A methodological reckoning for the empirical study of sex doll and sex robot issues

Kenneth R. Hanson [*]

University of Wyoming, USA

Abstract. In light of repeated calls for empirically driven analyses of sex doll and sex robot owners and users, I outline key methodological challenges researchers in this field currently face. I discuss how methodological limitations have shaped the field thus far and narrowed the scope of empirical research to date. To resolve these issues, I propose strategies for improving archival, quantitative, and qualitative approaches for future scholarship. Specifically, I attend to issues of historicity, nomenclature, population, sampling, qualitative approaches, and research ethics. I conclude with a discussion of how the stigma associated with sex dolls, sex robots, and sex tech amplifies the need for researchers to respect and adhere to ethical research practices yet still maintain a critical distance that directly confronts, rather than skirts, dilemmas related to use, ownership, and production. This methodological reckoning will help scholars design more robust studies and effectively evaluate innovations in the field.

Keywords: Methodology, research ethics, sex dolls, sex robots, stigma

1. INTRODUCTION

The multidisciplinary study of sex dolls and sex robots has seen a massive influx of theoretical interventions, many of which seek to elucidate the potential uses and harms of incorporating such technology into society at individual and institutional levels (Döring et al. (2020); Hanson and Locatelli (2022)). Previously, scholars often cited little or no empirical evidence to substantiate their arguments, but this is now changing (Döring et al. (2020); Hanson and Locatelli (2022); Harper and Lievesley (2020)). Social scientific approaches that utilize data as a means of answering philosophical and ethical questions about how sex dolls, sex robots, and their owners and users are becoming more common (for some examples, see Appel et al. (2019); Desbuleux and Fuss (2023a); Devlin and Locatelli (2020); Dubé et al. (2022a, 2023, 2022b); Eichenberg et al. (2019); Hanson (2022, 2023b); Harper et al. (2023); Langcaster-James and Bentley (2018); Middleweek (2021); Nordmo et al. (2020); Oleksy and Wnuk (2021); Szczuka and Krämer (2019); van Voorst (2022); Zara et al. (2022)).

The empirical scope of sex doll and sex robot usage is still nascent though. While some studies have begun to close the theoretical and empirical gap (Hanson and Locatelli (2022)), much work remains. As I discuss in this article, the findings so far have been restricted by narrow understandings of sex doll and sex robot phenomena. There are notable unchecked assumptions about their history, who uses them, and where owners and users can be found. Moreover, the best practices for measuring attitudes about sex dolls and sex robots lack standardization. Some of these difficulties stem from uneven answers to fundamental questions. What, exactly, is and is not a sex doll or sex robot? Where

*Department of Criminal Justice and Sociology, University of Wyoming, 1000 E. University Ave. Dept. 3197 | A&S Building 208, Laramie, WY 82071, USA. Tel.: +1 307 766 2988; E-mail: Khanso17@uwyo.edu; ORCID: https://orcid.org/0000-0001-5665-0852.

do they come from and what purpose(s) do they serve? Such questions are fraught within scholarship and even among the people who own anthropomorphized and personified sex tech (Desbuleux and Fuss (2023a); Hanson and Locatelli (2022); Langcaster-James and Bentley (2018)). Indeed, multiple phrases and terms have been coined by scholars, users, and owners alike, often with the aim of inclusivity and de-stigmatization (Dubé and Anctil (2021); Langcaster-James and Bentley (2018); McArthur and Twist (2017)). As I show in this article, issues related to the contested histories and definitions of "sex dolls and sex robots," as well as those who are attracted to such technology (Karaian (2022); McArthur and Twist (2017)), have resulted in methodological imprecision within the field. For scholars working in this area of study, our credibility hangs in the balance of addressing these problems.

Here I seek to clarify the aims and merits of social scientific research on sex doll and sex robot ownership and usage by discussing several methodological concerns and positing potential solutions. Such quandaries are relevant to social scientists from a range of methodological approaches. I also address how assumptions about sex dolls and sex robots become baked into research designs. In bringing attention to these problems, my aim is twofold. First, it is my hope this discussion will generate more methodologically precise research designs as scholars seek to refine theoretical assertions and test the robustness of empirical findings. Second, experts in the field will be better equipped to evaluate advances in the field. Below, I discuss each methodological concern in detail by pointing to relevant studies' strengths and weaknesses before suggesting possible strategies for future work within the subfield of sex doll and sex robot studies. I categorize my concerns into six areas: historicity; nomenclature; population; sampling; qualitative approaches; and research ethics. I conclude with a focused discussion on the need for researchers to respect and adhere to ethical research practices while maintaining a critical distance that directly confronts, rather than skirts, dilemmas related to the use and production of such technologies.

2. HISTORICITY

Multiple texts justify scholarship on sex dolls and sex robots by locating artificial companionship in the long history of human sexuality. This trend is evident across three of the most cited and well-known books: Levy's (2007) *Love + Sex with Robots: The Evolution of Human-robot Relationships*, Ferguson's (2010) *The Sex Doll: A History*, and Devlin's (2018) *Turned On: Science, Sex and Robots*. Historicizing sex tech does more than provide a justification for the study of such objects, it pushes back against the disvaluing of sexuality research (Schilt (2018)). Scholars interested in sex dolls may find themselves dismissed for working on frivolous and salacious topics. To head off such accusations by framing a study as historically informed is a strategic move that presents an unfamiliar topic in a familiar way.

While aligning sex doll and sex robot studies with "normal science" is an understandable, even necessary, tactic, future work should address the damning evidence that dominant historical narratives about artificial companionship are flawed (Ruberg (2022)). One such narrative is the supposed historical root of sex dolls in so-called *dames de voyage*. In a section devoted to the *dames de voyage* myth, Ferguson (2010, p. 16) writes, "The modern sex doll has its most direct antecedent in the cloth fornicatory dolls used by sailors on long voyages." As Ruberg (2022) shows, this historical tidbit has been repeated across numerous discussions about sex dolls and sex robots. However, Ruberg's (2022) analysis forces a reconsideration of this "fact" about the origin of sex dolls. Drawing on extensive archival research, Ruberg (2022) shows how the story of the *dames de voyage* is not just a misreading of history, but in many ways a total fabrication. The actual origin appears to be far different from

the now popularized myth of sailors comforting themselves with cloth dolls on long voyages, but by repeating this myth, scholars have cemented this "fact" within scholarship and erased the sex workers and colonized people who played early roles in the development of Western sex tech (Ruberg (2022)). Another consequence of this canonization process is the assumption that sex tech was initially made for men. This idea needs interrogated as well given that inflatable sex dolls were likely invented alongside contemporaneous developments in inflatables that targeted women (Ruberg (2022)).

Ruberg's (2022) study is a one-of-a-kind examination of the oft-repeated histories of sex tech. In addition to examining the *dames de voyage* myth, Ruberg (2022) scrutinizes the ancient story of *Pygmalion*, another oft-cited source on artificial companionship, and provides much needed context for understanding early pseudoscientific writings about inflatable sex toys as fictive erotica rather than proof of their existence. Taken together, such archival work suggests that the most basic understandings about sex dolls and sex robots (and sex tech more broadly) are wrong. They were never monopolized by heterosexual men, and their existence has long been shaped by the imaginative possibilities they inspire rather than their commercial availability. It seems to be more accurate to say that the people who *think* about sex dolls have played a more central role in how they occupy the cultural imaginary than the people who use them.

Based on these revelations, I offer three suggestions for future work. First, scholars must critically interrogate the citational lineage of the field. Early works made important strides in legitimizing the field, but they are not infallible. Rather than taking their historical statements as fact, the history of sex tech needs to be critically examined as we piece together sex tech's untold contributors. Second, if sex workers and colonized people played pivotal roles in the development of sex tech, either directly or indirectly, their contributions must be specifically researched. This seems especially important given how discussions about using sex robots in sex work often speak for sex workers rather than drawing from sex workers' perspectives (Hanson and Smith (forthcoming); Levy (2007)). Third, there is a clear need for global and international approaches to sex dolls and sex robots. A majority of the field focuses on European and North American users and owners (Hanson and Locatelli (2022)). However, not only are sex dolls and sex robots manufactured and used worldwide, but their very existence is traceable to the transnational history of colonial trade networks. Confronting how these histories have shaped the currently available technology will be crucial for broadening the scope of sex doll and sex robot studies.

3. NOMENCLATURE

"Sex robot" is a contested term. The controversy mainly stems from moral evaluations of sex tech, but inconsistent terminology within the field might also be due to the nascent and rapidly evolving state of the field itself. Speculative theorizing has outpaced current technological capabilities in some cases (Hanson and Locatelli (2022)), yet the industry is enthusiastic about designing sophisticated models with new affordances. The methodological ramifications resulting from rapid growth in the academic and commercial fields are twofold. First, issues of nomenclature (and vernacular) are not neutral — the words scholars use in their work reflect certain priorities and values, which in turn shape sex tech discourses. This is true of the industry as well, where it is common practice to use pornographic language to market sex dolls and sex robots (Hanson and Smith (forthcoming)). Second, because some terms are morally loaded, the sentiments of researchers become baked into the research design which may affect research participants. The inconsistency in language use across surveys and questionnaires also makes comparing and reproducing empirical findings difficult.

So, what are sex dolls and sex robots, exactly? Döring and Pöschl (2018) provide two definitions that serve as adequate starting points. They define sex dolls as "material representations of the human body for sexual use" and sex robots as "humanoid robots that are designed for sexual use" (Döring and Pöschl (2018), p. e53). They further specify that sex robots "look like sex dolls but are equipped with sensors, actors and artificial intelligence. They are able to display conversation, emotions and preprogrammed personalities. And they can perform partially autonomous behavior such as simulating sexual movement, getting into various sexual positions, and expressing orgasm" (ibid). These definitions highlight three aspects: (1) both sex dolls and sex robots approximate the human body, (2) both sex dolls and sex robots are explicitly designed for sexual activity; and (3) whereas sex dolls are relatively inanimate, sex robots have one or more automated capability. On the surface, these technical definitions may seem sufficient, but scholars disagree. For example, the scholar-activist Kathleen Richardson has argued against the development and manufacturing of sex robots on the grounds that their existence promotes violence against women and misogyny (Richardson (2016)). Richardson's "Campaign Against Sex Robots" (Richardson (n.d.)) has altered how they refer to sex robots and broadened their scope, as they now campaign against deepfake pornography, too. The website now has the "sex" in "sex robots" crossed out and replaced with "porn robots" to look something like "~~sex~~ porn robots." This shift purposefully denotes the campaign's strong moral position as they seek to broadly categorize pornography, sex robots, and other forms of sex tech as inherently problematic developments in the adult industry.

While some seek to criticize how sex robots overlap with the misogyny present in the adult industry, others wish to decenter sexuality in discussions about humanoid robots. In their mixed-methods study of sex doll owners, Langcaster-James and Bentley (2018) found that most owners report a variety of non-sexual motivations and uses for their "sex dolls." Accordingly, they propose a move away from the terms "sex doll" and "sex robots" entirely, arguing that such language overstates their sexual function. They suggest the term "allodoll" to encompass the range of sexual and non-sexual ways in which people might (and do) use their "sex dolls" and "sex robots." Elsewhere, Hanson (2022) describes a sample of sex doll owners as belonging to the "love and sex doll community." In doing so, Hanson (2022) makes a similar gesture towards closing the gap between academic jargon and the vernacular of people who use and own the products.

Other language inconsistencies can be observed throughout the field. Kaufman's (2020) work on consent and programming uses the term "artificially intelligent partners." Similarly, scholars working from the posthuman perspective often use language that highlights the human-like agency of such technologies (Locatelli (2022)). Another approach is to highlight the agency of sex tech while anticipating the possibility of non-humanoid designs. The term "erobots," coined by Dubé and Anctil (2021), comes from their observation that sexual desires co-occur with emotional and erotic desires, which they argue can be simultaneously met with technologies without necessarily using a humanoid figure. Indeed, the subfield of work dedicated to personified sex tech suggests that many sex doll users integrate their sex dolls with social media, chatbots, and other artificially intelligent devices to enhance the immersive experience (Hanson (2023b); Hanson and Locatelli (2022)).

Exploring the breadth of terms and definitions is not a purely theoretical exercise, as even a brief review of the empirical literature shows that scholars are using different vocabularies. Langcaster-James and Bentley's (2018, p. 8) study of current owners used "doll" in their questions, such as in the question "Why do you have a doll?" Harper et al. (2023) also surveyed current owners, but they do not provide details on how the questions were constructed. More commonly, quantitative studies survey non-users or non-owners and tend to focus on sex robots rather than sex dolls, despite the lack of readily available sex robots in today's sex tech market.

Nevertheless, many empirical studies use "sex robot" in the construction of their recruitment materials and measures because the topic piques interest even if few sex robot owners exist. For example, Nordmo et al. (2020, p. 4) conducted a vignette experiment that uses the phrase "highly realistic sex robots, both in male and female form." In another study, research participants were told the study was about their views on sex robots and "were warned that they might find some questions emotionally disturbing" (Scheutz and Arnold (2016), p. 353). By framing the study in this way, Scheutz and Arnold (2016) may have primed moralistic responses to their questions. In Olesky and Wnuk's (2021, p. 3) study, participants were merely told the study "would concern modern technologies." This neutral framing and the dispersion of questions about "sex with robots" among other questions about robots and people in general was a way of presenting sex robots with less prejudice. The least common term is "sexbots." In Zara et al.'s (2022, p. 483) study, they constructed a "SexBot Questionnaire" with items such as "Can people imagine themselves in an intimate and sexual relationship with a sexbot?" Some may quibble that minor linguistic differences hardly matter; yet, given the controversial nature of sex tech, even small changes in how studies are described and how questions are constructed may greatly influence participants' understanding of the study and alter their responses according to what they believe conforms with the socially desirable results.

Two recommendations based on the above discussion are apparent. First, in defining "sex dolls" and "sex robots," researchers need to be ever more precise as the technological capabilities and functions of human-like and personified sex tech expand. Whether in theoretical prose or in designing recruitment materials and survey items, the terms and definitions that researchers use matter, as they convey one's commitment to certain moral and scientific ideals. Second, the methods that researchers use could be improved to make studies reproducible and comparable. Researchers might consider open science practices, such as making their survey instruments accessible as supplemental material or sharing data with other researchers to allow for reproduction studies. Greater reliability in findings will come from consistent terminology and practices across the discipline, but at a minimum, careful consideration of the language used within a study is necessary, as researchers' choices may cognitively prime participants toward social desirability.

4. POPULATION

"Who" exactly are sex doll and sex robot owners and users? Sex tech users and owners, broadly defined, vary considerably. Both the specific sex tech in question and cultural stigma affects who identifies as a sex tech user (DiTecco and Karaian (2023); Dubé et al. (2023); Gesselman et al. (2022, 2023); Hanson (2022)). For example, if one defines vibrators as sex tech, sex tech *users* are a diverse population compared to sex doll and sex robot *owners*, who are typically heterosexual men (Levy (2007)). Based on the association of sex dolls and sex robots with heterosexual men, it is not uncommon for studies to focus exclusively on this demographic (for example, see Devlin and Locatelli (2020); Marečková et al. (2022); Middleweek (2021)). This association has shaped the collectively imagined capabilities of sex dolls and sex robots (Ruberg (2022)). That is, they are overwhelmingly designed, built, and programmed to look and behave like something heterosexual men likely desire. But how accurate is this picture of sex doll and sex robot users and owners?

It is accurate to say that a *majority* of sex doll and sex robot users and owners are, at least for now, heterosexual men (Appel et al. (2019); Hanson and Locatelli (2022); Harper and Lievesley (2020)). To what extent this is because of heterosexual men's disproportionate interest *in* the technology, as compared to the adult industry's catering *to* heterosexual men is difficult to know. Indeed, in the case of sex dolls and sex robots, it seems that culture and industry are inextricably intertwined, to

the point that women think about sex robots quite differently from men (Su et al. (2019); Li (2022); Oleksy and Wnuk (2021)). Complicating matters further, the *overall* number of users and owners is relatively low (Döring and Pöschl (2018); Hanson and Locatelli (2022)). An altogether different matter is the criminalization of childlike sex dolls (see Brown and Shelling (2019); Maras and Shapiro (2017)), which further makes the population of users difficult to empirically assess due to fear and stigma that disincentivizes participation in research. Taken together, the focus on heterosexual men and difficulties in finding sex doll and sex robot users and owners has privileged a certain picture of "who" users and owners are, despite empirical evidence showing that some users and owners are *not* heterosexual men.

For example, several studies report a variety of gender and sexual minorities among their samples of sex doll owners without paying particular or specific attention to them. While most (if not all) samples are heavily composed of heterosexuals and men, evidence gathered from across empirical works suggests that women, non-binary, trans, bisexual, queer, pansexual, demisexual, asexual, and gender fluid owners exist (Hanson (2022); Langcaster-James and Bentley (2018)). The most homogenous demographic characteristic might be middle-age, as a considerable majority of sex doll owners are older (Langcaster-James and Bentley (2018)). In addition to the lack of focused work on sexual and gender minorities, there is even less information on racial, ethnic, and nationality diversity. In turn, sex doll and sex robot owners and users are characterized as mainly white European and white North American men, even though sex dolls and sex robots are available worldwide and used by diverse social groups (cf. Aoki and Kimura (2021); Nast (2017)).

The methodological solution to these limitations is changing sampling strategies so that scholars can recruit from underrepresented groups more effectively. Indeed, as I suggest below, the focus on a specific subset of the population and sampling strategies that recruit from similar localities may have resulted in a recursive effect. If heterosexual men are the primary focus, and it just so happens heterosexual men are more present on sex doll and sex robot web forums (Middleweek (2021)), researchers have no issue focusing on them and recruiting from those sites. However, variation on the websites has been observed (but overlooked), and the websites cater to prospective or current owners (rather than users). Thus, excluding variation from the analytical samples has reproduced the association of sex dolls and sex robots with heterosexual men. Researchers need to reimagine who users and owners are, theorize what accounts for the observed gaps across demographic characteristics, and provide empirically informed analyses of groups that have been systematically excluded.

5. SAMPLING

Empirical studies of people, short of a census, require a sampling strategy. In the field of sex doll and sex robot studies, two strategies for building novel data sets are dominant. One strategy, usually aimed at measuring and comparing attitudes and personality traits, is to sample and survey the general population. The other strategy is to convenience sample sex doll forums. In a few studies, researchers have compared the general population to sex doll owners using multiple samples (e.g., Harper et al. (2023)). Each strategy has its relative strengths and weaknesses, but the main limitations can be summarized as small sample sizes, few measures, and biased samples.

General population studies are advantageous for scholars seeking generalizability. Given the controversial nature of sex dolls and sex robots, such an approach may be useful in combatting prejudices if preferential attitudes and prosocial motivations are found to be more common than expected. Yet while truly random samples are rare in any domain, in the case of sex doll and sex robot usage or

ownership, they are almost entirely absent. This is partially due to a lack of inclusion on major surveys, such as the General Social Survey (GSS) in the U.S., many of which are only recently beginning to measure diverse gender and sexual identities (Lagos and Compton (2021)). In place of these data, researchers often rely on convenience sampling techniques which are limited due to funding and time constraints. For example, Dubé et al. (2023) ($n = 365$) and Dubé et al. (2022b) ($n = 492$) both recruited via social media, flyers, and word-of-mouth across several Canadian universities. Scheutz and Arnold (2016), using MTurk, sampled only 103 U.S. participants. These studies have led to numerous important findings, especially by comparing men and women's attitudes toward sex robots (Nordmo et al. (2020); Oleksy and Wnuk (2021)), but there are limitations that future work ought to address. Demographic trends across racial or SES groups, for example, have yet to be explored because there is not enough data on these traits. Instead, many studies are psychological with measures focusing on paraphilias (Dubé et al. (2022b); Marečková et al. (2022)). It seems that one of the key concerns within this subfield is comparing potential sex robot users or owners to those who express no interest in sex robots, with an eye toward testing the assumption that attraction to sex robots indicates mental health issues. To that aim, the study by Marečková et al. (2022) compares two samples of Czech men, one of which is the general population, the other of which has paraphilic interests. These studies refine theoretical assertions about the potential of sex dolls or sex robots to be used for harm reduction (Desbuleux and Fuss (2023b); Hanson and Locatelli (2022)), but offer a limited picture of other possible motivations. One underexplored sociodemographic finding is the tendency of sex doll owners to be older and divorced (Langcaster-James and Bentley (2018)), suggesting a life course effect (Hanson (2022)). This and other sociodemographic concerns have yet to be addressed quantitatively.

The second sampling strategy uses websites and forums where prospective and current sex doll and sex robot owners congregate. Given the relatively small number of owners in general (Döring and Pöschl (2018)), this is a useful strategy for collecting samples of an otherwise difficult to locate population. This sampling strategy has been employed in quantitative, qualitative, and mixed-method studies. Quantitative studies using this strategy mirror psychological work on the general population, where the impetus is evaluating the psychological characteristics of people who own stigmatized sex tech (Harper et al. (2023)). Qualitative studies have used this strategy for conducting in-depth interviews (Devlin and Locatelli (2020); Hanson (2022)) and analyzing sex doll owners' online activities (Hanson (2023b); Middleweek (2021)). While this strategy aids researchers in gathering samples of current owners, it has a glaring limitation — it only includes people who are on those sites. As Middleweek's (2021) research shows, such websites center heterosexual men's concerns; thus, users who are not heterosexual men may find the websites unsuitable for their needs. Moreover, it is possible that some owners have no interest in using the websites at all. This sampling strategy therefore tends to reproduce the finding that owning a sex doll or sex robot is central to a person's self-concept (Hanson (2022); Lievesley et al. (2023)). Or, in other words, that a sex doll or sex robot is an artificial companion rather than sex toy (Desbuleux and Fuss (2023a)). Since these websites are an outlet for owners to discuss them as artificial companions, one-time users (such as those who visit sex doll brothels, Hanson and Smith (forthcoming)) or owners who are more inclined to view them as sex toys, may have little desire to be on the websites regularly.

Another limitation of sampling from sex doll owner forums that researchers must consider, is the potential for theoretical slippage. Since there are so few sex robot users and owners, some researchers use sex doll users and owners as a proxy to understand hypothetical sex robot users and owners. However, the distinct technological affordances of sex robots ought to be considered. For example, studies examining how owners take pleasure in personifying their dolls (Hanson (2023b)) may not extend to robots with pre-programmed personas. The motivation to personify may be less present, but other motivations unique to sex robot designs may be more salient among those users and owners.

Overcoming the limitations of the dominant sampling strategies requires a few novel interventions by researchers. First, there is a need for samples that are representative of the general population and surveys that allow for different types of statistical analyses. If such a data set were to be funded and collected, it ought to be made publicly available so that numerous researchers could benefit from its existence and replicate each other's findings. A second consequence has been the exclusion of people who might be interested in or actively using sex dolls and sex robots but would be found elsewhere. Their systematic exclusion has narrowed scholarly perspectives on these technologies. Sampling elsewhere, be it other digital spaces or in physical environments, would expand our understanding of people's subjective experiences with human-like and personified sex tech. Purposive or quota sampling approaches could be useful here, especially for work that seeks to dispel stereotypes perpetuated by media coverage (Björkas and Larsson (2021); DiTecco and Karaian (2023)).

6. QUALITATIVE APPROACHES

The difficulty of collecting robust quantitative data has benefitted qualitatively focused scholars in this subfield. Several researchers have effectively used qualitative methods to explore the experiences and lives of current sex doll owners. However, while these studies are insightful, they too suffer from overreliance on forum websites for sampling. Many qualitative studies sample almost exclusively from websites designed for sex doll owners (Devlin and Locatelli (2020); Middleweek (2021)). Others have branched out to include other websites, such as Hanson's (2023b) inclusion of social media. The general thrust of *digital* methods though, is dominant across qualitative work. The convenience of digital ethnographic techniques has so far excused qualitative researchers from venturing to places where they could observe the offline lives of sex doll and sex robot owners and users, such as by attending "doll meets" (organized in-person gatherings of sex doll and sex robot owners). One of the few "offline" qualitative studies is an anthropologist's study of a sex doll brothel (van Voorst (2022)). However, van Voorst's (2022) study is mainly autoethnographic rather than a systematic study of sex doll brothel patrons. Overall, the focus on the digital lives of sex doll owners has come at the expense of understanding owners and users who spend little or no time in these digital spaces. What might this community look like outside of the digital bubble, and how might users and owners be pushing back against stereotypes in their everyday lives? Questions such as these remain unexamined.

Another limitation to current qualitative work related to sex dolls and sex robots is a poor understanding of the sex tech industry. A few studies (Hanson (2023a); Stardust et al. (2023)) have begun to examine the industry in broad strokes, but there are no systematic studies of people who work in the sex doll and sex robot industries specifically. There have been some interviews with RealDoll's CEO Matt McMullen (Devlin and Locatelli (2020)) and passing references to industry workers who participated in studies about sex doll ownership (Hanson (2022)). But compared to the amount of attention paid to the technology and its users or owners, we know very little about the people who make their living building and selling sex dolls, sex robots, or working in related industries. Considering the international scale of the industry, with many companies manufacturing their products in Asian countries and selling their products in Asian markets, this oversight seems notable. Some questions future work might address are whether, how, and to what extent workers in these industries also manage stigma and shame.

The methodological solutions for qualitative researchers are, in some ways, a matter of resources. They need funding, time, and support that facilitates conducting in-depth ethnographic studies. More support for such projects from scholarly organizations could meet this need. Mainly, my suggestion here is that rather than relying exclusively on digital ethnographic approaches, a return to traditional

ethnographic approaches (or a hybrid of the two) that meets sex doll and sex robot owners and users where they are *other* than online would greatly expand the scope of the field. More than that, the very notion of where people use sex dolls and sex robots needs to be reexamined by conducting observational and interview studies outside of the Western context.

7. RESEARCH ETHICS

Sex dolls and sex robots present solutions for overcoming certain methodological and ethical issues while also having their own problems. Given their sexual design and function, sex dolls and sex robots could be useful for sexologists (Döring and Pöschl (2018); Dubé et al. (2022a)). In a discussion focused on their potential as research tools, (Dubé et al. (2022a)) offer numerous suggestions for how sex tech could be used to overcome longstanding methodological and ethical issues related to sexology research. Mainly, sexology research is difficult to conduct in laboratory settings as the types of observable and measurable sexual activity are limited but collecting data that participants recall or collect themself is less standardized, as they are less likely to follow lab protocol. Thus, sex tech might be a useful tool for researchers needing to overcome these limitations and produce results that are valid and ethically obtained (Dubé et al. (2022a)).

However, we must also consider the ethics and methodological limitations of studying people's use of sex tech, as there is evidence of stigmatization (DiTecco and Karaian (2023); Dubé et al. (2023); Hanson (2022)). For one, the stigma associated with using sex dolls and sex robots may make potential participants uncomfortable, just as expecting them to perform sex acts in a laboratory setting might. From a methodological standpoint, this suggests a self-selection effect where people who agree to be in studies using sex tech are more open to such experiences than the general population. Issues of coercion and consent are salient as well since people may not necessarily view sexual interactions with technology as morally equivalent to sexual interactions with humans but might feel pressured to follow through with the study.

Outside of lab settings, qualitative work such as ethnographies and interview studies must maintain privacy and confidentiality standards. Although social scientists are already aware of this need, some research has found that participants expected privacy measures above and beyond standard confidentiality practices (Hanson (2022)). This is largely due to the stigma that participants fear should their use or ownership of sex dolls/sex robots be uncovered by family members and coworkers. In addition to the fear of being outed, we must also consider that some participants agree to be in studies for the explicit reason that they want to change the prejudice against sex doll and sex robot ownership (Hanson (2022)). In such cases, researchers must decide to what extent these motivations are to be expected and how it influences their data and subsequent analysis. In other words, if people disproportionately agree to be in studies because they want to change perceptions about sex doll and sex robot owners, how generalizable are the results to other users?

Lastly, a persistent issue that has defined the field is a dichotomy between scholars who are "anti" sex dolls/sex robots and those who are "pro" sex dolls/sex robots (Harper and Lievesley (2020)). The former position is exemplified by Richardson (2016) and reflects, in many ways, cultural anxieties about technology and sex. The "pro" position, which is the dominant perspective of most new research in this field, stems from the sex positivity turn to which most sexologists have now bent. Certainly, there is room for discussing the positive potential of sexuality, lest we forget how it has historically been criminalized, medicalized, and oppressed (Foucault (1978)). I, too, would consider myself generally "sex positive." Yet in the haste to defend sex dolls and sex robots, researchers have ignored troubling

aspects of sex doll and sex robot phenomena that are empirically demonstrated. There are, for example, a small but significant number sex doll and sex robot owners who identify as anti-feminist (Hanson (2022)). They see sex dolls and sex robots as means to get out from under what they perceive as the oppression of feminism and liberalism. Additionally, sexual harassment within digital spaces dedicated to sex doll and sex robot owners has been observed (Hanson (2023b)). One study seeking to expand such empirical findings found that users who view their sex dolls as partners are more likely to hold misogynistic views than those who view them as sex toys (Desbuleux and Fuss (2023a)). Many of these issues are tied to heteronormative power structures and masculinity — not the technology itself per se. However, sex dolls and sex robots are *hyper* gendered, overtly sexualized, and marketed in ways that rely on pornographic tropes that fetishize women of color (Hanson and Smith (forthcoming)). The actions of some owners and the commercialization of sex dolls and sex robots does not discredit the "positive" approach, but it does suggest a need for researchers to approach the topic with some critical distance that allows for an analysis of both the positive and negative aspects of this technology and its user base.

Future work should strive to maintain and strengthen ethical research practices. To that end, the possibilities of sex tech provide some hope for new research opportunities that are more ethical and robust. However, researchers must also be aware of new methodological limitations that arise from using sex tech in lab or natural settings, as there are dilemmas unique to sex doll and sex robot studies. Moreover, commitment to ethical yet critical scientific work is necessary to advance the field beyond the current pro/anti dichotomy. Overcoming these issues will be paramount to the success of scholarship in this field, as unethical research will provide evidence for detractors who argue that such topics are not adequately scientific.

8. CONCLUSIONS

To summarize the above discussions, there is a need for increased methodological precision and new approaches across six areas of sex doll and sex robot studies. First, the historical narratives at the foundation of this field are in critical need of reexamining. Reverberations from Ruberg's (2022) study have yet to reshape the assumptions of researchers working in this area, but certainly will when they take the implications from this work seriously. Second, the nomenclature has yet to be settled, but it is likely that inconsistent terminology and morally loaded phrases limit both the reproducibility and the generalizability of findings. Third, the population of sex doll and sex robot owners and users has been characterized as heterosexual men. While they are a *majority*, they are not the entirety of users. So far, minority groups have not been the focus of systematic study. Fourth, until publicly accessible large-scale survey data with relevant measures are collected, researchers face multiple limitations related to their sampling strategies. For many scholars, their solution has been to sample from websites designed for sex doll owners. This strategy has systemically excluded people who might not use sex doll owner forums and creates a gap in our understanding of people's subjective experiences with sex dolls. Further, this strategy may have conflated some findings or overstated their generalizability, since many scholars use sex doll owners and users as a proxy for understanding sex robot owners and users, despite technological differences. Fifth, qualitative researchers need to take their talents to new areas, such as "doll meets," where interactions among sex doll and sex robot owners and users (as well as non-owners and non-users) can be observed in new settings. Sixth, and finally, sex tech may create new ways for scholars to study human sexuality, but stigma still affects those who may participate in such studies and necessitates that privacy and confidentiality be maintained. Taken together, the state of the field suggests that work in this area is in an exciting time. Increased attention to the empirical

details of sex doll and sex robot issues shows that scholars are taking the theoretical concerns outlined by seminal works seriously, and by refining methodological precision across the field, future scholars will move the field in much needed new directions.

ACKNOWLEDGEMENTS

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