)
Butt (20)	Masturbation (19)	Big Ass (19)
Big Ass (17)/Cum (17)/Orgasm (17)	Daddy (18)	Mom (18)
Mom (16)/Hentai (16)	Jerking (13)	Big Dick (17)/MILF (17)
Big Tits (14)/Mother (14)	Hunks (10)	Cowgirl (16)
MILF (13)/Threesome (13)	Gay Anal (9)	Big Cock (15)/Doggystyle (15)

However, tagging is the least used interaction already established. As shown in Table 6.4, the frequency of the terms shows only a small portion of videos attributed to each tag. This possible decline and lack of use could be a testament to the improvement in the categorisation system that reduces the need for tagging and makes the interaction redundant. However, this thesis tagging study needs to capture how users search with tags that could still show their use and usefulness. There could also be a change in how users are using tags. Rather than just for indexing, they use them to bookmark or save content for themselves, just as some do with hearts. Just as with collaborative tagging, they could also add repetition to further emphasise and support an already established category on a video – if a video has a category and a tag with the same term, it can strengthen the priority of that term in the indexing. They could also be added to define categories further or correct them with the preferred terms that could be communicated to the site to the site creators. This type of tagging shows that it can benefit the individual, the online community, and website designers. The evolution of tagging would need to be studied further with similar methods to compare genuinely, but it shows their current use

here. The following section will examine how the industry understands the changes to language and tags.

This amorphous nature of categories and tags provides exciting insight into how users adapt and affect their environment when creating efficient search and interaction methods. The mutual motivations for change in the tags and categories point to the category vocabulary reacting to the site users adapting to specific terms. The users and site creators create the terms and words used to define the content. Both sides help create efficient pathways to the content with just hyperlinks and one hand needed to search. Simultaneously, the tactics for categorisation and tagging show that sexual and commercial marketing follow the same route.

6.4 Continued Changes in Industry

The final section of this chapter will look at anecdotal evidence, through secondary interviews, of people in the industry to better understand the porn language in categories and tagging in its porn environment. The changing terms from the previous sections will be discussed further, along with the changing attitudes and possible reasoning for the changes, speculated earlier, looking at an overall change to the language and attitude. They will then address the need for consistency in web design for searching and how those in the industry view and cater to search tactics and needs. This evidence will confirm some speculations and provide industry insight to confirm motivations and tactics in changing terms and addressing its issues like derogatory terms.

It is now a given that Pornhub will continue to change, whether due to social or commercial pressures. This section discusses why categories are so helpful and speculate what could and should change and whether it is possible —taking anecdotal evidence from interviews with people from the industry in Mel Magazine. These articles were found while finding other sources used in this thesis through the system described in the literature review and not through a systematic review of this specific magazine. Though they did not strictly fit with the academic sources used throughout, they offer rare and unique insight from the industry into this specific topic of indexing porn sites and their changes over time – complimentary to the retrospective longitudinal data. These sources offer opinions on modern-day online porn that expands beyond the usual censorship debates. Finding industry input in the academic world is even more challenging, so there is a case to use these articles in this instance.

6.4.1 Changes to Language

The categories a user chooses to search for are the main entry and interaction points for porn sites like Pornhub. They adapt the content and commercially drive it further. *'This means that every time you search for what you like, you're driving traffic for those key terms, increasing the likelihood that more of that kind of porn will be made (and that the terms you used to search for it will eventually become as commonplace as "MILF" [Mother I'd Like to Fuck] and "BBW" [Big Beautiful Women])'* (Mel Magazine, 2019). When looking at the category data over the years, the main changes were categories added, deleted or returned. The change in categories due to commercial factors is speculative. The ones that remain consistent seem to have been affected by their popularity. When looking at the category data, this is possibly accurate. The term *'MILF'* appeared in 2008 and only changed to *'MILF*', with all capitalisation, two years later in 2010, but it remains consistent on Pornhub to the present day. BBW was not on the list of categories until 2010, but it remains a staple as well.

Erika Lust, the creator of the feminist porn site XConfessions, also firmly believes in the site's traffic as a factor in change. She states that it should come from the users and their actions to enact change and the website holders. She says:

> *There's a desperate need to change the way porn is labelled and organized, but to change this, the consumer needs to take action by choosing carefully what they watch and spend their money on. At the moment, porn still exists in a vacuum where viewers don't bring the same attention or criticism that they bring to other media that they consume. For most people, porn is still "just porn," and they don't give it any further thought. But porn isn't a monolithic entity, it's part of a discourse on sexuality, sex and gender and it mirrors our society* (Finster, 2019).

Lust believes that sites like Pornhub are fueled by traffic, so their content that translates to monetary amounts gives the site power. She also believes that users have enough power to change them. Pornhub is part of the discourse, as she says, on society's view on sexuality and gender and reflects that society in its porn. However, whether it is a two-way mirror is always up for debate.

Regardless, categories change, sites adapt, and new organisations emerge. To lead by example, Lust states, *'...I use neutral categories that refer to the sex act or style of film, such as "threesome," "BDSM," "documentary" and "outdoor." That way, we can put the onus on the consumer to look at individual performers and situations freely without presenting them as a*

particular type or search term' (Finster, 2019). Lust's interview predates the short-lived changes to Pornhub's attempted category split into different neutral facets. Today, Lust continues to create more sites for her content showing the increased interest in ethical porn. All while Pornhub tries new categories and organisation that mimics her ethical output but shows their struggle to catch up to her on that aspect.

6.4.2 Searching Without the Search Bar

This idea further builds on the changes that a video-streaming porn site goes through. Finding better ways of organising helps users in their efficient searching techniques. *'Sexual queries involve fewer unique terms or repeat frequently used terms due to a limit in the language'* (Spink & Jansen, 2004). However, the change in process means that it has to be gradual, as any significant change to the design would confuse and frustrate users by having to learn more through Errors. The sudden change to the category layout on Pornhub did not last long and suggests there were too many Errors in user searches that caused it to return to its original flat structure.

The attention to and importance of categories and how they develop in the coming years heavily supports the idea of one-handed searching; using just clicks. On Pornhub, categories are a straightforward way for the site to organise its content and make it accessible to its users with little teaching involved. As previously discussed, language carries over from the real world and vice versa to create a push and pull of vocabulary that informs the vocabulary. Nevertheless, as the categories develop, they become the one-handed search tool. The Vice President of XHamster, Alex Hawkins, states that the search bar is now defunct unless the user is looking for a specific niche or star. He gives an example,

> *But most popular porn search terms, like 'stepmom,' 'daddy', or 'Japanese,' are so broad and heavily populated that they're often ineffective. Everything gets labelled that by users because they're popular search terms.[...] That means searching for 'MILF' is often less efficient than using 'MILF' as a category, then adding additional categories, like BBW, BBC or BDSM, as needed* (Lenklitner, 2020).

Hawkins suggests that it is more efficient to use the categories to narrow the search without using the search bar at all and '*by adding filters atop your categories' like tags in a hierarchical way to get to the wanted video'* (Lenklitner, 2020). This insight into searching from someone in the industry is interesting in light of the additional attributes found on Pornhub this year. An

efficient search on a porn site is of the utmost importance when the average user only stays on the site for roughly ten minutes.

Nina Hartley, a porn producer and performer, points out the need for speed when searching for porn and the need for search terms to help users find content. She states:

> *I'd like to see a change in how things are labelled, but it would take a change in how we view sex, gender, race, class, etc. Nor can I imagine a porn industry that uses less search terms. I don't know how the product would reach its intended audience without using them. I want to see what I want to see, not what another person wants to see, and I want to have filters in place that maximise my chances of finding the scene I want most right now* (Finster, 2019).

Hartley refers to filters that are the unsuccessful facets and attributes that split the Pornhub categories, but she also cannot imagine the industry using fewer search terms. Her reference point for her opinion is mainstream sites like Pornhub, and she does not take into account sites like Bellesa's smaller list of categories. Hartley does shed some light on the motivations that drove Pornhub to change suddenly to filter content for faster navigation. If it had been successful, it had the potential to reduce scrolling time and search effort.

6.4.3 Derogatory Terms and Changing Attitudes

Damaging terms have priority when change occurs. This priority was touched on briefly when discussing the category '*Shemale'* that became *'Transgender'*, but there are many more terms that equally fetishise and could do with updating. Clint Works, the Chief Marketing Officer at Plumper Pass, discusses this with the term BBC:

> *One term that we've been discussing a lot in my office recently is "BBC," which is an acronym for "big, black cock." I'm a black man. From my perspective, calling someone black isn't a derogatory thing. I know there's concern about porn fetishizing black men, but I consider "BBC" a descriptive term. The guys I work with who make porn that's tagged "BBC" aren't upset about it. Likewise, I consider "BBW" a descriptive term, not something inherently derogatory, because it labels women big and beautiful. I consider "PAWG" a descriptive term. Even BWC, or "big white cock," is getting used these days* (Finster, 2019).

Oddly, '*BBC*' has never been a main category on Pornhub. However, Clint's point about description holds, ensuring the longevity of a category or term like '*BBW*'. Nevertheless, not all descriptions are without bias, so it starts the conversation on which ones should change due to

their derogatory nature. A porn site's organisation system's vocabulary has morphed through the years, along with its primary use as a search tool. This experimentation in the organisation happened in the years of changes throughout Pornhub's career, where the vocabulary grew, contracted, changed, edited and clarified. The system eventually plateaued, finding the correct number of categories and semantics that worked for them, for now. However, testimony from various people in the industry says it is not over yet. With the addition of filters, whether it is to remove bias, aid in browsing or speed up searching, it looks like there is a push for the categories to prepare to change again.

Bree Mills, Chief Creative at Adult Time, discusses this: '*Within Adult Time, we've had conversations over the last year about staying ahead of the curve when it comes to terminology and the struggle that sometimes exists in an adult site with outdated or inaccurate terms. Some of these terms can be offensive or harmful. One of the best examples is "interracial"'* (Finster, 2019). These conversations in Adult Time and with Clint at Plumper Pass show some thought and consideration into the terms. The interracial category, unlike BBC, has been one of the main categories since the beginning. However, the conversation around these terms overlaps with issues of apparent racial fetishisation and racial power play that could be offensive to some.

Erika Lust blames the derogatory categories on the VHS tradition, stating *'they were originally developed as a sales tool to make buying VHS porn easier. Then, when the tube sites took over, they started to rely on keywords and categories to organize huge swathes of content'* (Finster, 2019). Though Pornhub has many videos, it is questionable whether that is a good enough reason not to try to change these categories, especially when they have changed others in the past. Lust continues with her speculation by saying, '*This is especially problematic because tube sites such as Pornhub and Redtube rely on pirated content and ignore the original titles of these stolen films and instead label and categorise them with racist, sexist and homophobic language without the performers' or the filmmakers' consent'* (Finster, 2019). Lust's opinions looked to a broken porn labelling system that is, at the very least, flawed. When fueled by the commercial aspects of the site looking for traffic and viewership over much competition, it leads to desperate measures of even stealing content. This motivation for consumption over morals raises questions about the previous claims in the thesis that the changes to categories are possible evidence of accountability and the site changing to be accountable and reflect current semantics. Lust rejects this idea, based on her opinions, and boils it down to commercial aspects rather than social ones.

Nina Hartley also agrees that the porn vocabulary is changing. Still, unlike Lust, Hartly can no longer see how it can change if viewers' desires remain the same. She says

> *The lexicon of porn is always changing. [...] I can't imagine the fascination with race-based porn will go away any time soon, either. Race fascination, desire, revulsion and terror is baked into our culture, our memory, our nightmares and our deepest desires. Anything taboo in the greater society will have an avid following in the porn world. As long as the N-word and other flagrantly derogatory words aren't used, I'm not sure how such terms can evolve* (Finster, 2019).

Hartley hits out on a valid point that the neutralising of the language in porn does take away from the taboo element and the act of being aroused by it in the first place. Also, some biased terms could be descriptive too. For Hartley, it is enough that the terms are not derogatory. Significant societal changes are needed to change any further, rather than simple user decisions not to use specific sites, as Lust suggested.

6.5 Conclusion

The categorisation of sex and sexual terms continues to change and morph. Evidence of this is on porn websites. The novel methods in collecting the data from the Wayback Machine used in this chapter allowed for an experiment and exploration that straddles quantitative and qualitative data. The data culminated in a list in timeline form with terms added, deleted and returned. Each change served to show differences and term evolutions that create a dynamic, Controlled Vocabulary.

Examples are extracted from the lists to show changes by splitting the terms thematically. These changes centred around content labels for women, derogatory terms for trans people, consent issues around age terms, damaging racial terms and the advances in technology and their associated terms. By breaking down the changes to the vocabulary in this way, the motivations for these changes became clearer. It speculated that many of the changes were because of the dual nature of commercialism and user-oriented aims that aid searching for sex and sexualities while also tapping into new markets.

The organisation of the categories also offered a new insight into ways the categories changed, but only for a short time. This change proved the site's ability to change and react fluidly. It also opened up the conversation to tagging and a closer inspection of the user interaction that goes

into the language creation of the overall site. Consistency was a key aim and motivation, although not always possible. Having tags and categories mutually react to each other in the bottom-up scenario referred to by Morville and Rosenfeld (2007) showed how tagging is a great way to explain the change. However, as established in *Chapter Five*, tagging is rarely an interaction on the websites and may be on the way out.

These sections led to the final part of this chapter, which discusses the changing language, terms, and attitudes to the categories on these sites. Using articles containing anecdotes from industry professionals allowed for the speculation to be evidenced by those who work for the sites and have an insider perspective. They all point to a rise in the change in sites and a decrease in tagging due to the rise of automated systems. However, they believe that human intervention from users and site creators is necessary to define the terms that should be included in this Controlled Vocabulary.

Overall, this chapter answered how categories and their organisation systems changed over time by splitting the main question into two parts and tackling them first separately and then together. The novel use of methods, data and interpretation provided great insight and a great starting point for many points for future research that will be discussed further in the following chapter.

CHAPTER SEVEN: DISCUSSION AND CONCLUSION

7.0 Introduction

This *Discussion Chapter* aims to reinforce the study's aims, explain the gaps in knowledge and solidify the findings from this thesis. The context of the project is within multiple academic fields by framing the answers to the questions and discussing how they address and fill the gaps in knowledge. This contextualisation will show how the project and thesis provide new information and knowledge. The project's limitations will discuss how the project was unique and where it could be expanded for future study. Overall, this chapter will provide the main takeaways of the project, where it sits within its fields of knowledge and where it can go in the future.

7.1 Research Aims

One of the main aims was to further porn and information studies by connecting them to provide a better understanding of these two fields. Creating a more contemporary definition of internet porn, specifically for video streaming sites, would address the ever-evolving nature of the media and the severe lack of discourse around it. The definition involved an in-depth analysis of a video streaming site’s characteristics that considered the many other types of porn websites and the other types of conventional websites – straddling the mainstream and the porn internet to test the theory. The aim was to highlight and consider porn within its world and within the mainstream world to justify its need for academic interrogation and exploration.

It also aimed to update the outlook of a porn user and searcher through interactions and search patterns. By analysing and collecting user data readily available through the site, an overall picture of a user's preferences, options and experience. This framing was to provide insight into how the websites work and react and provide methods and ideas on how to incorporate Information Science into Porn Studies. This aim built on the study's validity and ultimately developed methods for future study.

Combining these two fields, Porn Studies and Information Science, allows for bridges to be built between the two faculties. This thesis aims to update these areas of knowledge for mutual benefit while using them in coordination and collaboration. Porn Studies is a relatively small area of research, so more robust and established theories used in Information Science and Information Seeking were mapped to porn sites. The working together of various theories on top of porn definitions addressed the multidisciplinary study's aim while also showing how both

areas could work together to address the gaps in knowledge discussed below. In the end, the Porn Studies elements of the study benefitted the most with the application of established frameworks and descriptions that further defined porn in new environments and through a new lens. At the same time, information science was tested for validity within a new environment.

7.2 Similar Studies

This research drew upon many different types of studies that provided the initial methods to adapt for this project. Spink and Jansen's (2004) study of sexual searches in search engines provided the initial insight into how searching for pornography occurs. Their study is practical at deftly incorporating porn into Information Science with both quantitative and qualitative data that inspired this project. Ogas's (2011) study on tagging in pornography also provided some inspiration for the categorisation of a porn video on a porn site. His study's methods were adaptable to handle just category data more manageably to make speculations and conclusions of backend indexing on the sites. Burgess's (2009) study of YouTube also informed the overall outlook of the study by showcasing the various elements of interaction and options a user has on a video streaming site. These studies served as benchmarks for the types of rich data that could and were collected in this project and were good examples of interrogating or forming speculations.

The thesis also sits within the context of many fields of knowledge and theories that provided insight and structure to an exploratory and experimental project. Situated in the context of porn media studies for language and definition from McNair (2013), Dworkin (1981), Williams (2004), and others, the project made connections to information design with writers like Morville and Norman and connections to information seeking theory from Bates, Pirolli and Card, and others.

7.3 Scope and Limitations

Although the research project did not use human participants, the methodology still allowed for user-focused data and research to present itself. The reason for this scope was due to a few factors. One is the experimental nature of this project and the aim to create frameworks for this type of research early on. This aim meant that using human participants was optional at this stage but was earmarked for future research to fit within the frameworks created. The other reason was that the project occurred during the COVID-19 pandemic. Unfortunately, the

uncertainty of this event lead to using alternative routes and methods. The project was not hindered due to this and could still deliver on the aims it set out to achieve.

The websites used in this project were also a decision to limit the project's focus, video streaming porn sites. Though other sites were recorded and used in the first chapter, there was a need to focus on one category of porn sites for the scope of this project. Each other category would bring new characteristics and search tactics that could be studied later but would have been too vast to include in this instance. As these websites are understudied, it was beneficial for the project to focus on one category to allow for deeper experimentation and exploration. The methods developed for this project from a combination of similar studies gave it a unique and experimental outlook. They provided it with new and exciting contributions to the relevant fields of study.

7.4 Identified Gaps in Knowledge

The combined study of Information Science and Porn Studies made it easy to identify gaps since they are both recent fields of study and less often put together. As shown in the literature review, Porn Studies incorporate many different fields of thought, like law, gender studies, media studies or sociology, when defining itself within a discourse. Information Science also incorporates many ideas and methods, but when discussing the use of the internet or searching, pornography is often left out or mentioned briefly. The two studies mentioned above were the start of this work but were too general, in the case of Spink and Jansen (2004) on search engines, or too focused on one aspect, with Ogas's (2011) study on tagging. The most significant identifiable gap in knowledge was the need for studies incorporating these two fields that provided insight into the user experience.

The definition of porn relies on old references to physical media, but a clear, up-to-date definition establishes a true and accurate picture of user motivation. Searching for entertainment or leisure often does not incorporate sexual interests regarding information-seeking behaviours. However, it is common knowledge that porn is looked on regularly by people either alone or together, and the websites are high-traffic areas online. This gap in reality and theory shows a vast gap in understanding leisure activities and searching that discounts something that is a large part of Internet culture. This gap can inform how people search quicker while in a rush or

when they are sexually motivated. Filling the gap provides a greater understanding of sexual searching that is more nuanced than searching for entertainment.

7.5 Major Findings

This section will discuss the project's significant findings by collating the different routes and outcomes encountered during the project. Speculations and some conclusions were drawn from the data. Some significant findings took the form of definitions and characteristics from the qualitative data. Other outcomes include frameworks and methods for future study based on the scientific method and process employed for this project. These findings culminate in the project's overall contributions. The findings and contributions aim to address the gaps in knowledge, answer the research questions set out in this thesis and provide novel insight into the fields.

The importance of this research can also be found in the target audience that, spaces a diverse range of professionals like designers, information architects, porn creators and policymakers. The speculations and conclusions made in this thesis become of greater importance when looking to create better, more sensitive structures of porn sites. These new structures and ways of indexing challenge the mainstream norms that have existed thus far with great commercial success. The findings in this thesis present a new way of looking at indexing as a successful way of ethically addressing representation and identity on the site. The new definitions, informed data on interaction, and the changes to vocabulary show the initial changes to viewership, users and categorisation that can be employed by all within the target audience. These informed speculations and findings ground decision-making for the target audience to, in turn, make their own informed decision with an overarching aim for change for the better – a key aim and essential factor of the study.

Overall, this study shows the importance of defining and cataloguing a website, specifically a porn site, that comes with its challenges, debates and priorities. By defining and understanding users and breaking down the indexing, this thesis becomes a stepping stone towards better understanding, workflows, and terminology that addresses issues within the industry without reverting to total censorship that would shut down any form of understanding. A porn site’s design and indexing perpetuates the porn discourses described in the literature review. By

addressing porn ideology through its design and indexing, it serves to further find best practices and sensitivity to the topic with evidence rather than assumptions.

7.5.1 Data Findings

This section will examine the data findings, collating some of their speculations and conclusions. These interpretations can be expanded by exploring the data or sampling it differently. Nevertheless, this thesis was still able to inform the speculations and find the beginnings of some strong relationships.

Chapter Four created the characteristics of a porn site and expanded on the definitions laid out in the literature review to answer: 1.0 What do porn sites look like? The definition informed the rest of the thesis and was applied to other internet sites for comparison. These comparisons showed that a video streaming porn site is most comparable to an aggregator and entertainment site by straddling many of the same characteristics and site features. This outcome is important because it creates a better understanding of where video streaming porn sites sit in the context of the internet and, thus, the real world for users and researchers alike. It also starts to find new ways of framing and looking at porn to expand on established internet definitions and categories or designs. The application of Internet Architecture and design shows novel methods and elements to map to real-world sites. This application of new concepts to porn sites also opened up the sites to the idea of one-handed or three-click navigation, usually saved for mobile interface and usage. It became a point of interest for future research.

Chapter Five looked closer at qualitative data to make speculations to answer the central question of: 2.0 How do users interact and search on a porn site? The interpretation of the duration data showed that there might be a sweet spot for the length of a video on a porn site – between ten and fifteen minutes. This regular duration, however, did not match up to the secondary data of the average length of stay on the site. This disparity speculated that most users wanted fast navigation and did not watch complete videos on the sites. Splitting the *Interaction Data* points into Simple and Complex Interactions showed that users prefer simple interactions requiring a single mouse click with one hand. This preference relates to the form of navigation in *Chapter Four.* The correlation calculations also showed strong relationships between viewership and Simple Interactions and comments, showing their dominance on the site again and speculating that interactions are a game of numbers that requires more viewership to increase interactions like upvotes, downvotes and hearts. All interactions show

general communication with the other users on a site. The viewership on the sample videos was dominantly in a range close to one million, with some outliers, which showed the weakness in the data, showing a skew towards possibly more recently uploaded videos, which highlighted ways to expand the data in future studies to address this issue. Though tags and comments are used less often, they are still helpful for Berrypicking and Information Foraging searchability.

Finally, *Chapter Six* employed a retrospective longitudinal method for collecting the data. Some speculations could be made by tracking the category changes on the Wayback Machine to answer the overall question: 3.0 How do a porn site's categories and organisation change over time? The main observation was that the Controlled Vocabulary in the form of categories does, in fact, change. It was speculated that the terms change to suit the content creators and the users by maintaining modern vernacular. Many, not all, derogatory terms were changed to suit more inclusive language. It was also observed that facets were added to the organisation system for category and tag navigation when searching. However, this was swiftly taken away the following year, drawing up speculation that it did not work and posing further exploration into to why. The secondary interviews with industry professionals supported these observations and speculations while offering a unique perspective on these sites and providing invaluable voiced opinions to the narrative this thesis created.

7.5.2 Porn Definitions and Characteristics

One of the main findings was the list of characteristics of video streaming porn sites, which updated porn definitions. This definition was consistent for the rest of the project, the following questions, and any future study. The characteristics incorporate the different elements of many modern websites. The characteristics work in conjunction with and in the context of the other definitions of porn as material for arousal (Dworkin, 1981) or obscene or taboo material. The definitions now have an updated list to incorporate into their content, providing a richer understanding of what the sites offer in content and features. This establishment led to a broader conversation of other site's characteristics and addressed the gap in separating Porn Studies by entrenching the sites with other conventional sites.

This definition created the language root for the subsequent finding, which was how to define interactions on a porn site. The list of interactions, framed within the characteristics, further displays the different layers of interaction and options that users may or may not take advantage of every feature. Theory on one-handed searching and interaction introduced possible

motivations and initial steps for further research. Testing these interactions with qualitative and quantitative data supported new ideas on the user journey on a site where the user spends, on average, ten minutes navigating. This data speculations, user characteristics, and search tactics grounded in Information Seeking but adapted to the challenging medium as described above.

7.5.3 Framework and Methods Created

Another outcome of the project was the new frameworks and methods created for this study and future studies for looking at porn. The characteristics provide the framework for how porn sites can be used and expanded upon or used with other types of porn sites. This example provided a helpful breakdown of the sites in line with the breakdown of other mainstream, like social media, aggregator or entertainment, in the Information Science field. It was clear that a porn site straddled many different conventions and should be expressed as its entity alongside other websites. It was also made clear, through breaking down these characteristics with standard design elements, the porn sites follow a basic standardised structure that informs both the back and front-end structure and use.

The qualitative and quantitative data collected throughout provided, for example, methods for collecting data on this type of material without the need for human participants. These methods eliminate the challenge of finding participants while offering ways of creating the user's journey through statistics and correlations. Concluding that most porn site users view content – like lurkers on message boards – and only a small portion of users interact on the site, a greater emphasis is given to viewership as a comparator. The methods and interpretations employed in the study laid out multiple ways the data can be calculated and compared to other interaction metrics. One of the significant findings was the predominance of interactions that required one hand and less effort. This theorised preference for one-handed interaction. The data and anecdotal evidence showed that most users click rather than type searches or interactions.

The methods contributed by this study also provided less of a need to observe specific data points over time. As the sites are high-traffic areas online, this validated their worth for study and provided available data on the Wayback Machine. This method of collecting data from the site through an archive provided a rich dataset that showed evolution to particular factors on the site, category language in this case, which was readily available and collectable in a shorter time. This study only employed this to one site, but the findings offered insight into how sites change and morph, and through its findings, the method was practical, replicable and reusable

for other data points. This portion of the study allowed the qualitative data in the tags to be traced to show change, allowing conclusions and comparisons to today's site. The categories changed to streamline the user experience for commercial and sexual searching reasoning.

7.5.4 Application of Information Architecture to Porn Sites

The application of Information Architecture to porn sites presented key concepts and theories in a new environment and put them to the test. Using Norman's (1998, 2002) ideas like Affordances, Feedback and Errors in everyday design and applying them more to websites showed the universality of his ideas while also showing a porn site's Standardisation as a platform for users to view and interact. Krug's ideas on a '*clear and straightforward*' design that will not make the user overthink (Krug, 2007) supplement Norman's ideas and further show how the sites simplify their Standardisation and streamline interaction. These created the later defining features of the sites. Again, this supported Marchionini's (1995) idea of exploratory search and the combined overlapping elements to define it. These ideas coincide with Information Architects Morville and Rosenfeld (2007) and their belief that design enforces goal-oriented searching while also making space for browsing or other types of searching to inform design further. When applied to porn sites and throughout all three parts of this thesis, the site's simple architecture serves the user with different elements and options. As established in the data, most users view videos. However, others take part in the other interactions available, responding to the site and, thus, the site responding to them by changing front pages, recommendations and categories.

Rosenfeld describes information architecture as the '*multi-dimensional information space'* for websites (Carliner, 2008). This extension of his view of regular websites being just two-dimensional spaces not only serves to show the dynamism of a website that is well designed but further aids the idea that a porn site provides a visceral, interactive and three-dimensional experience to satisfy an informative, and physical, need. The design of a site also translates to using mobile. This idea is introduced in the literature and, through the thesis, the idea of one-handed searching and interacting. The employment of one hand when using a mobile is a given, but using just one hand for a desktop device is less commonly discussed or researched. The speculations made in this thesis draw attention to this idea, with many search tactics finding success by clicking through the hyperlinks categories, site's layers and tags to get to videos. No search bar is necessary. If anything, typing slows down the process and negates the exploratory Affordances created throughout the site.

7.5.5 Application of Information Seeking to Porn Sites

One of the major findings of this thesis was its application of key concepts of Information Seeking to Porn Studies. The following section will detail how these information-seeking tactics open up the definitions and discussions around porn websites to re-focus on the user as well as the content and the website to become an all-encompassing view of these sites. This collaboration between fields in this thesis is listed as a significant finding to show its success. Specific findings relevant to the two search tactics, Berrypicking and Information Foraging, are listed below, but overall, they show an ability for future multidisciplinary study in these two fields.

7.5.5.1 Berrypicking and Information Foraging

Berrypicking is a term coined by Bates (2007). goes beyond the standard information retrieval search-query pattern. In it, she states that searchers will find "*berrypatches*" of information as they search where they can gather information, change their search query and continue to find more information. (Bates, 2007). This theory was discussed within this thesis as a critical example of how porn site users search online. A user will '*glimpse'* a front page or '*scan*' the categories and tags (Bates, 2007) through a site and navigate backwards or forwards with no specific question or information that needs to be answered. The process is fluid, and success is found throughout this thesis. This idea was paired with qualitative and quantitative data to encapsulate the user's journey by showing how long users take on a site and how often they interact with the videos. This thesis suggests that berrypickers take more time with a specific category and serve to enrich their environment to allow for growth. Each visit and navigation could yield new information or the same information that brought them success and satisfaction. The data suggests that viewership on porn sites is high, while simple interactions, like upvotes, downvotes or hearts, are more common than complex interactions. Though interactions and time spent on the sites are short, this search tactic, when applied to a porn site, offers insight into those that may spend a longer and more methodical time providing more of the more complex interactions like tags and comments.

These "breadcrumbs" become a central element for these sites and, for porn sites, they are seen as interactions or, more specifically, tags that are left behind by the user for various reasons. The tags are the most involved and complex interactions discussed in this thesis. A user that decides to create tags crosses into another type of interaction – Collaborative Foraging. Though introduced in this thesis as a minor point for further study, Collaborative

Foraging would draw together the users who would tag based on their decision to work for themselves or together to aid the indexing of the site. The tags enrich the information environment (Pirolli, 2007) by expanding on information already available on the site with additional metadata. This thesis put forth a few ideas as to why someone would put tags on a video. However, like with any other tag or Folksonomy creation environment like a library or website, these reasons can serve the individual and the wider site community.

The concepts of Collaborative Foraging and Information Scent supplement the overall view of Information Foraging explored in this thesis. The interactions that were collected and interpreted served as evidence of not only search habits but successful searching outcomes from users. Tags, upvotes, and hearts serve as a simple communication between users to share and save content with each other and to the site designers to communicate popularity in the hopes that it will rise to the site's front page. Overall, this enriches the information environment (Pirolli, 2007) and further supports the idea of information scent and information patches (Priolli & Card, 1999). Applying Information Foraging to an environment like porn sites and speculating how they are used in situ enriches the site's definitions and the concept's theories. Like Berrypicking, it taps into primal instincts and cognitive psychology when collecting Information. The forager weighs up '*cost and benefits'* with every click in their navigation and follows *'information scents'* with every category or tag selected. (Pirolli and Card, 2007). Savolainen (2017) and Kari and Hartel (2007) offer ways of looking at information environments. Some incorporate sexual environments that may resemble porn, but none encompass specific porn sites – what this thesis aims to address.

7.5.6 Organisation of Porn Sites

The *Organisation of a Porn Site* again applies concepts and explanations to a different environment. These are again tested for validity and accuracy and provide a mutual expansion in understanding and addressing gaps in knowledge, starting with Raganathan’s (1960) early theories on facets and the best ways to break up information for efficient and understandable retrieval. Porn sites have shown that they can use facets but must also battle with the challenges and any changes to design that could be too drastic or fast for users hindering their understanding or ability to use the website. Norman (2002) explains that an organisational structure aids in the design. A porn site offers up a two-tiered hierarchical system of categories and tags that provide the visual tree a user can use to navigate. (Krug, 2005). However, a two-level hierarchy is not that expressive or detailed and creates a very flat structure for the

overall website for searching that reflects the fluidity of search and retrieval explained in the findings above. When sites like Pornhub, in *Chapter Six*, tried to use more facets, the structure changed, but they were quickly taken back speculatively, because the works and the divisions they created in the categories and tags were unclear.

Different environments will have different Controlled Vocabularies for their websites. The language on any site is essential, but for Porn sites, the language caters to a new environment that has minimal overlap with the rest of the internet. Categories and Controlled Vocabularies created by the site owners encompass an '*aboutness'* of the item or information (Adler, 2017), which create clues and *'breadcrumbs'* (Bates, 2005) for users to follow. Tags create folksonomies and take from the vernacular of the user in a '*bottom-up*' system (Morville & Rosenfeld, 2005). Tags encompass a more '*personal organisation system'* (Engels, 2017) that creates further connections to other materials and across fields of knowledge, but some may only make sense to the individual. As laid out in this thesis, a tag can be added to a video for many reasons. Though they all ultimately serve the ultimate purpose of findability, they are more expressive and dynamic than categories.

For a porn site, categories and tags not only work as a hierarchy but work in tandem to create the morphing language for the site. Unlike a library that will have a Controlled Vocabulary that will rarely change, a porn site's language for indexing and finding is continually changing. Tracking Pornhub's categories since the beginning of the site saw the changes in tastes and terminology. It saw terms get added, some deleted entirely, and others returned. Terms were changed to encompass a new type of identity, change an old one, or provide greater detail, like '*18-25*', to communicate to the user during their fast searching. The main finding in this thesis in terms of the organisation of a porn site is that though their design remains stagnant, their back-end indexing and content are constantly changing. With further research, their reasoning and attitudes could be further extracted to create real-world applications with that knowledge.

7.5.7 Recent Context of Concepts

Whether a user of a site is a berrypicker or an Information Forager, the porn world offers up a new way of looking at these search tactics that exemplify the *'consistency and variety'* in searching that White and Druker (2007) discuss. Just as this paper breaks down the two types of searchers into their frameworks, berrypickers and foragers, White and Druker explain them as

'navigators and explorers' – an equally helpful way of viewing these website queries and navigation like the Basic and Involved Interaction Layers set out in this thesis.

The mapping of Information Architecture and Information Foraging in other contexts can be compared to this thesis. E-commerce is one of the main types of sites where Information Foraging is applied, like in Well's (2012) study, the user becomes the consumer, and the Information Foraging psychology and terminology are used with the context of marketing to contextualise and create a framework for this environment. In Kim and Hantula's exploration of '*inforagers*' in an e-commerce environment, Information Foraging was '*ubiquitous in consumer behaviour*' and the consumer's surroundings or '*constraints*' 'interactively affect Information Foraging for '*subjectively optimised outcomes*' (Kim & Hantula, 2016). This study is further supported in Li, Tan, Wei and Wang's (2017) recent study of user interactions as reviews on e-commerce sites. They employed Information Foraging to determine how the site displays reviews and how a consumer searches. They concluded that '*different genres of product reviews at different junctures'* or points in the search enhance the decision-making process (Li et al., 2017). Information Architecture and Information Foraging, in the context of e-commerce, returns to the first question in *Chapter Four* of this thesis, where porn sites are compared to a variety of sites. Where the overlapping characteristics were created, they carry over now. These studies on e-commerce can inform and expand this thesis, but there may still be overlap and diversions regarding features like purchasing.

Focusing on the behavioural aspect of Information Foraging in other contexts also provides another reference point. In Choi, Shah, and Singh's (2022) unique study comparing virtual Information Foraging tactics on websites to physical tactics in escape rooms, they found that individuals have a *'preferred search strategy'* (Choi et al., 2022). They also found that the behavioural pattern was affected by the task type. This point is interesting as it could also be speculated that porn searchers would follow the same patterns. An escape room may provide the element of time pressure that a porn user may also feel – as related to their average short navigation time on the sites. The study also provides overlap with the virtual and the physical that arguably, a porn site may straddle both of these as well but in a single sitting. Returning to e-commerce, Spiteri's (2001) study of business-to-consumer video retailers shows a severe lack of information that contrasts with the lack of information available in a puzzle, like an escape room. This lack of information and architecture leads to the user's inability to make informed decisions and either make Errors or give up. Again, similar to a porn site where it has been

discussed and speculated that the searching relies on only a few bits of metadata like the title, categories, tags and possibly other interactions. This small amount of information can simultaneously aid searchers and hinder them as they can be expressive for some and not others as their categories are based on the content creators.

This thesis also suggested that some element of Collaborative Foraging takes place on the site. The community tags create a community and communicate information about content to other users. In Nakayama, Richmond, Nov and Porifiri's study (2020), they suggest that there could be an element of information cooperation and competition regarding tagging on a website. In their study, they used three participants who all had access to see the other's navigation based on tags tas they collected information in different areas, or patches, on the site. They found that '*people stayed less in the patch where others spent a longer time*', but it did not affect *'the consumption of the tags*' (Nakayama et al., 2020). They found this to be consistent with previous studies of the individual forager. In terms of porn, this is possible, and there will be users that may want to search where others have not searched before or find new patches that allow them to find new videos, regardless of the tags associated.

In Ley and Seitlinger's study on social tagging and sensemaking, they found that *'over time and as more resources are tagged, a user's understanding of a particular topic increases, and his internal categories change and become more refined'* (Ley & Seitlinger, 2015, p. 145). '*Taggers use and create tags',* and they say that *'it is usually assumed that individuals are influenced by tags as social cues'* (Ley & Seitlinger, 2015, p. 145). Their focus on students using collaborative tagging and individual sensemaking showed the effects of the social web on the users' behaviour in this environment. They found that social processes increased learning and created category development that moved to more specification. Golder and Huberman look at collaborative tagging in an e-commerce setting and discuss the use of tags as '*both personal and public'* but *'As all taggers' contributions collectively produce a larger classification system, that system consists of idiosyncratically personal categories as well as those that are widely agreed upon'* (Golder & Huberman, 2006, p. 201). These applications of collaborative tagging in social and e-commerce web environments relate to porn quite closely as porn sites can straddle the characteristics of both of these sites. However, as tags are not commonly used on the sites, as the data shows in the video sample for this thesis, there could be other behaviours at play. The lack of regular tagging possibly shows a devout group of porn site users dedicated to

tagging. Alternatively, tagging happens at a much slower rate than other sites because of the rapid navigation on the site and despite their usefulness.

These recent studies show the different contexts of Information Foraging and Information Architecture. The ecological versus population validity (Hartson & Pyla, 2012) would need further interrogation to judge whether the effects are based on the users (population) or the environment (ecology). This thesis posits that users come to a porn site with a particular need and action that needs to be satisfied fast, and it is the population that drives and affects the environment to change. However, although video streaming porn sites overlap with many of these studies and would offer up exciting points to test against them, it is suspected that porn sites will still provide a new outcome with their unique environment. As this thesis laid out, many data points set a video-streaming porn site apart from other contexts. Where all the other sites are there to aid in navigation, whether to a particular point or not, porn sites do the same but aid in a faster search that allows users to leave the site as fast as possible. The site's efficiency means many users make fast decisions and scan content before staying on one page. It is hard to tell in this thesis without further study. However, the context of speed throughout all of the behaviours of a porn user sets its environment apart from all the others. E-commerce sites do not need accuracy, and neither does a porn site. Escape rooms and consumer sites need a certain amount of information, but a porn site can get away with single categories. This unique and fluid environment makes the porn information browser adaptable, random, careless or carefree, depending on how severe their search is. The site creator allows for fluidity and provides the standardised grid and vocabulary as constraints.

7.6 Contributions

The findings, which culminated in new definitions, characteristics, frameworks and methods, equally provided much of the novel contributions this study provided for these two fields; Porn Studies and Information Science. The contributions to Porn Studies centre around the expansion of its definitions and narrative, which benefited from the study's view through an Information Science framing. The exploration of Information Science structures applied to Porn Studies provided contributions that expand on concepts and structures that put them to the test in the novel environment of pornography. Both of these fields mutually benefited from this multi-disciplinary study, which addressed the gaps in knowledge and expanded on established concepts through experimentation.

7.6.1 Combined

Through improved Controlled Vocabulary, this makes for better indexing. Better indexing and metadata could mean better recall of documents or media for information seeking and retrieval that could help express better options for semantic Web 3.0 systems. Systems that have not always gotten it right in the past could allow for more nuanced tagging or categories for porn resources or better divisions and controls between media without censorship. This is especially important as the language on porn sites changes to more accurately reflect the more acceptable language in the real world.

7.6.2 Contributions to Porn Studies

The contributions to Porn Studies provided a new way of looking at the material and websites in one overall yet specific picture rather than just a concept. Defining a specific type of site shows the wide variety of porn options while also showing the many types of options not incorporated into the porn literature. The gulf between reality and theory is still wide, and this study contributes to a more accurate reflection of porn offerings and users. This study also offers up more of a descriptive narrative of the inner and outer workings of a porn site and the beginning insight into the changes and processes involved in its creation and maintenance. The project created a language defining the site and its elements with terms like Simple or Complex Interactions, one-handed searching and basic or involved levels of searching through definitions, explanations and conclusions about how they were used and offered on the sites. These conclusions were all made possible by looking at porn through an Information Science lens that offered up a framework and theory about design, organisation and user tactics.

Through its novel methods and use of archival websites, like the Wayback Machine, the changes can be traced without the need to contact or wait for data from the site owner's permission. The study also used historical theory with anecdotal evidence from the industry that provided a contemporary and insightful backdrop to many of the speculations and conclusions. Finally, as these sites are ever-changing for political, commercial, or social reasons, the study as a historical archive is another significant contribution. It provides a snapshot of the websites and offers a point of reference for future study of these sites as they continue to change.

7.6.3 Contributions to Information Science

Information Science also benefited from its application to Porn Studies. Using Information Science's ideas around design, Information Architecture and search tactics allowed for a multi-disciplinary application to real-world examples to become a main contribution of the study. This approach illustrates the collaborative ways experimentation between two fields can solve issues or create answers to challenges, especially when dealing with challenging materials. The study posed new questions and answers within Information Architecture and Information Seeking not previously applied to Porn Studies in this way. Thus, answering the overall questions: how searchers use and interact with a porn site and how the sites frame their content and interactions for the user.

The study consolidated the findings and data interpretations into tables and figures that are usable in the future as a benchmark or example of methods used. The novel use of resources like the Wayback Machine showed the most significant contributions to this context. The method allows time to remain a factor in the data without being a hindrance or limitation when spanning years of a site's existence by using the archived sites as evidence for growth and change. This project provided insight into the site's changing organisational structures and categories, but the method allows for collecting many other data points. The context of this research straddles Porn Studies and Information Sciences. It would sit alongside other studies on information seeking and enrich the variety of ways people search for sex, leisure and entertainment online.

7.6.4 The Importance of the Findings

The importance of this study and thesis was not only in the contributions and findings but also in the possible routes it could take in the future. The definitions, frameworks and tables provide a workflow or best practice example when looking at porn as information. The user's journey and statistics about their interaction or viewing habits show the beginning workings of understanding. The whole picture formed from the answers in this thesis creates patterns of interest and motivations for change on a porn site. These patterns show apparent linkages to the porn industry that views its site and users as commercial entities for making money through developing their product. Searching and interacting with porn websites draws apparent connections to the exploration of sex and sexuality for the user as well. It taps into human behaviour and what types of material are popular and arousing with how it sought its part of the project but something expandable into other fields like psychology, gender studies or sociology.

The investigation into the Controlled Vocabulary changes showed an evolving language on the site that remains unique to the rest of the internet. It must balance change with consistency for its users and avoid overlap in search results on search engines from mainstream sites.

The findings and contributions of this project offer valuable insight for academia, industry as well as the other target audiences described above. It can be used for further study and exploration by industry as a record and point of reflection for change. The new knowledge gained from the data and findings tests previous generalisations with an effort to support or disprove them. Overall, the findings are a starting point that inspires further branches of study which incorporate porn media.

7.7 Future Research

The three studies within this thesis make many speculations about user behaviour, user decisions and user searching. They are speculations, though, and not conclusive to actual behaviours and thought processes. Throughout this thesis, there have been many ways that the study could be expanded to address this and incorporate human participants to support these speculations – in line with any ethical concerns – to understand users, their usage and their search. This expansion could culminate in using a particular group of users into a specific fetish or content creators to understand the different points of view presented in this thesis. This section will discuss various ways this study and its data can be supplemented when human participants are added to the scope of the research and present possible avenues for future work.

As discussed, the thesis is a springboard for many other studies, policies and design standards that can grow and morph from it based on its contributions and workflow. The project created a definition for video streaming porn sites but also introduced many other types of porn sites, which could also have their characteristics broken down and compared to each other based on their design and architecture. The same can be said for the defined interactions that could be studied further. Much of the future research would benefit from expanding the sample size with the number of sites, the number of videos surveyed, or both. By expanding the number of sites, the number and types of interactions could be added to the now-established list with additions to the interaction levels to expand ideas around the user experience further. The expansion in scope also allows for a broader look at categories across sites and an expanded look at

tagging. Whether from one point in time or reemploying the Wayback Machine for one or multiple sites, the language and its creation can become a focus.

In the future, it would also be interesting to tackle some ethical challenges, like including human surveys for primary data, to support the ideas around search tactics further and confirm this study's theoretical conclusions. These ideas could include mobile versus desktop users and how they search, with further study given to the one-handed search speculation introduced here. Using human participants would also help solidify the ideas around Berrypicking and Information Foraging while also being able to expand on the ways interactions play a role based on who or how users take part. Collaborative Foraging could also be assessed further with this additional information to expand tagging structures and practices within Pirolli's concept. Also, exploration of the monetised part of the site, not explored in this study, would create additional comparisons to the conclusions made in this project. The secondary anecdotal data used in this thesis was valid but provided more general thoughts and opinions that could be fine-tuned and explored with a more tailored approach. All of these routes for further research expand on this project's scope and are made possible by the initial stages taken in this thesis. All are workable and possible to achieve.

The possible options for future research are:

- Larger data sets and samples with videos, sites, categories and more.
- The use of human participants
- A survey of the monetised part of the sites

7.8 Conclusion

This final chapter reinforces the study's aims, explains the gaps in knowledge that led to the project's inception, and contextualises the project into an academic field where it can be placed on a shelf with similar research while marking it for possible further research. The main takeaway of this project is how it expands the current discourse of Porn Studies and Information Science alike to create terms and methods for future study. For example, it has shown how both areas of knowledge can expand and work together through mapping and testing theories by using porn sites as an example. The conclusions made in this thesis show the validity and success of these findings and contributions. It has offered up novel methods of looking at porn sites and applying information science theories that create nuanced ways of looking at porn

sites and their navigation that have not been previously discussed in the literature. The study is critical in establishing the dialogue between these two fields and showing, through trial and error experimentation, that there is still a lot to learn and discuss. This experimental approach was an attempt to remain fluid with the methods and reactive to the data to find the best course for collection and interpretation. This approach led to the unique methods and, thus, the unique and noteworthy outcomes of this thesis. It provides evidence of proven methods that can be used seamlessly in future research and built upon to continue to further these fields together.

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GLOSSARY OF TERMS

– PORN TERMS –

3/4some - The tag signifies more than two people engaged in sexual acts on screen. It differentiated from Gangbang in that all members of the group are acted and acted upon. Sometimes written out as the whole word, i.e. Threesome, Foursome, etc.

Amateur - A genre that depicts unprofessional or those pretending to be unprofessional actors to appear more genuine and realistic.

ASMR - Stands for *Autonomous Sensory Meridian Response*. A genre that focuses on the audio rather than the visual to evoke a response. Typically incorporates an erotic story or instructions. See also JOI.

Bareback - The act of having sex without a condom. Most commonly used concerning gay men.

BBC - Stands for *Big Black Cock*, a term used to signify black men in the video based on the stereotype they have large penises. Used in both heterosexual and gay porn.

BBW - Stands for *Big Beautiful Women*, a term used to signify women who are bigger in stature and could be seen to overpower men. It also refers to heavier women. Used mainly in heterosexual porn for men.

BDSM - A term coined in the 90s it is a combination of *Bondage/Discipline, Dominance/Submission, and Sado-Masochism*. It denotes a sexual relationship that sees one submissive while the other is dominant. It can incorporate other fetishes. See also Bondage.

Bear - The term describes a large man with heavy weight and lots of body hair. Often used concerning gay men.

Bondage - A term used to denote fetishes that involve some sort of constricted movement, e.g. with rubber, rope, or latex. Usually seen as a fetish and seen to incorporate elements of (see also) BDSM with one person dominating the bonding.

BTS - Stands for *Behind the Scenes*, a genre that shows the casting or filming elements of creating the film, creating a metafilm.

Bukkake - The act of a group of men finishing and ejaculating over one person's face. Translated from the Japanese, 'to splash with squid or to splash rudely.'

Cam - The genre of films that make use of webcams. Made popular in the 90s with pioneers like JenniCam. Videos can be shot with a webcam or live-streamed online.

Casting Couch - A genre of films that incorporate (see also) BTS elements of the filmmaking process. Typically, an actor will sit down for an interview for a job and have to offer sexual favours to gain the position. A tongue-in-cheek genre that has not aged well in the wake of the #metoo movement.

CFNM - Stands for *Clothed Female and naked Male*. Typically depicting some form of sexual humiliation and objectification of the male from the dominant female. See also Bondage, BDSM.

Compilation - A genre of content or film typically found on aggregate sites.

Typically, a supercut of a particular actor or sexual act shows clips from various videos to create one. Usually fan-made.

Creampie - The act of ejaculating into an orifice regardless of gender but typically depicts a male ejaculating into a female. Usually marking the end of the video's action. See also, Cumshot.

Cuckhold - A term used typically for a man who is the boyfriend/husband of the woman. He is made to watch while she has sex with another man or woman or both. It can be a tactic for humiliation or voyeurism.

Cumshot - The act of ejaculating either inside or outside of someone's body. It is also known as the 'money shot' in terms of filming, as this is usually when it ends.

Daddy - The term used to define a man who is large and strong and will dominate while also being gentle. Typically a term used in gay porn, but can be seen in both.

Double Penetration - A term used to describe a sex act where an individual is penetrated in two places (i.e. mouth, anus, vagina) at the same time. Typically found in straight porn but can be found in both. Usually paired with terms like Hardcore.

Ebony - A term used to describe typically black women. It is an outdated term, but it can still be found on some sites.

Edge - The act of prolonging sexual pleasure by denying it before release and then continuing. Typically used as a form of control in (see also) BDSM or Bondage.

Fem - A term used to define an actor (of any gender) for their characteristics. Typically, they have smaller stature and are seen as submissive in sexual relationships.

Femdom - A term used to define a woman in the dominant sexual role, usually a dominatrix, to carry out (see also) BDSM and Bondage acts on a male. Usually found in straight porn.

FFM/FMM - The acronym term to denote the gender makeup of a threesome with 'F' standing for *Female* and 'M' standing for *Male*. Found in gay and straight porn, depending on how many men or women are denoted in the acronym.

Frottage - The act of two fully-clothed people rubbing against each other for sexual gratification. Typically, no nudity is depicted.

FTM - Stands for *Female to Male*, a term used to describe a transgender person who is or has transitioned to become a man. It can also be the antithesis: MTF, *Male to Female*. Typically found with gay porn to denote and tag porn further into trans porn.

Futanari - The Japanese term for Hermaphroditism and typically found in Hentai porn or animated videos. A character that has both male and female genitals. Typically found in gay porn and, more specifically, trans porn.

Gangbang - The term used for a sexual act that incorporates many partners typically performing an act on one person. Not to be connected to an orgy.

Gloryhole - A term to describe a hole in a wall, usually a bathroom or private stall. One person is on one side of the hole while

a male puts his penis through the hole to either penetrate the individual's mouth, anus or vagina from the other side without seeing each other. Typically, there are multiple men on one side. See also, Gangbang.

Gonzo - The filming style used handheld cameras and was popular in the 90s. Shots are shaky, and the male often holds cameras while sex acts are performed on him. See also POV.

Hentai - A genre of film that uses anime instead of real actors. It can also incorporate cartoons but is primarily created as anime from the Japanese market. Include elements of impossible body standards or sexual acts and may also include those of a young age.

Interracial - A tag denotes films that incorporate individuals who differ in race. It is often seen as problematic as it fetishises a particular race. Some actresses also get paid more to shoot interracial scenes.

JOI - Stands for *Jerk Off Instruction*, a genre focusing primarily on the video's audio. It typically has a woman speaking to the camera/viewer about what she wants them to do. See also ASMR.

Mature - A term used to describe an older individual, typically older than 25-30 but not old, i.e. over 60.

MILF - Stands for *Mother I'd Like to Fuck*, a term coined in the 90s and became popular in everyday vernacular. Used in porn to typically tag an older woman in videos. Also adapted as DILF, *Dad I'd Like to Fuck*.

NSFW - Stands for *Not Safe For Work,* a genre that incorporates most content and serves as a warning tag to those searching the internet during work hours. Implied with most porn but is also used now with mainstream media to signify explicit themes within the content. See also SFW.

Omegle - A free online chat website established in 2009 that allows users to chat with random people from anywhere in the world. Sometimes, people on the site create their own live pornographic content. People are required to be 18 years of age to access the site, but this is not always the case.

PMV - Stands for *Picture Music Video* used for films that are typically fan-made and feature still or moving images set to music to create a music video or show a specific sex act or actor. See also Compilation.

POV - stands for *Point of View*, referencing the shot and style of films. Typically shot from a male point of view with a woman performing sexual acts on (camera)man off-screen or barely seen. See also Gonzo.

SFW - Stands for *Safe For Work*; see also NSFW. A genre of softcore porn that is meant to be safe to view at work without being censored or getting the employee in trouble for inappropriate content.

Shemale - See also, Trans, a derogatory term used for porn that includes actors with male and female genitals.

Step Fantasy - The genre of films that incorporate sexual acts between a step-relation (i.e. Step-mother, Step-Brother) to straddle the taboo between

incest but with the caveat that “they’re not related.”

Stuck/Surprise - A term used to describe the action of a film where the plot revolves around one actor getting stuck in a spot or getting surprised with sex. The stuck individual usually fights this and does not consent before accepting it.

Teen - A term used to denote someone aged 18-19 in the video to equally entice a viewer and satisfy that they are of legal consenting age. Typically seen with an age (i.e. 18) with it.

Trans - A genre and term used for porn that incorporates transgender themes or actors in the videos. Typically a subcategory of gay porn. More descriptive tags will often be added to identify if the actor has had surgery. See also FTM.

Transgender - Another term used to define Trans porn, stating that it has a transgender actor in it. Typically used to further define gay porn videos into a subcategory and state that the actor is not a woman and, therefore, the video is not straight porn. See also Trans.

Twink - A term used typically with gay men to define a young, thin and hairless male. See also, Fem.

Uncensored - A term used as an antithesis to Japanese porn that often has censored video blurring out the genitals of the actors. Typically, videos are Japanese content without the blurring.

Uncut - A term used to define if a man is circumcised. Typically used in gay porn.

Verified ‘...’ - The term users and sites use to show uploader or content creator authentication. It can be used with words like Amateur, Couples, and Creator.

Vintage - A genre of porn that was shot before the 1990s or the internet. Also known as *retro*.

Voyeur - A term used to describe the shot style of the video and imply one of a third party watching something they should not be watching. See also Cuckold and POV.

Young/Old or Old/Young - A genre with one very young actor, typically a teenager, and the other actor, older but older than (see also) Mature.

–INFORMATION SCIENCE TERMS–

Affordances - A term coined by James Gibson and referred to by Don Norman in terms of design, referring to the possibility of action and use of an object through a design. This can include the buttons on a website looking pressable or hyperlinks looking clickable.

Basic Interaction Layer - this layer of interaction on a (porn) site is where the user simply views a film or an image and navigates back and forth between the front page and video pages before closing the window. Only interact within this. See also: *Involved Interaction Layer.*

Breadcumbs - The evidence in the form of website interactions that provide searching pathways. These interactions can take the form of tags, reviews, ratings and more and provide information to the singular user and the community of users.

Complex Interaction – an interaction that uses two hands and utilises more than two clicks or keystrokes or the keyboard.

Error - A term coined by Don Norman, it refers to human errors that can be made due to bad design. It is recommended that the chance for error be reduced through the ability to correct any wrong action. Though design can allow for error and options to get out of it, it is impossible to eliminate them entirely.

Facets - A term taken from library science used to organise and index a collection of documents based on attributes to allow for faster retrieval. Facets are non-hierarchical in structure and, in theory, should be distinct to encapsulate the nuances of the collection. These are often found on a website as options to narrow a search via the top or sidebar.

Feedback - the site's reactions that communicate to the user that an action has occurred. This can be imagery, animation of buttons or images, sounds or haptic feedback.

Simple Interaction - an interaction that uses just one hand and only requires one or two clicks to get to a desired outcome.

Involved Interaction Layer - this layer of interaction on a (porn) site is where the user carries out their search and may find what they want or continue to navigate to other related videos. They may use other options, like the approval meter, hearts, upvotes or downvotes (See also: *Simple Interactions*). The layer also incorporates more interactions like commenting and tagging (see also: *Complex Interactions*) that further communicate to the community of users on the site. This layer encompasses the basic interactions with all the additional interaction options available to a user without needing an account or membership, which may make additional layers with further research.

One-Handed Searching - Taken from mobile phone studies, the way of searching only employs clicking buttons, hyperlinks, categories, and tags for navigation.

APPENDIX

Supplementary Figures for Chapter Five

The following figures are supplementary to the ones shown in *Chapter Five*. The chapter showed Pornhub as an example and discussed the other outcomes within the body of the text. The figures below prove the data interpretations and further evidence of the findings on viewership and duration.

Figure 5.19: XNXX viewership frequency showing that most videos have up to three million views with one or two videos having seven million to twenty-one million and one video with the most at fifty-five million.

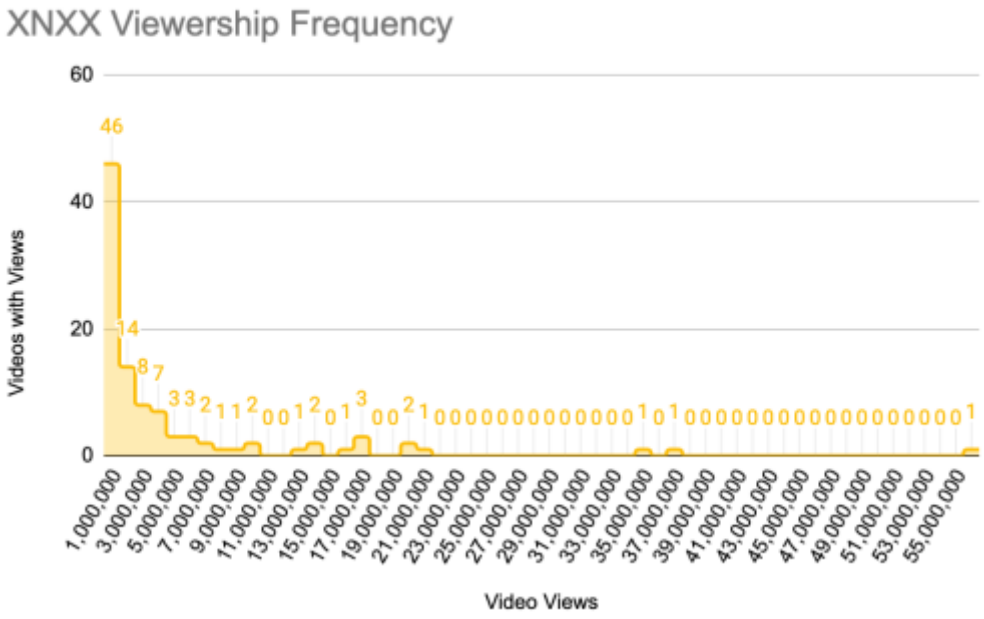


Figure 5.20: XVideos viewership frequency shows most videos have up to five million videos with some between seven million and thirty-five million and one video with the most at one-hundred and fifteen million - the video with the most views out of the entire sample.

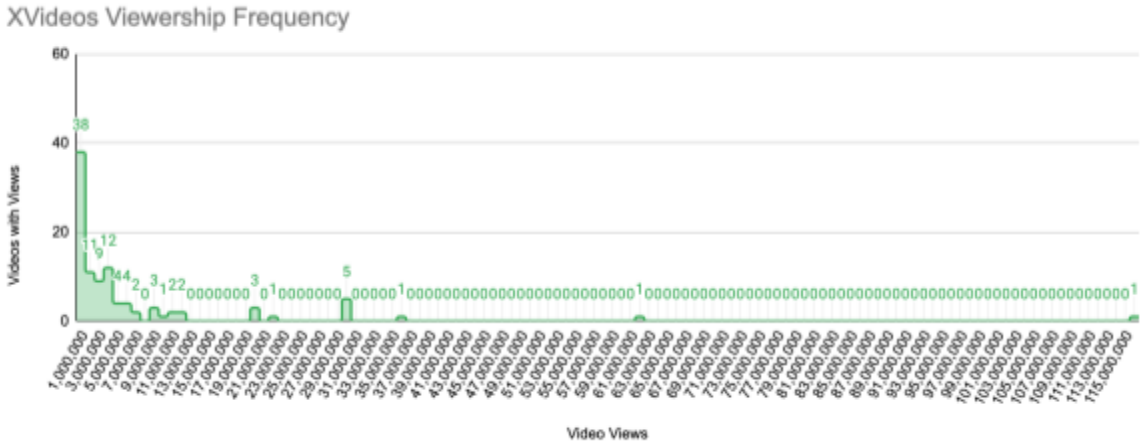


Figure 5.21: Pornhub Gay viewership frequency shows that all the videos have up to one million views.

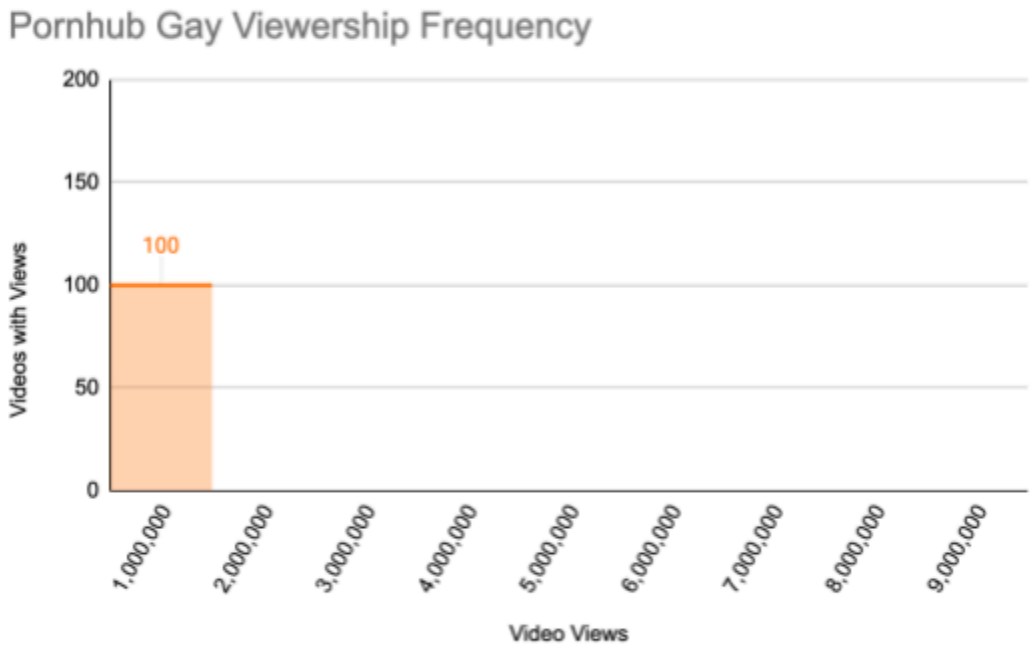


Figure 5.22: Bellesa Viewership Frequency shows that most videos have up to one million views with a two having up to two million and one at five million.

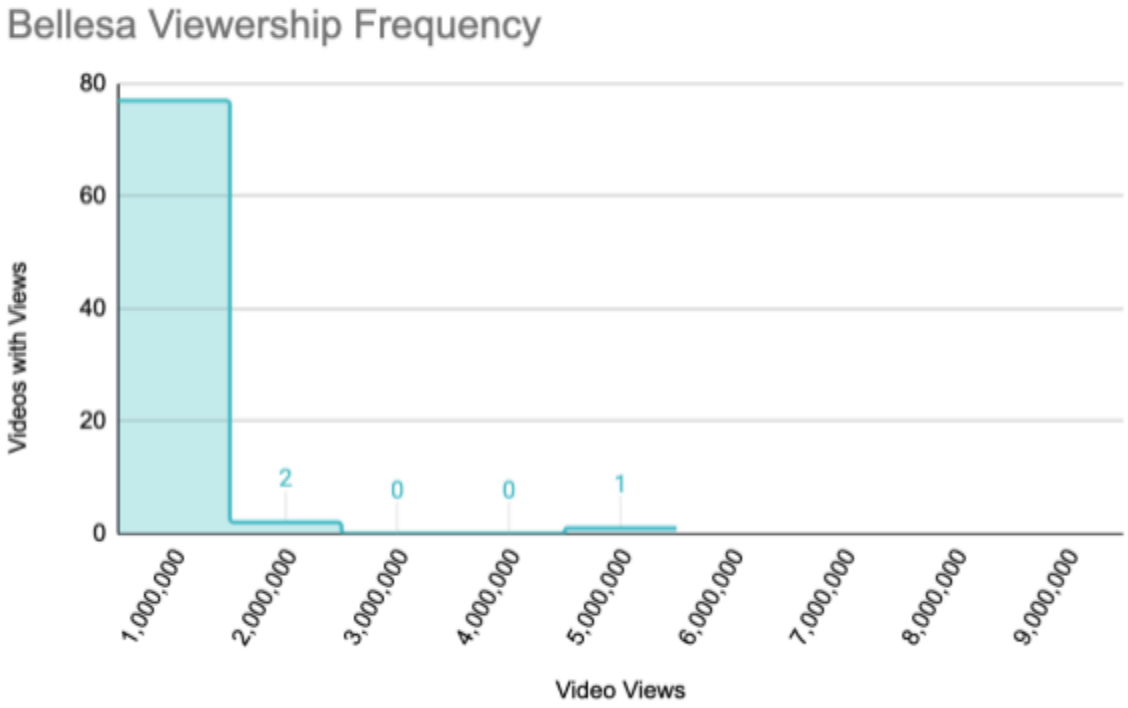


Figure 5.23: YouPorn Video duration frequency showing most films are ten to fifteen minutes long. The overall average duration is 00:12:11 minutes.

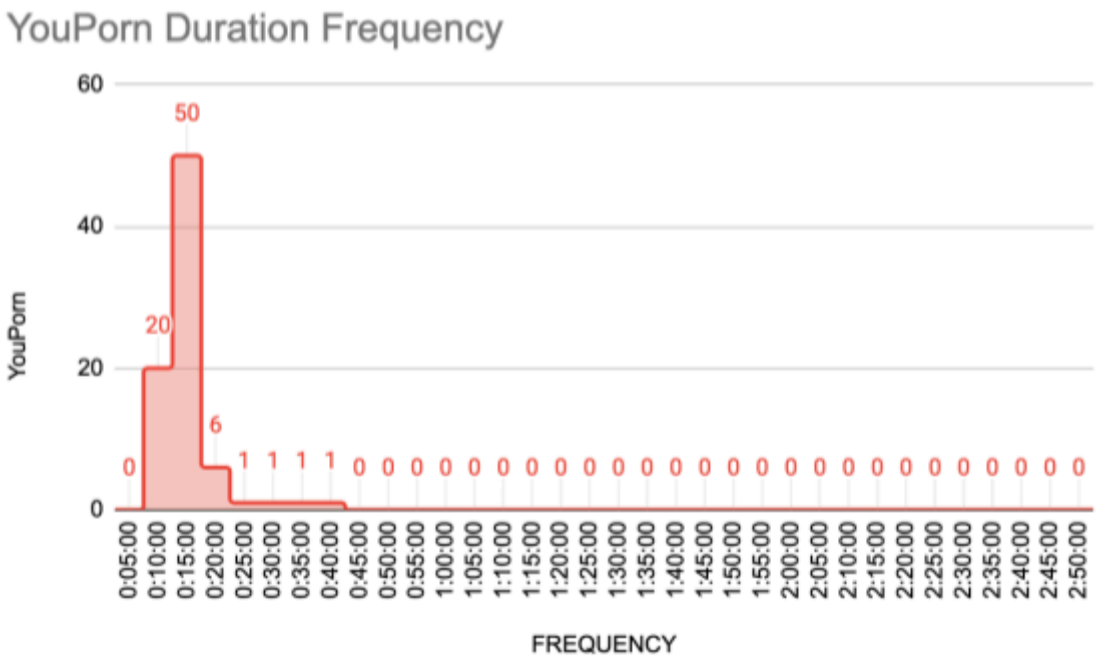


Figure 5.24: XNXX Video duration frequency mostly between ten and fifteen minutes. The overall average is 00:08:43 minutes.

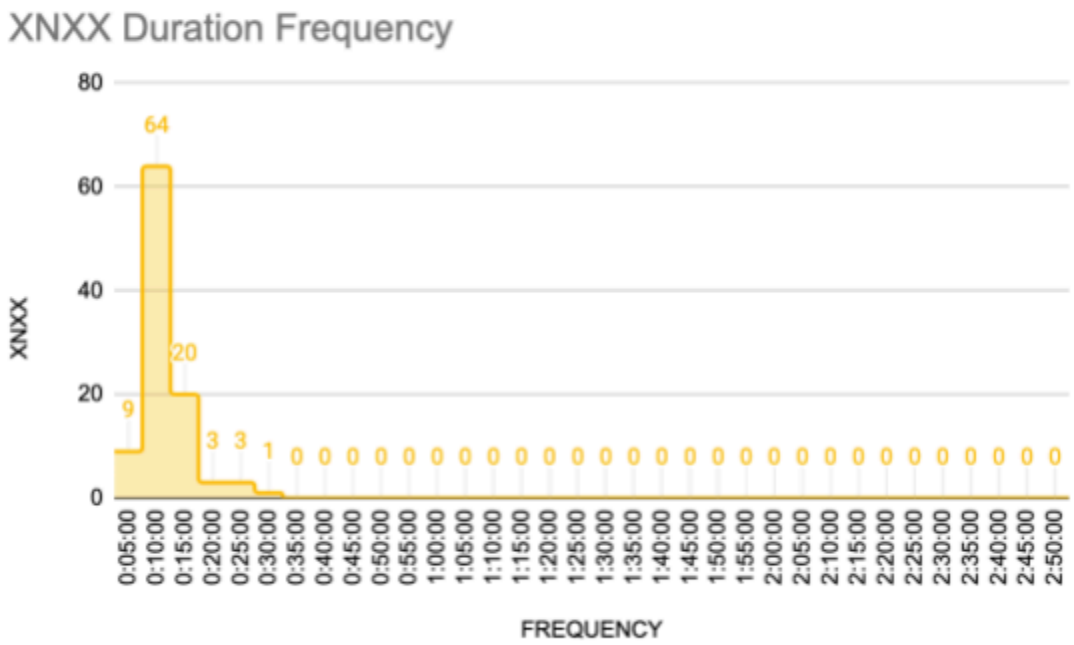


Figure 5.25: Pornhub Gay Video duration frequency showing most videos are ten to fifteen minutes long. The overall average is 00:09:22 minutes.

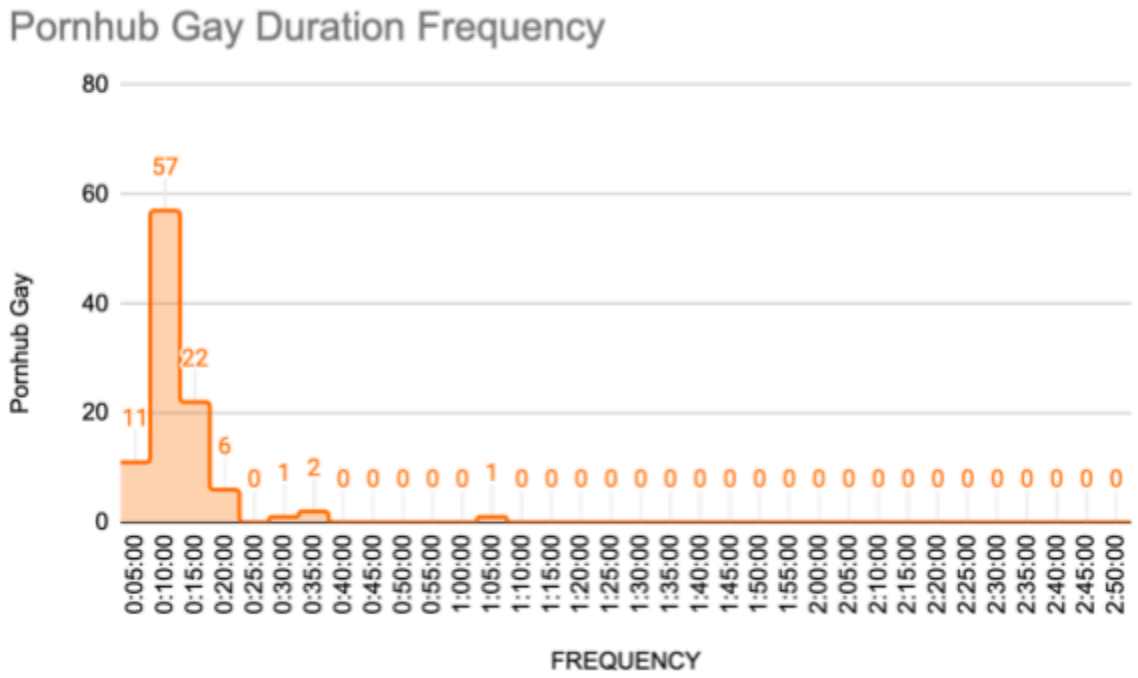
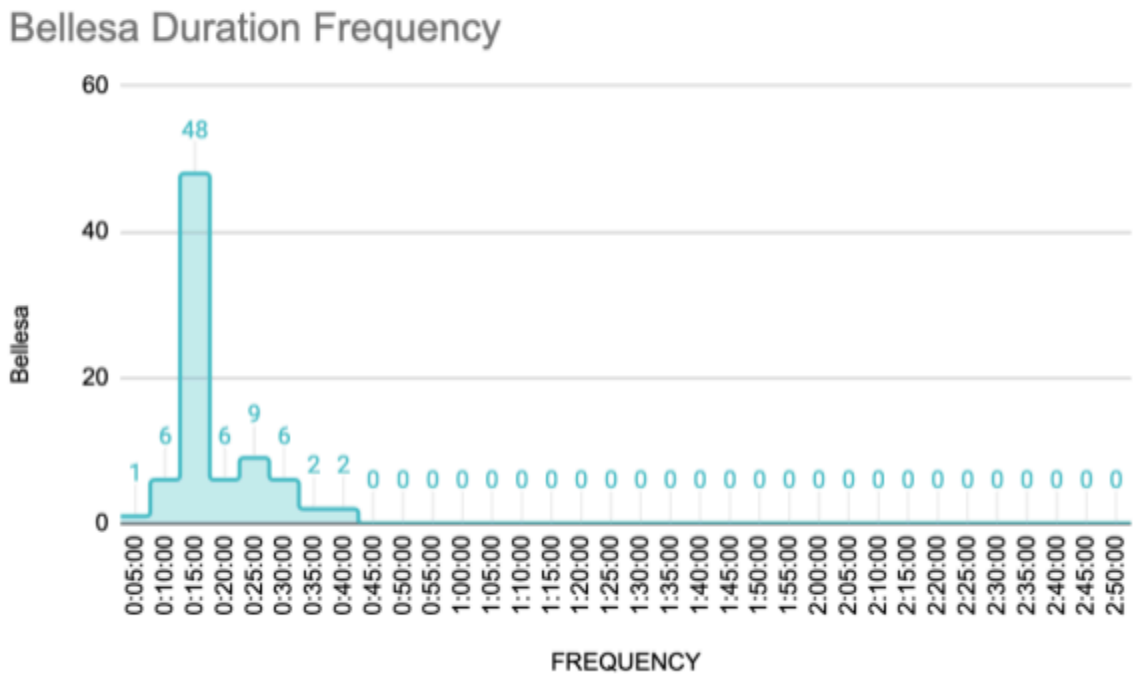


Figure 5.26: Bellesa video duration frequency showing most films are between ten and thirty minutes. The overall average duration is 00:15:22 minutes.



Supplementary Correlation Data for Chapter Five

The following charts show the Shapiro and Wilk tests for normality and Spearman correlations for each sample site. The data used in Section 5.2.1.7 and 5.2.2 were condensed from this data. All charts and calculations were done using SPSS.

Tests for Normality

Pornhub Tests of Normality

	Shapiro-Wilk		
	Statistic	df	Sig.
Seconds	.367	100	<.001
Upvotes	.333	100	<.001
Downvotes	.326	100	<.001
Hearts	.528	100	<.001
Comments	.450	100	<.001
Tags	.834	100	<.001
Views	.311	100	<.001

Pornhub Gay Tests of Normality

	Shapiro-Wilk		
	Statistic	df	Sig.
Duration	.582	100	<.001
Views	.653	100	<.001
Upvotes	.704	100	<.001
Downvotes	.553	100	<.001
Hearts	.685	100	<.001
Comments	.770	100	<.001
Tags	.827	100	<.001

XVideos Tests of Normality

	Shapiro-Wilk		
	Statistic	df	Sig.
Duration	.782	100	<.001
Hearts	.401	100	<.001
Comments	.387	100	<.001
Views	.449	100	<.001

XNXX Tests of Normality

	Shapiro-Wilk		
	Statistic	df	Sig.
Duration	.833	100	<.001
Upvotes	.573	100	<.001
Downvotes	.613	100	<.001
Comments	.562	100	<.001
Views	.550	100	<.001

YouPorn Tests of Normality

	Shapiro-Wilk		
	Statistic	df	Sig.
Duration	.785	80	<.001
Comments	.554	80	<.001
Tags	.913	80	<.001
Views	.333	80	<.001

Combined Tests of Normality			
	Shapiro-Wilk		
	Statistic	df	Sig.
Duration	.439	560	<.001
Upvotes	.381	300	<.001
Downvotes	.377	300	<.001
Hearts	.219	300	<.001
Comments	.260	380	<.001
Tags	.281	380	<.001
Views	.306	560	<.001

Av Views/ Viewership Tests of Normality			
	Shapiro-Wilk		
	Statistic	df	Sig.
AvViews	.858	6	.183
AvDuration	.893	6	.335
AvTime	.836	6	.121
TotalVisits	.784	6	.042
*. This is a lower bound of the true significance.			
a. Lilliefors Significance Correction			

Spearman Correlations

Pornhub Spearman Correlations									
			Duration	Views	Upvotes	Downvotes	Hearts	Comments	Tags
Spearman's rho	Views	Correlation Coefficient	.312**	--					
		Sig. (2-tailed)	.002	.					
		N	100	100					
	Upvote	Correlation Coefficient	.388**	.931**	--				
		Sig. (2-tailed)	<.001	<.001	.				
		N	100	100	100				
	Downvotes	Correlation Coefficient	.374**	.927**	.879**	--			
		Sig. (2-tailed)	<.001	<.001	<.001	.			
		N	100	100	100	100			
	Hearts	Correlation Coefficient	.470**	.717**	.788**	.680**	--		
		Sig. (2-tailed)	<.001	<.001	<.001	<.001	.		
		N	100	100	100	100	100		
	Comments	Correlation Coefficient	.310**	.598**	.685**	.559**	.698**	--	
		Sig. (2-tailed)	.002	<.001	<.001	<.001	<.001	.	
		N	100	100	100	100	100	100	
	Tags	Correlation Coefficient	.149	.188	.173	.191	.132	.073	--
		Sig. (2-tailed)	.138	.061	.086	.056	.190	.469	.
		N	100	100	100	100	100	100	100
**. Correlation is significant at the 0.01 level (2-tailed).									

Pornhub Gay Spearman Correlations

			Duration	Views	Upvote	Downvotes	Hearts	Comments	Tags
Spearman's rho	Views	Correlation Coefficient	-.033	--					
		Sig. (2-tailed)	.745	.					
		N	100	100					
	Upvotes	Correlation Coefficient	.001	.881**	--				
		Sig. (2-tailed)	.994	<.001	.				
		N	100	100	100				
	Downvotes	Correlation Coefficient	.034	.852**	.820**	--			
		Sig. (2-tailed)	.737	<.001	<.001	.			
		N	100	100	100	100			
	Hearts	Correlation Coefficient	.055	.766**	.916**	.739**	--		
		Sig. (2-tailed)	.585	<.001	<.001	<.001	.		
		N	100	100	100	100	100		
	Comments	Correlation Coefficient	-.107	.483**	.626**	.446**	.705**	--	
		Sig. (2-tailed)	.289	<.001	<.001	<.001	<.001	.	
		N	100	100	100	100	100	100	
	Tags	Correlation Coefficient	-.106	-.122	-.193	-.077	-.198*	-.148	--
		Sig. (2-tailed)	.294	.225	.055	.446	.049	.142	.
		N	100	100	100	100	100	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

XNXX Spearman Correlations							
			Duration	Upvotes	Downvotes	Comments	Views
Spearman's rho	Duration	Correlation Coefficient	--				
		Sig. (2-tailed)	.				
		N	100				
	Upvotes	Correlation Coefficient	-.004	--			
		Sig. (2-tailed)	.967	.			
		N	100	100			
	Downvotes	Correlation Coefficient	-.020	.986**	--		
		Sig. (2-tailed)	.846	<.001	.		
		N	100	100	100		
	Comments	Correlation Coefficient	-.023	.034	.053	--	
		Sig. (2-tailed)	.823	.737	.599	.	
		N	100	100	100	100	
	Views	Correlation Coefficient	-.038	.943**	.940**	.004	--
		Sig. (2-tailed)	.708	<.001	<.001	.966	.
		N	100	100	100	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

YouPorn Spearman Correlations

			Duration	Views	Comments	Tags
Spearman's rho	Duration	Correlation Coefficient				
		Sig. (2-tailed)				
		N				
	Views	Correlation Coefficient	.122			
		Sig. (2-tailed)	.280			
		N	80			
	Comments	Correlation Coefficient	.097	.789**		
		Sig. (2-tailed)	.392	<.001		
		N	80	80		
	Tags	Correlation Coefficient	.051	-.237*	-.241*	
		Sig. (2-tailed)	.652	.034	.031	
		N	80	80	80	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

XVideos Spearman Correlations

			Duration	Hearts	Comments	Views
Spearman's rho	Duration	Correlation Coefficient				
		Sig. (2-tailed)				
		N				
	Hearts	Correlation Coefficient	.158			
		Sig. (2-tailed)	.117			
		N	100			
	Comments	Correlation Coefficient	.012	.816**		
		Sig. (2-tailed)	.906	<.001		
		N	100	100		
	Views	Correlation Coefficient	.062	.889**	.878**	
		Sig. (2-tailed)	.540	<.001	<.001	
		N	100	100	100	

**. Correlation is significant at the 0.01 level (2-tailed).

Combined Spearman Correlations

			Duration	Upvotes	Downvotes	Hearts	Comments	Tags	Views
Spearman's rho	Duration	Correlation Coefficient	--						
		Sig. (2-tailed)	.						
		N	560						
	Upvotes	Correlation Coefficient	.339**	--					
		Sig. (2-tailed)	<.001	.					
		N	300	300					
	Downvotes	Correlation Coefficient	.348**	.936**	--				
		Sig. (2-tailed)	<.001	<.001	.				
		N	300	300	300				
	Hearts	Correlation Coefficient	.367**	.742**	.761**	--			
		Sig. (2-tailed)	<.001	<.001	<.001	.			
		N	300	300	300	300			
	Comments	Correlation Coefficient	.179**	.298**	.275**	.332**	--		
		Sig. (2-tailed)	<.001	<.001	<.001	<.001	.		
		N	380	300	300	300	380		
	Tags	Correlation Coefficient	.067	.169**	.171**	.156**	-.030	--	
		Sig. (2-tailed)	.194	.003	.003	.007	.559	.	
		N	380	300	300	300	380	380	
	Views	Correlation Coefficient	.066	.543**	.528**	.495**	.311**	.288**	--
		Sig. (2-tailed)	.119	<.001	<.001	<.001	<.001	<.001	.
		N	560	300	300	300	380	380	560

**. Correlation is significant at the 0.01 level (2-tailed).

Av Views/ Viewership Spearman Correlations						
			AvViews	AvDuration	AvTime	TotalVisits
Spearman's rho	AvViews	Correlation Coefficient	--			
		Sig. (2-tailed)	.			
		N	6			
	AvDuration	Correlation Coefficient	-.600	--		
		Sig. (2-tailed)	.208	.		
		N	6	6		
	AvTime	Correlation Coefficient	.714	-.371	--	
		Sig. (2-tailed)	.111	.468	.	
		N	6	6	8	
	TotalVisits	Correlation Coefficient	.657	-.429	.429	--
		Sig. (2-tailed)	.156	.397	.289	.
		N	6	6	8	8