

# How HCI Talks about Sexuality: Discursive Strategies, Blind Spots, and Opportunities for Future Research

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## ABSTRACT

The topic of sexuality has been increasingly researched inside the field of HCI. At the same time, and for many reasons, research gaps remain. In this paper, we present a critical analysis of 70 works on this topic spanning the past two decades to understand how we as an academic field talk about sexuality. We use Foucauldian discourse analysis to identify and analyze the various rules of knowledge production on this topic inside our field. By doing so, we expose not only existing gaps in current research literature, but we also gain an understanding of why some of them exist. We suggest some opportunities to make the field more amenable to this kind of research and point out future research directions on sexuality inside the field of HCI.

## Author Keywords

Sexuality, HCI, erotic, intimacy, gender, epistemology, discourse, Foucault, critical HCI, SHCI

## ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## General Terms

Design, Theory

## INTRODUCTION

Works on various facets of sexuality, including gender, sensuality, intimacy, agency, embodiment, etc., have been published in the field of HCI for the past two decades. For example, in 2004, [17] explicitly calls for research and conversation about sexuality, pornography specifically, in HCI. [17] cites the then-unpublished manuscript of [11], published the following year, which labels pornography as the “elephant in the room” that everyone in the HCI community knows that it exists but does not talk about. Also in 2004, [36] and [38] were published both exploring intimacy mediated through interactive technology. While it is difficult to trace the history of works in this area, due to the trans/interdisciplinary nature of the field and the topic in hand, it is our observation that there have been spurts of research interest spanning over the past two decades on

sexuality. These works focus on different aspects of sexuality in the context of a range of areas such as aesthetics [7,8,13], affective computing [30,33,50], product design [54,62], CSCW [59], human factors [23,26], ubiquitous computing [12,49], CSCL [3,60], robotics [25], domestic technology [11,36,41,42], wearable computing [29,33,49,50,61], tactile/tangible interfaces [23,26,30,48,49,55,60,61], and participatory design [33,38,49,60], to name a few.

Clearly, the emergence of this discourse in human sexuality in HCI is well underway and is gaining momentum. At the same time, it does not seem to us to have achieved a critical cogency; that is, it feels fractured, filled with gaps and missed opportunities, as well as contributions that seem to have more potential for HCI generally than is recognized. To address these issues, we use discourse analysis to critically examine this body of research, both to clarify and synthesize what has been done, but more deeply to explore the tacit rules that seem to govern what can be said about sexuality inside HCI, who can say it, and to what ends. Our hope in doing so is to facilitate both future contributions in sexuality and HCI by, for example, helping young researchers find their voices, and also to facilitate the integration of sexuality research in HCI more broadly into the rest of the HCI research community.

## RELATED WORKS

Many researchers have stressed the importance of discussing sexuality in HCI, beyond those already mentioned. For example, [6] expounds how paying attention “to intersections of technology and symbolically and emotionally dense cultural experiences”, such as sex, can be illuminating, while [13] argues that erotic life is a “useful provocation” in maturing the field of HCI. Proposing the Sexual Interactions workshop at CHI2006, [21] draws to attention how research on sexuality can help bring new perspectives to existing works, legitimize alternate directions of inquiry and underscore the potential to inspire novel interfaces. Genevieve Bell, in the opening keynote of CHI2010, also advocated for research on sex and HCI.

Yet gaps in the research remain. [4] calls attention to the fact that HCI literature is mostly silent about cybersex. [13] shows how the erotic aspects of life are marginalized in

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HCI research. [29] points out the insufficient attention that has been given to designs that facilitate sexual practices. The present work is an attempt to understand why such gaps exist as well as how the field might seek to legitimate a broader and better discourse on sex and HCI.

We approach this issue by charting out how we as a field deal with the topic of sexuality. In this regard, our work aligns itself along with other works that attempt to identify themes of knowledge production on the topic of sexuality. For example, [12] points out three broad manifestations of works that deal with intimacy in the technological literature from a ubiquitous computing standpoint: intimacy as cognitive and emotional closeness with technology, intimacy as physical closeness with technology, and intimacy through technology. A more generic overview about the majority of research conducted on intimacy and technology is summarized in [46] as an emphasis on “enhancing, replacing or creating more intimate experiences via either new or repurposed technologies.” [13] presents two different viewpoints about how design of domestic technology might contribute to erotic life. The first focuses on designing interactive technologies that directly support erotic experiences, and the second looks at how the design of everyday domestic technology influences conditions for erotic life.

Instead of focusing on what is being done in a particular context or work, we focus on how we as a field deal and make sense of sexuality. This critical attitude stems from works on critical HCI such as [5,14,24,34]. In particular, this paper follows in the footsteps of [19] and [24], the latter of which claims, “careful, critical analysis of differing perspectives on research in the field and their relationship to deeper underlying intellectual commitments and trends can benefit HCI by providing reflective scaffolding for future research.” The present work does not offer models of sexuality that could be leveraged directly in interaction design practice; rather, we hope to support future endeavors by providing a critical synthesis of existing works and pointing out potential areas for further exploration.

## METHODOLOGY

The overall methodology of this work is discourse analysis, and in particular the strand of discourse analysis that owes its epistemological and ethical orientations to the work of sociologist and philosopher Michel Foucault. In his work, Foucault offered “archaeologies” and “genealogies” of social science domains (e.g., sciences of crime, pedagogy, psychiatry) and key concepts (e.g., fearless public speech, personal identity), seeking to understand them as discursive traditions, that is, as corpuses of texts, which are created and read within a context of rules and institutional practices. By discovering these rules and practices, Foucault hoped to expose them to the possibility of change.

More recently, scholars [45, 47] have abstracted Foucault’s critical strategies into a research methodology, discourse analysis. (Note that there is also a quantitative empirical

methodology, sometimes called “content analysis,” e.g., [43], that also sometimes goes by the name of “discourse analysis”; the present work uses discourse analysis in its critical/Foucauldian sense, which we explain below.) It’s worth noting also that Foucault himself wrote three books offering a genealogy of sexual discourses in the West, so he is in more senses than one an inspiration for the present work. He summarizes his own approach to the study of sexual discourses in the social sciences as follows:

The central issue... is not to determine whether one says yes or no to sex, whether one formulates prohibitions or permissions, whether one asserts its importance or denies its effects, or whether one refines the words one uses to designate it; but to account for the fact that it is spoken about, to discover who does the speaking, the positions and viewpoints from which they speak... What is at issue, briefly, is the over-all ‘discursive fact,’ the way in which sex is ‘put into discourse.’ [27]

With the present work, we take a similar approach, seeking less to comment on the substance of scientific work in HCI and sexuality and instead seek to understand how such work enters the discourse of HCI. With that methodological background, we now summarize how we constructed our corpus and analyzed it as a discourse.

## Constructing the Corpus

Over the last 15 months, we have surveyed archival papers, workshop proceedings, journal entries, magazine articles, posters, project websites, and book chapters that deal with aspects of sexuality. For this work, we use an inclusive definition of sexuality: by *sexuality*, we accept [53]’s definition as “the way in which we experience and express ourselves as sexual beings,” a definition that deliberately includes broader dimensions of human sexuality, such as gender and intimacy.

A total of 70 items made it to our corpus based on our evaluation strategies. The selection followed a two-stage process. Initially, we searched for author keywords in ACM digital library on the words “sex”, “sexuality”, “erotic,” “intimacy,” “porn,” and “gender.” After this, we reference crawled the initial corpus, a strategy that also led us to works outside of the ACM library as well. These works were then evaluated for inclusion in the corpus study. We used two criteria to evaluate inclusion in our corpus. First, the work had to be already published or available in a public domain and affiliate itself to HCI or its cognate fields. Second, the work had to deal with at least one aspect of sexuality, as defined above.

Sexuality can be raised explicitly, implicitly, and through its conspicuous absence. For work on online pornography, for example, the sexual content is explicit. A more subtle way to report on sex-related research is to discuss it under the umbrella term of “intimacy.” For example, [6] justifies its choice of the word “intimacy” over “sexuality” to “emphasize the broadest and most inclusive notions of

human sexuality,” though its authors were also responding to strong editorial pressure to do so. [9] labels “sharing physical encounters ranging from proximity to sexuality” as “physical intimacy,” which is itself offered as one of five characteristics of intimacy. The most subtle way to report on sexuality is to do so through silence: for example, research about gender tends to remain silent about the sexual aspects of gender, even when they are relevant.

Regardless of whether papers discussed sexuality explicitly or implicitly, we sought to include representatives of them all. This raises the additional point of how we dealt with different positions with regard to sexuality. For example, [11,17] underscore that pornography is an important area of research that HCI can benefit from. Contradicting them, [56] argues that studying pornography will actually harm HCI rather than benefit it, especially if porn research prevents researchers from taking on other, richer areas of sexual life. [32] pushes forward the agenda to rethink our conceptualization of what online pornography is. Regardless of the varied stances these works take towards their object of inquiry and their mode of inquiry, all four works qualify themselves to be in our corpus since they deal with aspects of sexuality.

Finally, it is important to stress that exhaustiveness is neither possible nor desirable for the purposes of our work. Our goal is to collect works that are collectively sufficient to study as making up a discourse, including its key speakers, aims and contributions, and assumptions. We are aiming for a collection that is thematically and rhetorically representative of the whole, not literally comprehensive or even statistically representative of the whole.

### Critical discourse analysis

As noted above, Foucauldian discourse analysis seeks to expose rules and mechanisms involved in the production, circulation, and validation of texts in a discourse. Discourse theory has since emerged as a field in itself, and providing a succinct account of it is beyond the scope of this work (note that [47] provides an excellent introduction to Foucauldian discourse). However, we introduce a few key concepts that are important to the present work.

#### Discourse

Foucault does not provide one single conception or theory of what discourse is but defines it in a number of ways throughout his works. He uses the word *discourse* to refer to “the general domain of all statements, sometimes as an individualizable group of statements, and sometimes as a regulated practice that accounts for a number of statements” [28]. In this work, we use the notion of discourse as a set of regulated practices “that systematically form the objects of which they speak” [28]. In other words, our operating theory of discourse is as follows:

- *Discourse* is understood as a corpus of statements that is both regulated and systematic.
- The production of such statements is governed by a set of rules that is internal to the discourse itself. This set of

rules includes within itself the rules of combination with other discourses (for example, how does sexuality interact with tangible computing) and rules that help to establish the differences from other categories of discourse (for example, scientific versus literary).

- These rules delimit what can count as a legitimate statement inside a specific discourse.
- These rules create discursive spaces within which new statements can be made. Thus, like a grammar, they simultaneously delimit what can be said but also make possible new statements, in this case by providing the conceptual frameworks, models, analogies and theories, these rules with which research operates.

A discourse analysis, then, aims not at providing a summary of what is said per se, but rather an attempt to expose the discursive rules, demonstrate their operations and consequences, and subject them to the possibility of intentional change. Stated more concretely, the rules help us understand what can/cannot be said about sexuality in HCI, and we hope that by making them visible, we, as a community, can change the rules and make room for new kinds of research contributions, hitherto lacking a grammar allowing their formulation.

### MAPPING THE TERRITORY

In this section, we present a quick survey of the works in our corpus and analyze them based on their content and intent. Using both these lenses, we identify and discuss some emergent themes. These emergent themes do not cover all the works in the corpus since some of them cannot be categorized based on the criteria chosen for differentiation, and also because the works cited under each of these emergent themes are not necessarily mutually exclusive.

#### Relationship between sexuality and technology

To analyze the works based on their content, we look at how these works approach the relationship between sexuality and technology. Using this relationship as the variable for differentiation, we identified three major emergent clusters that are presented below: technology as a facilitator of sexuality, sexuality as an explanatory variable, and sexuality as a critical lens.

#### Technology as a facilitator of sexuality

Works under this theme view technology as a tool that facilitates to fulfill a need, solve a problem, overcome hurdles and/or enhance existing situations in the subject’s sexual life. These works have their allegiances rooted in engineering and design in that technology is positioned as a solution to an existing human problem. A vast majority of works in our corpus falls under this theme and is spread over multiple areas of research. For example, [9,12,15,25,29,31,35,36,38,41,42,48,60,61] all involve situations where technological solutions are designed for mediating intimacy between two or more people. Another variation of this approach would be works that deal with exploring aspects of intimacy in tangible and tactile interfaces [23,26,30,48,49,55,60,61]. Common to all of

these is that technology is a solution to a pre-existing, well defined problem, and the research can explore the solution space without engaging with, or being held to account for, that problem space.

#### *Sexuality as an explanatory variable*

Works in this cluster view aspects of sexuality as explanatory variables for analysis of subjects' behavior or as a rationale for design choices. These works commonly have their epistemic roots in cognitive and behavioral sciences. For example, [2] presents some insights about the way subjects interact with, make sense of, and build relationships with virtual conversational agents based on the gender of the agent. Abusive sexual comments towards virtual conversational agents are explored in [3] and [20]. Specifically, [20] tries to examine the role of gender impressions behind such abusive behavior. While the above works view sexuality as an explanatory variable for subject's behavior, works also use characteristics of sexuality as a rationale for design choices. For instance, [10] uses "formative works" to understand the existence of gender-relevant design features based on which they design and implement new features on their research prototype. [16] points out the often overlooked or ignored aspects of sexuality, namely sexual orientation and gender identity, and the effects of ignoring these can have on establishing trust in avatar-based technologies.

#### *Sexuality as a critical lens*

In this third cluster, works tend to use human sexuality as a lens to critically interrogate and/or generate fresh perspectives on under-explored areas of research. This approach draws from various cultural and critical theories. In these works, sexuality is neither the goal nor the explanation but rather is the mode of analysis through which investigation occurs. These works, though few in number, are increasing along with the advent of critical and cultural HCI. [11], for instance, brings to surface how the notion of private space is constructed in different cultural contexts by analyzing the activity of browsing pornography in the domestic space. "Passages," an interactive installation that is designed to facilitate intimacy between people separated geographically, has helped view distance as a "creative object," which is otherwise considered in a negative way [15]. By analyzing online intimacy practices, [6] explores users as subjects that express themselves through aestheticized online performances. Going a step further, [7,8] analyze the virtual BDSM community of SecondLife and its practices and propose a new domain of aesthetic inquiry, interaction aesthetics, that can be observed and analyzed in online sexual practices such as this community. In [38], the authors critically reflect on conceptual sketches for mediated intimacy in order to open the discussion on the subject of "customized technology," raising important questions about "generalizability" while designing solutions. [41] explores the realm of rich interpretation in intimate communication between couples in long distance relationship by reducing the bandwidth of communication. While deception is usually considered a

poor design decision, [46] critically reflects on the use of thumbnail gallery posts in ad-driven websites providing links to purportedly free pornography to explore alternative design spaces on the topic of online trust. Using three experimental prototypes that were designed to facilitate minimal, implicit, and expressive communication, [58cl] explores the concept of awareness and the characteristics of communication that contrasts with most CSCW work. Common to each of these approaches is the critical use of sexuality as a lens to gain access to and theorize about dense subjective experiences.

Each of these proposed relationships between technology and sexuality can be seen as instantiating a paradigm of HCI sexuality research. In each of these paradigms, scientific problems, disciplinary and methodological traditions, and scientific claims form coherent and already accepted clusters within HCI; moreover, in a point that we return to later, sexuality is carefully scoped to a single level of the project (i.e., design objective, explanatory variable, or critical lens, respectively).

#### **Intended contribution of the work**

Whereas the first criterion of differentiation—how sex and technology are claimed to relate to one another—effectively situated sexuality and HCI research into paradigms, our second criterion considers the authors intellectual goals, i.e., what they hoped to affect or change with their research. In our analysis we considered aims in terms of their scope, from the most general to the most specific goals. We accordingly distinguished among three levels: agenda setting (most general), domain exploration, and problem exploration.

#### *Agenda setting*

Works under this theme try to propose an agenda or point at directions for future work in this area of research. For example, [12] attempts to develop an agenda for intimate computing, [13] outlines theoretical and empirical perspectives to establish erotic life as a new frontier in HCI, and [29] suggests an agenda for designing technologies that facilitates sexual interactivity in the context of strong-tie, intimate relationships. Amongst the works that suggest future directions, [44] stresses the need to address the joint effects of race, class and gender in contexts beyond the workplace while [57] advocates that current works in sexual HCI must strive to humanize the technology.

#### *Domain exploration*

These works aim to explore a particular research domain or specific issues within a domain. Common domains of inquiry included mediating intimacy using interactive technology between two people in a romantic relationship [26,30,31,35,38,41,48,61], members of the family [25,31], individuals of a society to support city communities [9], and random strangers to facilitate "anonymous expressions of desire and sexuality" [15]. Another major motif of exploration is online sexuality. These works range from exploring sexual interactions between virtual agents [4,20,59] to expression and exploration of the sexual self

through online interactions such as gender swapping in virtual reality environments [22] and intimate experiences in MMORPGs [52]. Exploring the role of design in gendered division of domestic space and labor is another area of reflective research found in works such as [11,18].

One interesting observation we found while analyzing these exploratory works is the marked absence of works that deal with aspects of sexual orientation or gender beyond traditional norms, that is, heterosexuality experienced by men and women. With a few exceptions, such as [16] and [51], homosexuality and transsexuality remain largely neglected topics.

#### *Problem exploration*

Works that contribute this theme deal with a specific problem by attempting to design an optimal solution or understand the factors involved. For instance, [10] aims to understand gender related differences while designing end user problem-solving software such as spreadsheets and CAD. [50] presents a design solution for peripheral safety and feedback system for practitioners of BDSM. The most specific of the intended contributions, research in this category is arguably the closest to directly changing conditions in everyday life.

It is possible, even from the categorizations we have made so far, to begin to make inferences about how sex is discursively regulated in HCI research. We have seen that it tends to be talked about in tightly scoped ways, constraining it to one well-demarcated portion of a broader (and otherwise “acceptable”) project (e.g., sex as a variable, a constituent of a user research methodology, or a marginal subdomain of the field requiring valorization and agenda-setting). It is also presented fairly orthodox ways, both in terms of general cultural norms (i.e., emphasis on traditional gender and sexual categories) and HCI research norms (i.e., sexual needs as a problem amenable to a technological solution). Such discursive rules have a real impact on what kind of work can be published and presented in the field, a concern we turn to next.

#### **THE DISCOURSE OF SEXUALITY**

In this section, we analyze the corpus to provide an understanding of how sexuality enters the discourse of HCI and the problems that are associated with it. By *entering the discourse of HCI*, we refer to the manifold ways that a given work is able to legitimate itself, including establishing its subject-matter authority and situating itself vis-à-vis the rest of the field, and claim to make a novel scientific contribution. The primary aim of such critical project is neither to evaluate the existing works nor to make predictions about future works but rather to observe the mechanisms through which such works come into existence.

The intent behind focusing on these aspects is to critically question the assumptions, common-sense notions, and values that are inscribed in them to understand their implications. For example, works that deal with mediated

intimacy almost always frame their user group as couples in a relationship or members of a family. An example of this would be Mutsugoto, a novel design that its creators describe as “an intimate communication device ... meant to be used by romantic couples in long distance relationships.... Mutsugoto is meant to be installed in the bedrooms of two distant partners.” [35]. The device could just as easily be used by anonymous long-distance partners (i.e., the partners don’t have to be in a relationship) or by polyamorous lovers (i.e., the device is not strictly limited to only two users). Our aim in raising this example here is neither to criticize this particular work nor to provide our own normative standard. Rather, by questioning such seemingly commonsensical assumptions, we hope to raise critical questions about its implications for the stakeholders involved in it.

#### **Sexuality and the sayable: A research opportunity**

One common theme observed in all the works in our corpus is that sexuality can be discussed inside HCI only with respect to the way technoscience thinks about technology. In other words, not only does sexuality have to be linked to technology—a rather obvious requirement for HCI and sexuality—but sexual discourse must be framed and articulated in terms of technical discourse. Underlying this point is Foucault’s notion of an episteme. An *episteme* “may be understood as the ground of thought on which at a particular time some statements – and not others – will count as knowledge” [45]. This “ground of thought” includes within itself philosophical commitments, academic lineage, methodologies, etc. making it possible only for certain kind of works to be considered as knowledge within a given discipline. (Foucault’s reasoning here is similar to fellow sociologist of science Thomas Kuhn’s notion of a scientific paradigm.)

Since HCI ultimately concerns itself with the interaction between technology and human subjects, sexuality can be discussed inside our field only with respect to technology. For example, let us consider the case of browsing pornography online. A work that addresses enhancing user experience while browsing pornography online [1], or a work that advocates paying attention to porn browsing practices to understand the concept of enjoyability [11], can be legitimated in HCI because the field seeks case studies understanding user experience. A Lacanian psychoanalysis arguing that the experienced pleasure of an interaction comes from a subject’s subconscious yearnings for sexual domination, an intellectual strategy that would be at home in film studies, would be hard to sell in today’s HCI. At stake is the extent to which HCI’s existing episteme and corresponding discursive traditions are better suited to some sexuality and HCI projects than they are to others, which ones, and above all whether we can do anything to improve the situation.

The second implication is that sexuality-related works done in HCI need not (and should not) be mere attempts to import, after the fact, research on sexuality going on in

other fields, be they applied health sciences, gender studies, or psychology. Rather than playing catch-up, HCI is a legitimate (and relatively new) domain of human sexuality in its own right and is worthy of study as such.

One unfortunate state of affairs—both for science and for public health—is that at present no academic discipline rigorously deals with the combination of technology and sexuality. Fields tend to prefer one or the other. HCI, which is historically quite strong on both technology and psychology (the latter obviously being a major contributor for sexual health sciences), and is now increasingly taking on human experience with various imports from traditional design and the humanities (which have investigated the role of sexuality, gender, and pleasure, etc., in film and literature), is arguably positioned as well as any discipline to develop this expertise. HCI research might thus contribute in important ways to scientific understandings of sexuality, which could in turn be leveraged to improve quality of human life, which may or may not involve technological solutions.

Complicating progress toward this agenda is that HCI research is typically validated by a double-blind peer review process, which demands that works stand on their own merit (i.e., not on the reputations of the scientists behind them) *in such a way that they are perceivable and appreciable by an audience of peers*. This merit is rhetorically established among a social community (i.e., HCI peer reviewers) through a combination of problem framings, demonstration of conceptual mastery, adequate quantity and relevance of literature referenced, and so forth. Because HCI has only tenuous relationships with disciplines that commonly research human sexuality—sexual health sciences and gender studies in particular—sexuality and HCI research is more likely to be successful by demonstrating technological scholarship, as opposed to sexuality scholarship, in other words, by circumscribing sexual discourse within a more recognizably rigorous technoscience discourse.

### Two modalities through which sexuality enters HCI

We found that sexuality is commonly circumscribed in technoscience discourse using one of two common modalities. *Modality* here refers to how a work situates itself in a particular domain, establishes legitimacy, contributes to the field's knowledge and carries within the potential for furthering itself through future works. The two modalities are as follows:

- Presenting sexuality as a methodological apparatus
- Presenting sexuality as the object of inquiry

The first form of modality views sexuality as a mode of knowing, a methodological apparatus. Works employing this form of modality attribute themselves primarily to an HCI-related domain that is not sexuality, and sexuality becomes a strategy to gain insight about that domain. For example, [11] situates itself primarily as a work in the domain of domestic technology. One of the key

contributions of this work was to introduce the technique of *defamiliarization* to help gain a critical distance while designing domestic technology. Gendered division of labor and consumption of pornography are two major facets of sexuality that the work uses to draw novel insights on how the concept of space and privacy is constructed inside a home.

We argue that the sexuality-based lenses in this paper do much more than add a bit of spice and point to a couple of interesting insights. Rather, aspects of sexuality are shown to reveal profound aspects of the lived experience of domestic space, in particular with regard to domestic privacy. An implication of this argument is that sexuality is an important dimension of the study of domestic life, along with concepts like privacy. This in turn suggests that sexuality should become a common dimension of domestic technology research. Yet [11] does not make this claim explicit, and there is little evidence that the paper, whose impressive citation history attests to its overall influence, has made sexuality a commonplace consideration in domestic technology research.

The concern we have for works in this modality is that the sexual angle is perceived as a one-off that has no further trajectory in HCI beyond the paper. And because these works are about the other domain (e.g., in [11]'s case, domestic technology), they are not usually viewed as contributing to the discourse of sexuality, either. The consequence is that sexuality, which is frequently an integral aspect in that particular domain, is not recognized as such in a lasting way, and the potential insights related to sexuality's role in that domain, are not subsequently developed.

Works that employ the second modality treat sexuality as the object of inquiry and situate themselves primarily as works in the domain of sexuality. This view stems from the assumption that the discourse of sexuality is separable from other discourses inside HCI and that other domains do not have anything to benefit from these works. Yet sexuality pervades many if not all aspects of human life, and understanding human life is ostensibly the very core of HCI, so the discursive marginalization of sexuality work in HCI seems hard to defend.

An active discourse can be enriched by new entrants, which have the potential to disrupt existing rule structures and thereby create new discursive spaces. Thus, the marginalization of sexual discourses in HCI not only limits the field's scientific understanding of human experience today, but it also might foreclose the possibility of subsequent works building on them. A positive example is [38] presents a preliminary study on intimate objects, technological devices for maintaining intimacy at a distance between couples. A year later [40], "inspired" by [38] and [42], proposes VIO (virtual intimacy objects), which use minimal communication to mediate intimacy and discusses user logbook data and journal entries to draw insights about

minimal communication. Based on the VIO logbook entries, [41] raises important questions about evaluation strategies for context-based, interpretation rich, minimal and affective communications. In other words, research originally centered on sexuality subsequently yielded implications for more “mainstream” affective computing research where sexuality was much more tangential.

An implication of our analysis of research within these two modalities is that as a field, we are constraining the constructive influence a more scientific understanding of sexuality could potentially provide. For works that use sexuality-related concerns methodologically to build understandings of other domains, we should allow those relations to persist and develop; that is, subsequent researchers operating in the same domain might consider using sexuality-related lenses themselves to do their research, extending, refuting, or validating the prior work. For works that are about sexuality, they should both reach out to related domains and articulate those relations, and as a community we need to recognize the linkages when they are made and, again, build on, validate, or refute them. In both cases, sexuality is scoped too tightly to realize its potential in HCI—but why?

### Barriers to entry

By identifying and discussing some of the documented barriers works in this domain face, we hope to identify some of the issues that hinder research in this area. The problems identified here are closely linked to each other, and is not an exhaustive list of all the problems these works face.

### Taboo

The topic of sexuality has generally been mythicized as a taboo due to various reasons in varying degrees. While there is nothing intrinsic to the topic that makes it difficult to talk about, “once a subject is tabooed, that status begins to feel self-evident” [47]. Sexuality in HCI is a taboo topic, and attempts to address it have elicited reactions anywhere between politely ignoring it to outright moral high-handed judgment. For instance, [17] describes how “placing pornography in an academic context can still cause...a ‘moral panic’” while [1] expresses genuine concern about furthering their work of designing better interfaces for browsing pornography online since they are concerned about what their University ethics committee, colleagues, and partners would say about it. The authors of [6] were forced, as a condition of publication, to reframe their *interactions* magazine article to be about “intimacy” rather than “sexuality,” and an anonymous editor unilaterally redlined dozens of examples, including projects sponsored by a nationally regarded center for public health, before the article was published in radically altered form. The organizers of the Sexual Interactions workshop at CHI 2006 [21] share a review comment about their workshop proposal where one of the reviewers wrote: “I’d feel a whole lot better if some of them had...signed statements from their psychotherapists attesting to their motives in promoting the

workshop” [39]. While it is surprising in a scientific community to see such reactions to legitimate research, the growing interest in the topic over the recent years shows an increase in general acceptance and scholarly attitude towards sexuality in HCI.

### Lack of definition

Human sexuality is a complex and intricate phenomenon that defies a single all-encompassing definition. Its lack of definition poses a pragmatic challenge to researchers working on this domain since “there is no generally accepted language for describing and discussing intimacy, especially in relation to designing technologies for its support” [42]. The lack of a single universal definition can also be viewed as a healthy stimulant that enriches the domain, allowing for multiple rich interpretations that enable researchers to focus on various facets of sexuality without reducing the complexity of it. This burdens researchers to operationalize “sexuality” in their research, an act that could be intimidating for someone new to the domain.

### Intractability

Sexuality crosses the physical, emotional, psychological, social, cultural, political, legal, philosophical, moral, ethical, spiritual and religious dimensions of both everyday life and academic disciplines. This irreducible complexity makes it difficult to work with as researchers, even as the so-called third wave or third paradigm of HCI is likewise grappling with such issues [34]. As [39] points out, one of the reasons why sexuality is difficult to deal with is “not that it is naughty, but rather that it is so complex that it challenges and tests the limits of the tenuously rigorous design methods that we hold so dear.” The seemingly insurmountable complexity of the topic makes it harder to approach and at the same time making it a rich ground for research. While it “presents the researcher with a number of unique and interesting challenges” [42], “the resoundingly personal nature of sex pushes user-centered design to new heights” [39].

### MOVING FORWARD

In this section we build upon the findings that we have made so far to provide a few stimulants for future directions of research in this area. We have argued that there already exists a discourse of sexuality in the field of HCI. More importantly, we believe that we have been able to show that we are increasingly taking on the complex human experience sexuality, albeit with limits and lacunae. We hope that the present work, standing on the shoulders of this corpus, has helped legitimate this body research and identified opportunities for improving it. We conclude by offering a number of specific prescriptions.

**Broaden the scope of “sexuality” in HCI.** As we have argued, the extent to which we have, as a field, circumscribed sexuality (e.g., as a methodology, an independent variable, or a specialized domain) to a small part of a broader technological research project has probably limited its impact. We also know that sexuality is

a fundamental aspect of human life, and it needs to come out of the margins of HCI research, especially in related areas, such as domestic computing, experience design, embodied interaction, feminist HCI, aesthetic interaction, and so forth.

**Explicitly recognize sexuality-oriented HCI as a significant domain of HCI.** One way to do so is to name it. [17] proposes “Human Computer (Sexual) Interactions.” However, the phrase “Human Computer (Sexual) Interactions” is not representative of all the existing works in the field since “sexual interactions” connotes that the interaction itself is inherently sexual. Such a definition narrows “sexuality” to one, admittedly significant, aspect of it. We propose instead “Sexuality and HCI,” to be abbreviated as SHCI and pronounced “shy.” This definition leaves in place a broad—and endlessly contestable—framing of the domain.

**Establish HCI as the expert domain of sexuality and technology in academic and corporate research.** This means treating technology and sexuality with equal rigor, an outcome that could be facilitated both by strongly and urgently improving HCI’s linkages to disciplines strong on sexuality, such as sexual health sciences and gender studies, and also by broadening the scope of sexuality in HCI to the foreground in domains where it makes sense to do so. It also means generating analytic understandings of sexual health-related designs. Works on sexual technology such as pornography, sex toys and health equipment are very few in number. Works such as [54], which discusses the design of the vaginal speculum, are much needed and can have immediate and positive effects on human life. The impact of these works extends well beyond the individual and affects larger social concerns such as safe sex practices, as in the case of [62], which presents the design of a condom applicator that increases the effectiveness of condom usage.

**Set aside sexual prejudices (e.g., refusal to acknowledge the significance of homosexuality, transsexuality, and pornography).** The rejection of prejudices is, of course, just good science, but some prejudices are harder than others to set aside, especially if they have been naturalized in systems of cultural norms and taboos. A closer connection to sexual health sciences and gender studies should also contribute toward this goal. A focus on the socio-cultural aspects of sexuality with respect to technology can help us question the assumptions and expose the politics involved in the design of the technology. For example, [44] talks about how race, gender and class politics affect women in technology, while [16] brings to light the heteronormativity embedded in virtual worlds. [27] critically examines the politics involved in framing gender within the binary norms.

**Maintain an ongoing critical reflection about what we are researching sexuality in HCI for.** A topic as wide-ranging and complex as sexuality can be of interest for any number of projects. [29] asks what *should* be our stance as

researchers in the field towards “the ‘unsentimental’ facets of intimacy”? This question implies that we as a field are still not comfortable talking about sexuality outside the purview of a romantic relationship. [32] points out that “research related to sexual content online is framed by the need to draw clear regulatory lines to control such communication,” the keyword being “control.” Such observations help us to critically reflect whether the research we do is based on good reasoning or commonsense prejudices.

That technology and sexuality share a common past is just a matter of history. The role of pornography in the emergence of the World Wide Web and e-commerce is well known. HCI is a scientific discipline that designs technologies to support, enhance, and improve human life. To relegate sexuality to the margins is to shirk that responsibility; doing so has consequences for the progress of the field, for innovation and commerce, and for public health and wellness.

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