No Sex Until My Body is Green: Trauma-Informed Design Fiction of Spatial Consent to AR/VR Sexual Interactions

YOSR AISSA, University of Michigan-Flint, USA
DOUGLAS ZYTKO, University of Michigan-Flint, USA

Trauma pervades contemporary HCI research, particularly research into sexual harm. This has prompted careful consideration of whether empirical methods that require recruitment of study participants, such as survivors of sexual violence, are worth the risk of retraumatization, as well as exploration of trauma-informed alternatives to empirical methods. In this paper, we frame design fiction (a non-empirical, speculative design practice) as a trauma-informed method when deliberate structures for mitigating retraumatization of researchers are incorporated into fiction writing. Our research team applied trauma-informed design fiction to collaboratively write a speculative sex education curriculum for visualizing consent to sex called Spatial Consent. Grounded in a future where AR/VR glasses are widely adopted, Spatial Consent provides prescriptive guidance to high school students for how to visually (as opposed to vocally) exchange consent so as to mitigate unwanted sex stemming from misunderstandings of consent. The paper makes two distinct contributions: methodological guidance on when and how to use trauma-informed design fiction, and implications of Spatial Consent on HCI research into consent and sexual violence.

CCS Concepts: • **Human-centered computing → HCI theory, concepts and models**; *Collaborative and social computing theory, concepts and paradigms.*

Additional Key Words and Phrases: Design fiction, Consent, Online Dating, Sexual Violence, Augmented Reality, Virtual Reality

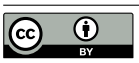
ACM Reference Format:
Yosr Aissa and Douglas Zytko. 2026. No Sex Until My Body is Green: Trauma-Informed Design Fiction of Spatial Consent to AR/VR Sexual Interactions. *Proc. ACM Hum.-Comput. Interact.* 10, 1, Article GROUP014 (March 2026), 31 pages. https://doi.org/10.1145/3799449

1 Introduction

The absence of consent—or the absence of uncoerced agreement to a particular act—is the defining characteristic of many forms of interpersonal harm [9, 18, 27] that occur across online and in-person modalities. In light of social science research consistently showing that harms like sexual violence can be perpetrated unintentionally due to misinterpretations of consent [52, 55, 74], HCI research has begun studying the inadvertent (and often problematic) effects of today's social technologies on how consent to interpersonal behavior is given and (thought to be) received [35, 93, 117]. For example, dating app users have reported engaging in physical sexual acts without asking permission [117] because they perceived sexual interest to have already been communicated through the presence of physically revealing profile photos [118].

Another line of HCI research explores how consent exchange could be deliberately augmented by technology [30, 49, 60, 66, 76, 93, 99, 115–117] to prevent unwanted behavior through making the presence (or absence) of consent more explicit and easier to communicate. This has involved

Authors' Contact Information: Yosr Aissa, yosr@umich.edu, University of Michigan-Flint, Flint, Michigan, USA; Douglas Zytko, dzytko@umich.edu, University of Michigan-Flint, Flint, Michigan, USA.



ACM 2573-0142/2026/3-ARTGROUP014
https://doi.org/10.1145/3799449

deliberation over which consent model should be scaffolded by technology: rules around how consent should be given, received, and denied through computing tools. Much of this research has advocated for the borrowing of affirmative consent ("yes means yes") [60, 116], a model for consent to sexual activity originally devised in 1991. However, affirmative consent has been critiqued for being unrealistic and rarely practiced in physical-world settings [45, 48, 74, 81, 111], and arguably impossible to practice in computer-mediated settings [20]. Dating app and social VR users have instead advocated for the creation of entirely new consent models that inherently prescribe roles for emerging and pervasive technologies in how people communicate permission to interpersonal behavior [20].

The field of HCI is in formative stages of creating its own computer-mediated consent models, characterized by general concepts [43, 116] and "guidelines" [99] for how technology could be integrated into consent exchange. A next step in the creation of computer-mediated consent models would be the articulation of definitive, prescriptive guidance for the responsibilities of human partners and technology in interpersonal consent exchange; guidance that is coherent enough to be taught as part of sex education and consistently practiced by the general public. Our research question is thus: **How can a "teachable" model of computer-mediated consent exchange be created?**

While this question may naturally lend itself to participatory methods—such as with survivors of nonconsensual acts—it poses a significant challenge in the form of trauma: the inevitable centering of sexual activity to be mitigated, and with it the potentially traumatizing past sexual experiences of consent model co-creators. HCI research has taken a growing interest in the Trauma-Informed Approach [4, 29, 39] from nursing and related domains [58], which seeks deliberate recognition and avoidance of retraumatization (the reliving of stress reactions related to a prior traumatic event [32]). In advocating for trauma-informed computing, Chen and colleagues write:

"*In line with the goal of avoiding retraumatization, researchers should carefully consider how their research may be retraumatizing and work to minimize potential harm. In some cases, this may mean opting not to directly interact with participants when there are other means to achieve the research goal.*" [29, p. 9]

Inspired by the aforementioned guidance, we adopted a trauma-informed design fiction methodology to create a "teachable" computer-mediated consent model. Conventional design fiction is a non-empirical design practice for speculating about possible futures. It already provides inherent protection against retraumatization to user-stakeholders "outside" of the research/design team by omitting their participation (at least initially). We define *trauma-informed* design fiction through deliberate methodological processes for protecting researchers themselves from retraumatization during the fiction writing. Through a 15-month collaborative design fiction writing process involving a carefully selected team of researchers/writers, we created *Spatial Consent*: a consent model for AR/VR-mediated sexual activity grounded in an anticipated future in which augmented/virtual reality (AR/VR) glasses are an omnipresent personal computing device. Towards making the model readily learnable or teachable, we present Spatial Consent through a sex education class to high school students in the year 2035.

The paper provides contributions to research on trauma-informed computing as well as computer-mediated sexual violence and consent. These include: 1) A spatial consent model for mitigation of unwanted sexual behavior that represents one of the first manifestations of prescriptive behavioral guidance for exchanging consent to sex through computer-mediation, and 2) the framing of, and proof of concept for, design fiction as a trauma-informed research method that can potentially mitigate retraumatization in myriad HCI topics.

2 Background

2.1 Computer-Mediated Sexual Violence and Consent

The origin of our team's focus on consent as a lens towards sexual violence prevention technology stems from years of research in public health and social science into how the general public exchanges consent (i.e., agreement) to sexual activity [13, 74], and how such practices can render one susceptible to perpetration of sexual violence without conscious intent to cause harm, and victimization without conscious realization that harm is occurring. Sexual consent practices are consistently inconsistent, often reliant on indirect and nonverbal cues that can be misunderstood [14, 46, 52, 59, 87, 96], and predicated on socially learned scripts about when sex should or must happen [10, 68, 79]. Examples of the latter are that men do not need to give consent because they always want sex, along with other gendered expectations [68, 79, 109].

Solutions to these problematic consent practices have traditionally involved sex education [70] in conjunction with affirmative consent policies [12, 42, 63]. Devised in 1991 for college campuses [53], affirmative consent puts responsibility on the initiator of a sexual act to ask for and receive explicit agreement rather than on the recipient to explicitly refuse, as captured in the slogan "yes means yes" [42]. Despite good intentions, affirmative consent is not commonly practiced [52, 74], is poorly understood by the public [11, 31, 71], and has been critiqued as too awkward and burdensome [31, 96] as well as exclusionary of LGBTQIA+ sexual partners [50, 86].

The HCI field has expanded on traditional education and policy solutions to problematic consent practices through technology that deliberately augments the explicit exchange of consent in online and physical sexual activity [60, 99, 115, 116]—although such technology remains in conceptual stages as of this writing. The field's attention to computer-mediated consent to sex is relatively new, following from more established research agendas into AI detection of sexual harm [15, 33, 62, 85, 113], social-support seeking by survivors of sexual abuse [8, 64, 91], and wearable or mobile devices for evasion of sexual threats [5, 6, 90].

Both dating apps and social VR platforms have been found to already affect how their users understand consent to interpersonal behavior [35, 93], and in ways that do not solve but rather amplify the risk of misinterpreting agreement to sex [117, 118]. In considering how technology should be intentionally designed to scaffold consent exchange in more explicit ways, the literature has proposed and debated computer-mediated consent models: prescriptive guidance for how consent to interpersonal behavior "should" be exchanged through, or in the context of, technology. HCI researchers have explored the adaptation of the affirmative consent model to computer-mediated settings [30, 49, 60, 66, 76, 93, 99, 115–117]. However, affirmative consent has been found unpopular with women and LGBTQIA+ online daters and social VR users, and arguably impossible to practice in computer-mediated communication [20]. In light of this rejection of affirmative consent, user-stakeholders have advocated the foregrounding of various emerging technologies such as AI [43], VR [93], and wearable devices [116] in ideating fundamentally new ways for consent to sex to be communicated. Prior work emphasizes the necessity for further progression of computer-mediated consent models [20, 57, 76, 99] to, for example, better articulate behavioral rules that would enable consistent practice in sexual or other interpersonal settings.

2.2 Trauma-Informed Computing and Opportunity for Design Fiction

As our team considered ways to contribute to extant research on computer-mediated consent models, we met with concerns about retraumatization associated with prior experience of sexual violence that could be instigated by research participation. Trauma refers to "adverse effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being [...] from an event [...] an individual experiences as physically or emotionally harmful or threatening" [58].

Retraumatization, in turn, is the reliving of stress reactions related to a prior traumatic event [32], such as through participation in research that invokes reflection on a traumatizing experience.

Trauma has received growing attention in HCI, either as an explicit research topic [4, 29, 39] or through study of experiences commonly susceptible to trauma (e.g., [37, 40, 67, 100, 104]). With this growing interest, some HCI research has explicitly incorporated or referenced the Trauma-Informed Approach (TIA), originally established by the Substance Abuse and Mental Health Services Administration (SAMHSA) [29] for clinical settings. A program—or in HCI's case, a technology and research method—that is trauma-informed is predicated on the following assumptions: that it "realizes the widespread impact of trauma and understands potential paths for recovery; recognizes the signs and symptoms of trauma in clients, families, staff, and others involved with the system; and responds by fully integrating knowledge about trauma into policies, procedures, and practices, and seeks to actively resist retraumatization" [29].

In the computing space, the Trauma-Informed Approach has been applied to qualitative research methods [56, 84], technology development [65, 78, 83, 92], and the speculation of social media design and content moderation [94]. Chen et al. [17] adapted the Trauma-Informed Approach to HCI at a broader level, called Trauma-Informed Computing, by outlining ways that HCI research and design over myriad topics could seek to minimize retraumatization. As cited earlier in this paper, one methodological suggestion is to opt against participation of human subjects, who may have experienced trauma, when alternative methods may be available. Prior work in this direction has opted to collaborate with secondary stakeholders with expertise or familiarity with the topic-specific trauma [3, 108], such as medical professionals.

We frame design fiction as a complementary approach in that it can be used prior to, or in conjunction with, participation of secondary stakeholders. Design fiction has been used within HCI to speculate on future technologies and human interactions with those technologies [21, 41] as a way to inform near-term research agendas. Design fiction is defined as "the deliberate use of diegetic prototypes to suspend disbelief about change" [16] although the term "prototype" has been broadly construed to also include fictitious user studies [16], product catalogs [19], and stories. We contrast design fiction with participatory design, which can be similarly speculative, based on the role or presence of "outside" stakeholders in design speculation. Whereas participatory design hinges on inclusion of end-users (or other stakeholder groups) into the design and decision-making process, design fiction is commonly the product of the research/design team (i.e., authors of the respective publication) without participation of outside stakeholders. We can also differentiate design fiction from scenario-based design [22, 112]. Both are methods that use diegetic storytelling as a form of design and prototyping without expectation of direct end-user involvement, however design fiction leans much more into speculation whereas scenario-based design has origins in present-day reality as context for design of products with (near-)immediate plausibility.

We were particularly drawn to design fiction because the intended artifact of our design is a consent model (prescriptive guidance for how consent to sex should be asked for, given, and denied), which is inherently more abstract than a tangible technology prototype and can take an indefinite number of forms. (Even affirmative consent, which is often written of as a singular model, has taken multiple—and often conflicting—forms such as legal regulations, slogans, acronyms, and university policies). Design fiction thus allowed our team to speculate not only on the prescriptive guidance espoused by the computer-mediated consent model, but also the form of that prescriptive guidance and the setting in which sexually active individuals would be informed of the model.

3 Methodology

Our design fiction for Spatial Consent was produced through a 15-month, multi-person writing process. Our approach reinterpreted Blythe's "research through design fiction" [16], not to produce

fictional research study abstracts as Blythe introduces, but to use the very real, prolonged, and collaborative act of writing—and rewriting—design fiction as a research-through-design [114] method.

3.1 Choosing Augmented and Virtual Reality for Mediating Sexual Consent Exchange

There are several current, emerging, and future technologies that could be foregrounded in a computer-mediated consent model; i.e., the technology that is assumed accessible to sexual partners and is assigned responsibilities in how consent is communicated. Technologies we considered include social robots, AI agents, wearable devices, haptic devices, and augmented/virtual reality because of their acknowledgment as potential consent technologies in prior HCI research (e.g., [116]). These, and other speculative options like brain-computer interfaces, surely have potential for augmenting sexual consent exchange; our opting not to select particular technologies for our design fiction should thus not be construed as a passive dismissal of said technology for consent exchange in the future.

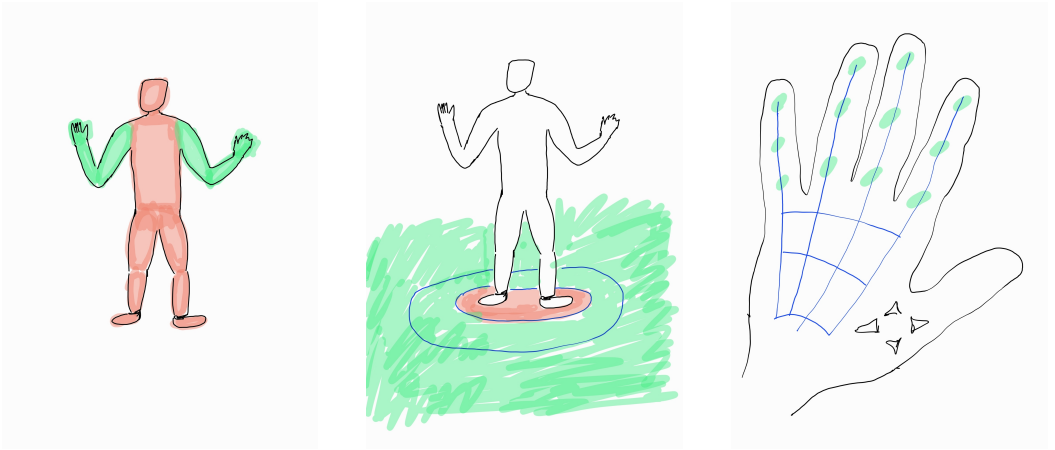
We ultimately chose augmented and virtual reality (AR/VR) glasses as the focal technology for mediating consent to sex for several reasons. One is the potential for "everyday-use augmented reality eyeglasses" [28] to become a pervasive personal computing device, thus allowing us to anticipate and prepare for the novel forms of communication that these devices may soon facilitate. Furthermore, empirical research of social VR platform users shows that consent exchange is already being mediated by virtual environments through the act of boundary-setting [93], although such social VR features were not deliberately designed as consent mechanics. In contrast, sex-themed video games have been found to intentionally incorporate consent mechanics in virtual environments, albeit for sexual interaction with in-game characters rather than human partners [76]. Strengers et al. [99] similarly use a visual "traffic lights" metaphor in proposing guidelines for consent exchange with sex robots. Given the novel embodied harms that pervade social VR platforms [41], consent has been advocated as a lens through which to design preventative solutions to harms that occur within VR [115] and also in cross-reality interactions that span across virtual and physical environments [103]. This approach has resonated with user-stakeholders, who have generated concepts for visualizing consent to sexual behavior within VR, such as VR dating platforms [115], and during physical sexual acts through AR glasses [116].

3.2 Positionality Statement

Our design fiction writing team was composed of six researcher-stakeholders. All are published authors on research into computer-mediated sexual experience and/or consent. Two have also published on application of the Trauma-Informed Approach to sexual violence prevention technology, through which they received training on the Trauma-Informed Approach by a sexual assault nurse examiner (SANE). The team was deliberately constructed for balanced representation of men and women (three each), given a stark gender disparity in rates of sexual violence victimization and perpetration [61]. Five of the six team members also align with the age range when sexual violence is most likely to occur (under the age of 34) [82]. One team member self-identifies as a survivor of nonconsensual sex, and another as a member of the LGBTQIA+ community—a demographic at elevated risk of sexual violence [73]. Given differing cultural norms around sex and consent [51], we also sought diverse cultural representation. Two members of the team were recruited from a North African country that is considered a pioneer in terms of women's status and rights in the MENA region [2, 7, 77]. While their native language does not have a direct translation for the word "consent," the concept is expressed differently through words like permission, agreement, acceptance, willingness, and approval [34]. The other four members are from different parts of the United States.

3.3 Trauma-Informed Design Fiction Writing Process

The collaborative design fiction writing process spanned 15 months, comprised of 30+ meetings of 1-3 hours each. The meetings took a divergent approach for the first 12 months, in which each team member created their own design fiction for an AR/VR-mediated sexual consent model that was discussed in recurrent team meetings to inform iterations and elaborations in preparation for the next meeting. Three retraumatization-mitigation structures were employed during this phase. First, every team member invented a diegetic world in which their design fiction occurs, including characters that would practice consent exchange according to their AR/VR-mediated consent model. The use of characters or personas (i.e., use of "he" and "she" rather than "I") was intentional to divorce oneself and one's own sexual experiences from explanations of the design fiction and justifications for the prescribed consent behavior. This created a psychological distance between personal experience and design fiction, allowing team members to volunteer anecdotes from their personal lives only if or when they felt comfortable doing so. We also deliberately spaced apart recurrent meeting times, not only to allow every member an opportunity to revise their design fiction based on prior discussion, but to emotionally decompress. Lastly, the team maintained a public resource list with contact information for support lines and organizations related to sexual trauma and abuse.



(a) Drawing of body overlay (b) Drawing of consent rings (c) Drawing of hand control glove

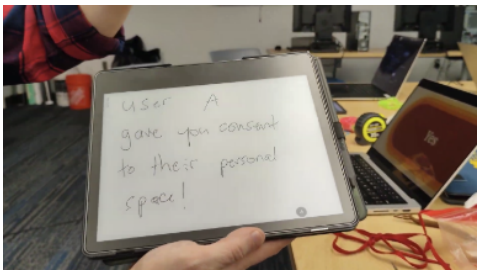
Fig. 1. Early sketches of Spatial Consent concepts later incorporated into the consent education lecture

The forms of the individually created design fictions varied significantly, including a functional prototype created in the video game engine Unity, static mockups created in Figma, and multi-paragraph stories in the vein of activity scenarios as described by Rosson and Carroll [88].

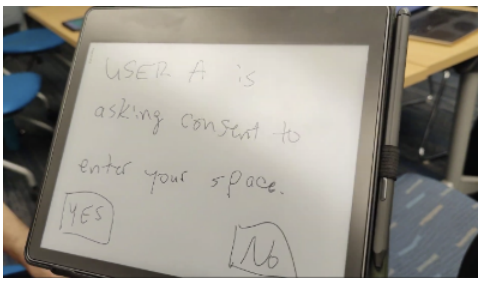
The final three months of the writing process took a convergent approach where we looked for opportunities to synthesize our individual design fictions into a singular AR/VR-mediated consent model. Each team member created a sex education lecture to explicitly "teach" their AR/VR-mediated consent model, which was largely implied through the prior design fiction forms (e.g., verbal discussion was often necessary to explain why characters in a team member's diegetic universe were behaving in certain ways pursuant to their underlying consent model).

The choice of the high school sex education context for the design fiction stemmed initially from internal struggles with efficiently communicating iterative consent models among team members

Fig. 2. Consent rings made out of tape



(a) An early draft of a consent notification pop-up



(b) An early draft of how consent would be asked for spatially

Fig. 3. Some iterations of team members' design fictions were acted out with props to demonstrate formative versions of the Spatial Consent model

in recurrent meetings. Early meetings were rife with extensive questioning to simply understand each other's consent model, let alone debate the substance of each model. The notion of a sex education lecture was broached as a consistent format for communicating formative consent models in team meetings because it inherently foregrounds the "student" or recipient of the education, thus necessitating conscious reflection of how the consent model is taught/communicated. We found that subsequent meetings facilitated much richer dialogue about the prescriptive behavioral guidance. We retained the sex education format for the design fiction in the paper because the team anticipated it would be similarly effective for communicating the resultant consent model to readers who would not (easily) be able to ask follow-up questions of the authors for clarification on the model.

The individual design fiction artifacts were converged into the singular AR/VR-mediated consent model, first through collective identification of the surface-level synergies between the individual consent models in team meetings, and then a deeper thematic analysis by this paper's first author of the consent model artifacts and meeting transcripts to articulate latent connections between the separate models. The thematic mapping made it possible to identify overlapping concepts as well as tensions across the models. Following this, the team held a final meeting where the first author presented these areas of commonality and divergence. Together, the group compared the values, rules, and assumptions embedded in divergent model choices. The members of the team

acted out an example of a sexual interaction in a hypothetical bar/nightclub to make final decisions about prescriptive behavioral guidance for the convergent consent model (this type of scripted walkthrough helped elucidate confusion and/or challenges with practicing some contrasting consent model choices). Ultimately, the resulting model combined the similarities across each team member's consent model along with unified decisions made about divergent points in the individual models.

4 Design Fiction: The Spatial Consent Model for High School Sex Education

Our 15-month design fiction writing process within our research team culminated in the Spatial Consent model for prescriptive guidance regarding the roles of humans and technology in exchanging consent to sex when mediated by AR/VR. The design fiction took the form of a high school sex education lecture as a way to foreground learnability or teachability of the model, although we recognize that this format may be relatively unfamiliar to readers from outside of the United States, and to readers from certain parts of the United States.

The goal of sex education is to help young people navigate sexual development and grow into sexually healthy adults [44]. Sex education acceptance in the United States grew in response to increases in pregnancies outside of marriage in the 1960s, and fear of HIV/AIDS in the 1980s, with an emphasis in the respective education on contraception and sexually transmitted infections [47]. In the late 1990s, during the era of "welfare reform," the federal government used selective access to funding to impose "abstinence only" sex education on states, which emphasizes that sex should only happen within marriage, for the sake of reproduction, and thus does not teach sexual health topics such as contraception [47, 89].

Research has consistently found abstinence-only sex education to be ineffective [38, 47, 89], yet the content and availability of sex education in the United States remains inconsistent across states to this day (e.g., [1, 95]). The Centers for Disease Control and Prevention (CDC), a national public health agency in the United States [25, 26], has been a driving force in shaping health-related education and recommends that schools cover 20 essential topics [24] in their sex education. These include consent and healthy relationships, sexual and reproductive anatomy and physiology, gender and sexual identity, contraception, and sexually transmitted infections [24, 44].

In this design fiction, we imagine a diegetic universe set in the year 2035 in which the CDC officially recommends the teaching of a computer-mediated consent model called Spatial Consent in a new effort to curb rates of unwanted sexual behavior that have been consistently high for decades [98]. Within this diegetic universe, AR/VR glasses have supplanted the smartphone as a ubiquitous personal computing device.

How to read the design fiction: *Imagine you are a new high school teacher named Sarah who has been charged with teaching the sex education class. You receive an email from the former teacher of this class, George Amberson, with lecture materials for how to teach the Spatial Consent model to students. Section 4.1 is the email received from George, and the subsequent sections (4.2-4.10) represent the lecture slides and presenter notes that George attached to the email.*

4.1 Re: Welcome Aboard!

George Amberson <amber@denholm.edu>
July 3, 2035
to me

Hi Sarah,

I'm so glad you accepted the job offer to teach at Denholm High School. I was informed by

the admin office that you will be taking over teaching the sex ed class for this year. I know you are relatively new to this class so I wanted to help out by sending the slides I use when teaching the Spatial Consent lecture. Since the passing of the Augmented Safety Bill in 2032, we've been required to teach the Spatial Consent model in all sex education classes. Every set of AR/VR glasses sold in our state is mandated to have the Spatial Consent app installed, and for many of our students this sex ed class is the first and only time they'll be given direct education on how to use it. In the presentation file, you will find my presenter's notes and the comments I left there for topics that need more attention and questions I frequently get from students. I have also attached the flyer that the CDC asks us to pass out to students at the end of the lecture. Hope this helps!

Best regards,
George.

Attachment: Lesson5SpatialConsentEducation.pptx

4.2 Lecture Slide 1: An Introduction to Class

Fig. 4. Slide 1: Opening slide of the lecture

Comment from George: *Make sure everyone brought their AR devices with them. Students usually don't forget them since they are more stuck to them than we were stuck to our smartphones. Occasionally we get a student who didn't bring their AR glasses; we have a few in the closet next to the teacher's desk for demo purposes.*

Presenter's script:

Hello, everyone. Welcome back to class. So last class (lesson 4), we went over the human anatomy and the different types of STIs that could affect us. Today's lesson is about consent to sex. I will first explain consent in general and then teach the Spatial Consent model, which is really important to ensure you don't accidentally engage in unwanted sexual activity. Within the presentation, I

will use some real-life scenarios to clarify how consent exchange works according to this model. We will go through how to ask for and how to give consent, as well as how the Spatial Consent interface works.

4.3 Lecture Slide 2: What is Consent in General, and Spatial Consent in Particular?

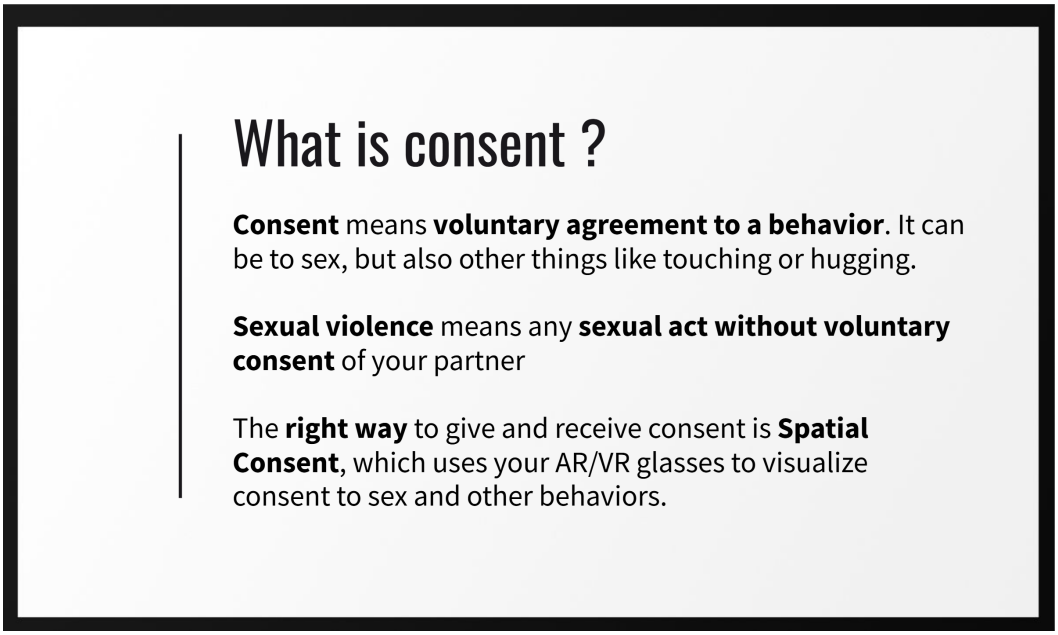


Fig. 5. Slide 2: Basic definitions on consent

Presenter's script:
Does anyone know what consent means? [Let some students give answers.] Consent means voluntary agreement to a behavior. It can be to sex, but also other things like touching or hugging. Have you heard of words like sexual violence or rape? Maybe in the news? That refers to sexual activity without the consent, or agreement, of your partner. Unwanted sex. Contrary to popular myths, unwanted sex doesn't always happen through physical force. Sometimes, perpetrators don't even know they're doing something wrong because they assume, incorrectly, that their partner wants the behavior.

Sex is never consensual unless your partner gives very clear and direct indications that they want the behavior. It doesn't matter what you think they want, or what they're wearing, or what you think is supposed to happen. You are also never, ever required to have sex if you don't want to. It doesn't matter where you are or what types of acts you previously said yes to.

Let me ask a question: what's the right way to ask for and give consent? [Let some students give answers.] The right way to give and receive consent is Spatial Consent. As you might know, 98% of Americans over the age of 16 have a pair of AR/VR glasses thanks to the Internet for Everyone Act that made Internet access a human right and granted every citizen over the age of 16 a free pair of AR/VR glasses as a pervasive Internet access device.

So, Spatial Consent uses your AR/VR glasses to visualize consent to sex and other behaviors. Spatial Consent was introduced by the CDC (Centers for Disease Control and Prevention) about

three years ago as a way to put a stop to what was then an increasing frequency of unwanted sexual acts.

Now I know some of you are surfing social media on your glasses right now—please, please pay attention because the way that sexual violence and rape are prosecuted in court can now be contingent on the practice of Spatial Consent.

4.4 Lecture Slide 3: Spatial Consent to Personal Space and Bodily Touch

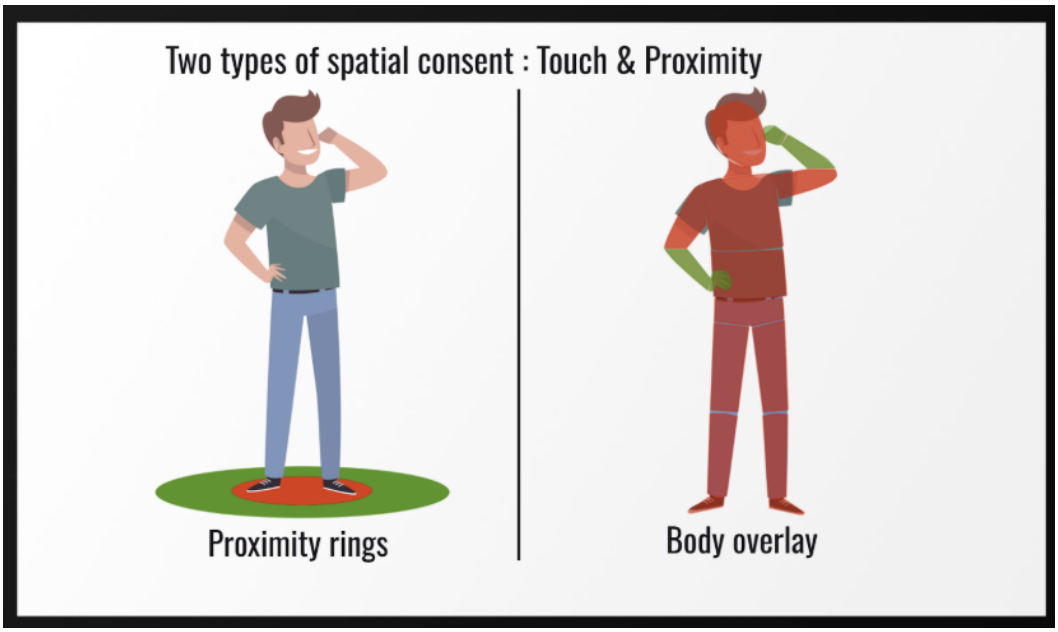


Fig. 6. Slide 3: The two types of Spatial Consent

Presenter's script:
All of your AR/VR glasses have the Spatial Consent app installed by default. Your glasses let you visualize consent to two things: one is the personal space around you; this is called your proximity rings. The other is consent to touching your body, which is shown with a body overlay. This works in the physical world through the augmented reality component of your glasses. It also works in fully VR environments.

For visualizing consent to your **personal space**, there are two rings around your feet, or your avatar if you are in a social VR environment. The outside circle is your personal space, and the inside circle is called intimate space. The CDC defines the default diameter of personal space as 4 feet, and intimate space as 18 inches. These diameters may dynamically change, however, based on how crowded your current location is. As an example, if you go to a nightclub, your personal space ring may be smaller to fit the packed nature of the space.

Consent to **touching your body** or virtual avatar is visualized with a body overlay. Spatial Consent allows you to express consent to these separate parts of your body: hands, arms, forearms, feet, legs, thighs, stomach, pelvic area, chest, neck, and face.

4.5 Lecture Slides 4-5: Visualizing Consent Decisions with Color

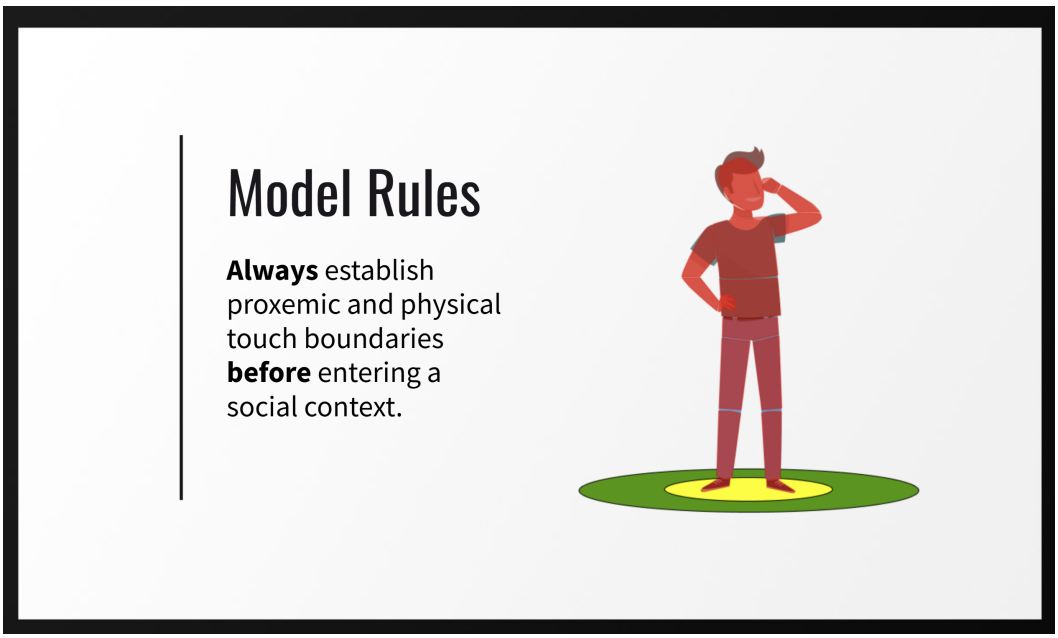


Fig. 7. Slide 4: Use this to explain the meaning of the green, yellow, and red consent indicators.

Presenter's script:
The colors visualized in a person's proximity rings and body overlay tell you if consent exists to enter their space and to touch their body. The possible colors are red, yellow, and green.

Red means consent is not granted and should not be asked for. For example, you might go to a house party with some friends. If you definitely don't want anyone to touch you at the party you might choose to have a red body overlay.

Yellow means "maybe, ask first." You would use this setting to encourage the explicit asking and giving of consent to your personal space or bodily touch. For example, if you meet up with someone from a dating app at a bar or restaurant, perhaps you want to have a yellow proximity ring that requires your new dating partner to ask for permission before sitting closer to your body.

Green means "yes," as in yes you have consent. If you see a green proximity ring, for example, that means it is OK to enter that person's personal space without explicitly asking.

The default setting for Spatial Consent is red to all of your personal space and bodily touch, meaning by default you do not give consent to anyone entering your personal space or touching you. Yet you will often encounter people with a mix of green, yellow, and red consent settings, and you may use a combination of consent settings yourself. For example, someone might have a green personal space ring, a yellow intimate space ring, and a red body overlay. This would mean they consent to anyone entering their personal space, but that consent to entering their intimate space would have to be explicitly asked for. And touching of the body would never be okay to that person.

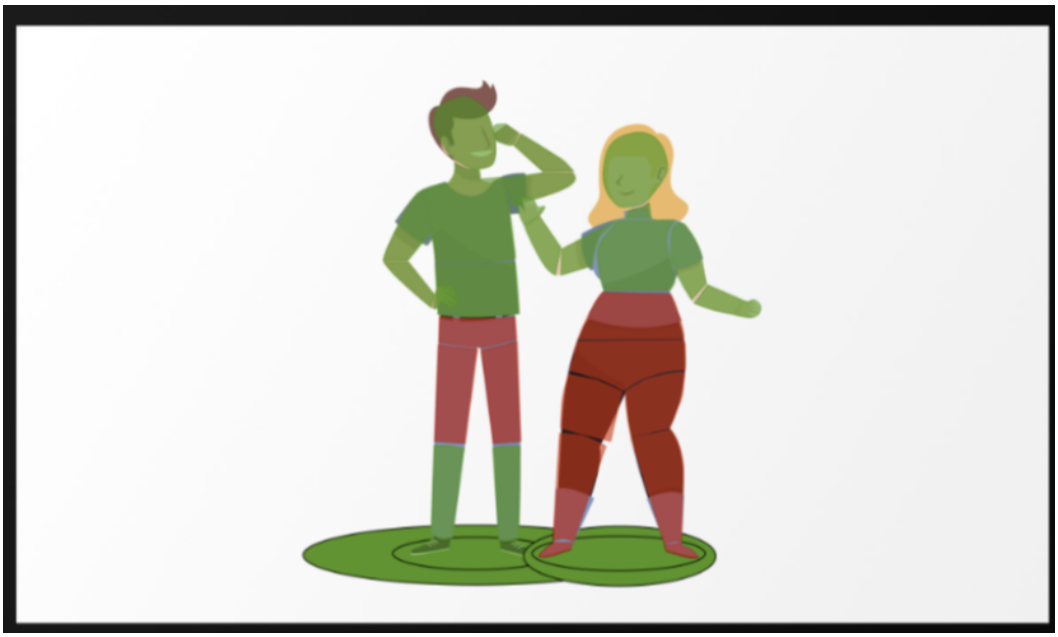


Fig. 8. Slide 5: When you get to this slide, remind students that consent to personal space does not necessarily mean they have consent to bodily touch too.

Comment from George: *Make sure to emphasize that consent to a person's intimate space does not mean you can necessarily touch their body too. Physical touch to individual body parts always requires separate consent through the body overlay.*

4.6 Lecture Slides 6-7: How Do You Ask for Spatial Consent?

Presenter's script (Slide 6): So let's say you encounter someone with a yellow personal space ring, indicating that you must ask for consent first before entering their personal space. How do you ask for consent?

This must be done through the Spatial Consent interface. The way to ask for consent is by selecting the ring of the person you want to get closer to and selecting "ask." At that same moment, the other person will be notified by (1) a sound that means someone around them is asking for consent, (2) their personal space ring flashing yellow, and (3) the asker's body also flashing yellow to visually confirm which person is asking for consent (this is important if there are multiple people around). You will know the other person's consent decision by how their personal space ring changes color; green for "yes" and red for "no."

We can actually see this visualized in the scenario on slide 6. The person on the left has their personal space ring as Yellow, the person on the right asks to step into their personal space, and consent is received. **That consent is given only to the requesting person** and not to anyone else. To signal this change in consent settings, a white dot will appear above the head of the person granted consent.

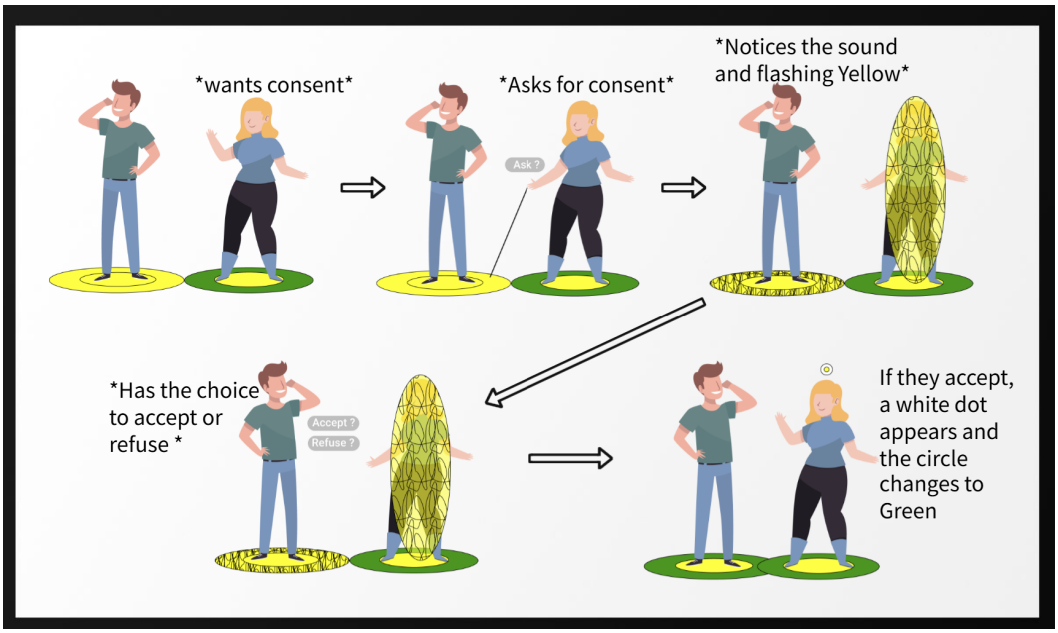


Fig. 9. Slide 6: How to ask for Spatial Consent, step-by-step

Comment from George: *Students often ask how to keep track of all the people they grant consent to if they are in a crowded space like a party. I created slide 7 to answer that.*

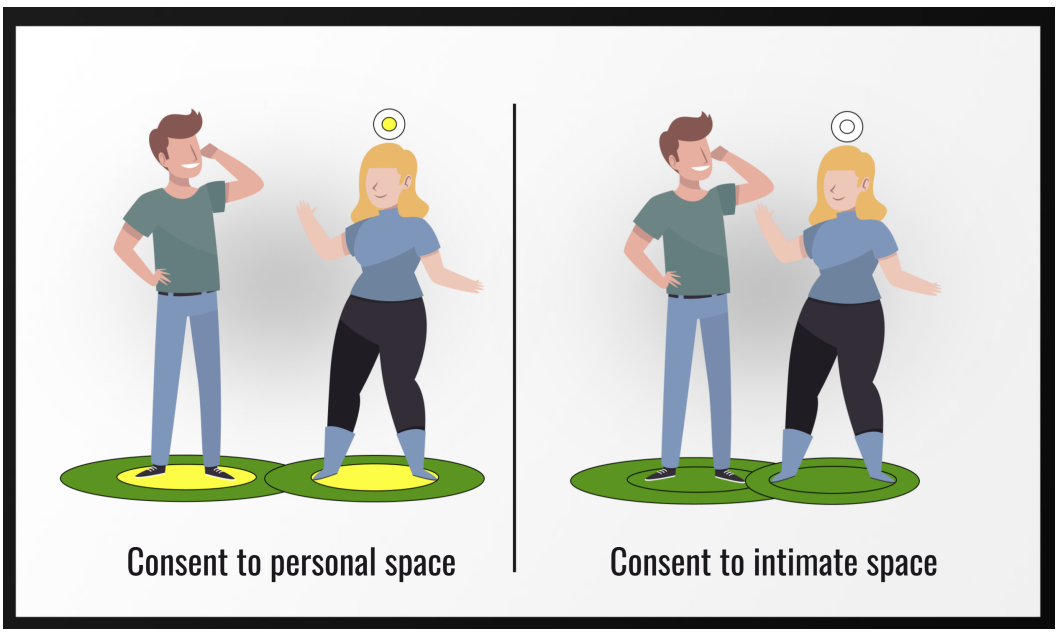


Fig. 10. Slide 7: Notice the white dot as an indicator of "who" consent is being asked from/given to.

4.7 Lecture Slides 8-9: Spatial Consent is Not Permanent

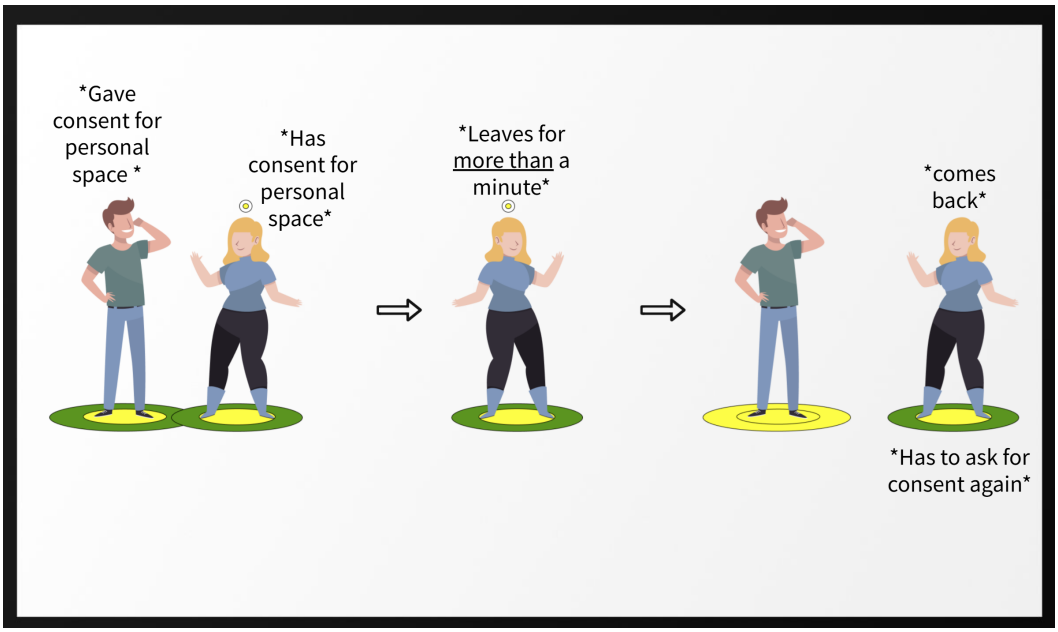


Fig. 11. Slide 8: Consent is not permanent and will reset if someone leaves your personal space.

Presenter's script (Slide 8):
A crucial thing to keep in mind is that Spatial Consent is not permanent. Giving someone visual consent to enter your personal space does not mean they have permanent access to that space. If a person stays within the personal space you have granted them, the consent persists until you change that consent. However, if a person leaves the personal space that you have granted them consent to, consent is automatically revoked if they have been outside that personal space for more than 1 minute. This is to help ensure that giving consent is always a conscious decision and not something that is accidentally granted to a person based on a prior interaction.

Presenter's script (Slide 9):
Spatial Consent makes it your responsibility to visually confirm consent to someone's personal space or bodily touch. So, as not to visually overwhelm you in crowded environments, a person's Spatial Consent visualization appears only when you approach their vicinity. When you walk away, or a person is far away from you, their Spatial Consent visualization will fade from view.

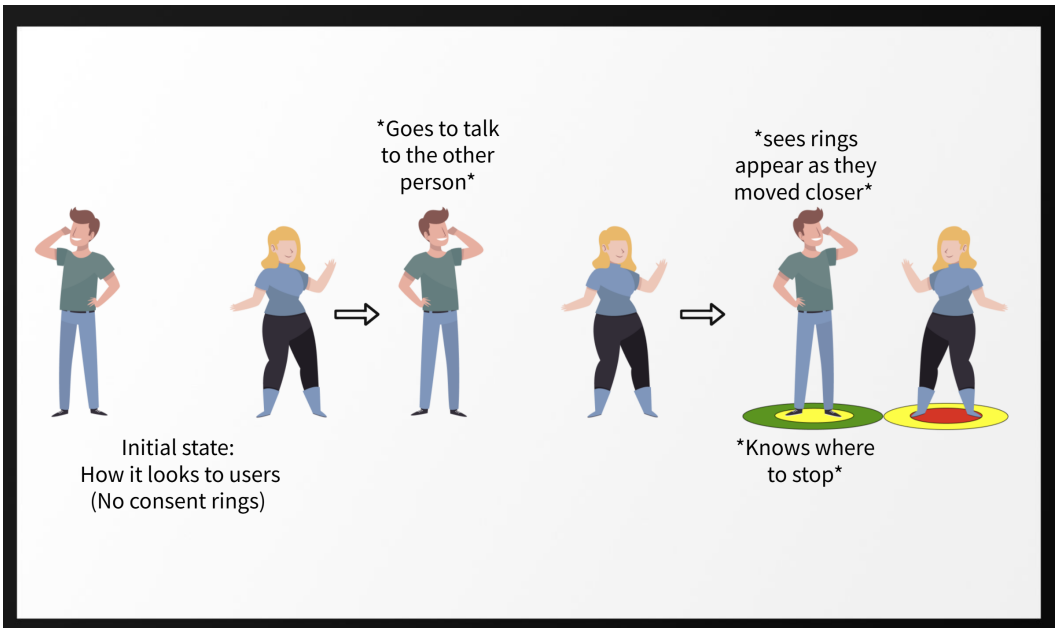


Fig. 12. Slide 9: Spatial Consent boundaries will appear as you get closer to someone's vicinity.

4.8 Lecture Slide 10: Prepare Your Spatial Consent Settings Before You Go

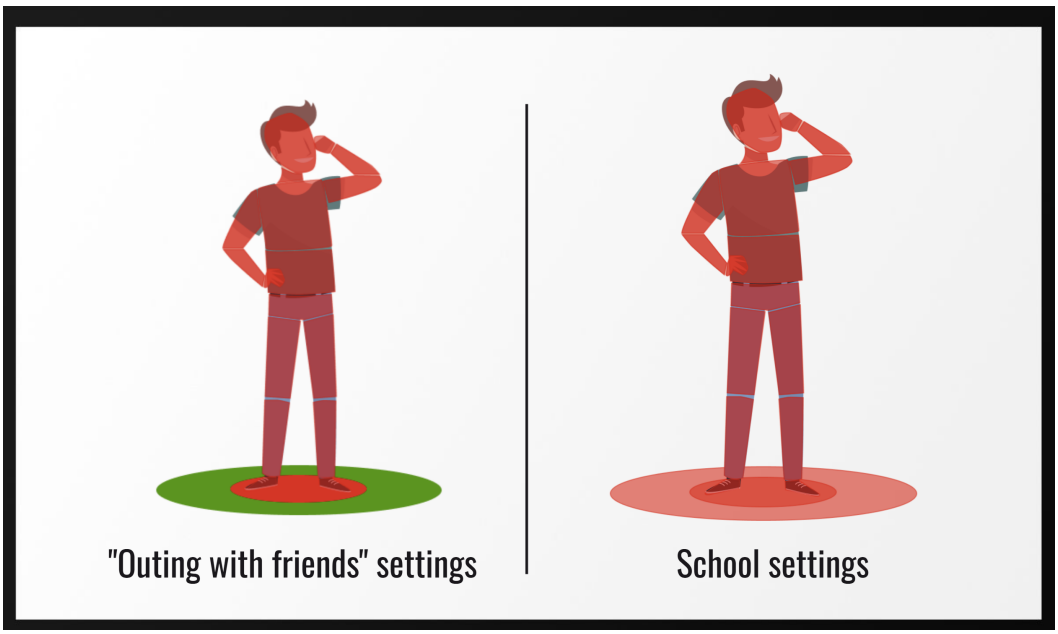


Fig. 13. Slide 10: Preparing some default place-specific consent settings is recommended.

Presenter's script:
You may prefer to have different default Spatial Consent settings in different social contexts. For example, at school there is no reason for another person to touch you and so you may default to your personal space being red.

Your Spatial Consent app lets you create presets that you can easily cycle through depending on the situation. It's best practice to set up a preset before you go into a new social context, such as going to school or to a bar, to ensure your default settings match your comfort level.

You might laugh, but here is my go-to setup for when I go out with friends after school. I change my presets this way because I am OK with my friends being in my personal space by default.

4.9 Lecture Slides 11-12: It's Not Consent Until It's Visual

Fig. 14. Slide 11: Clarify to students that the safeword button isn't a verbal "safeword" but a button they always see in AR that revokes consent to everything at once. They can customize the location of their safeword button, as the slide demonstrates.

Presenter's script:
Moving to the next rule, which is the most important one to remember. **Visual consent through the interface is the ultimate determinant of consent**, regardless of what the user may be saying or doing. **Verbal consent is not enough**, not a verbal no, and not a verbal yes.

The CDC created this rule to avoid any risk of misinterpretation about consent and accidental perpetration of unwanted behavior that may result from it. And for urgent or immediate consent revoking, we have a **safeword button** implemented. When activated, all mechanics go to Red to stop the interaction, and continuing the activity makes it nonconsensual.

This button, by default, hovers next to your right hand (or left hand if you are left-handed), this is for fast access, but it can also be fixed to a preferred position so you always know where it is. This button is not visible to other users.

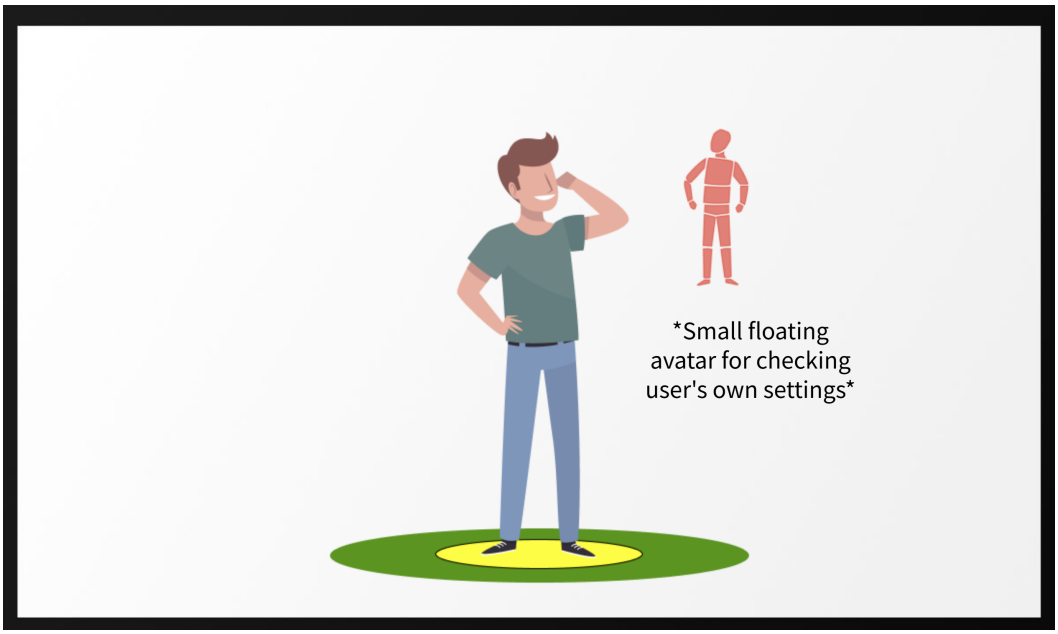


Fig. 15. Slide 12: Like checking yourself out in the mirror; you can assess what your Spatial Consent settings look like to other people.

Presenter's script:
Ok, let's do one scenario about sex to make sure everyone understands how to exchange Spatial Consent. Imagine you are on a date at a restaurant or other public place. You both like each other and decide to go home together. While in your home, you both grant each other consent to your intimate spaces, but that doesn't mean you can automatically touch their body, and they can't automatically touch your body. Remember, the body overlay shows your consent to bodily touch, which can be different from consent to your personal space. Let's say you want to kiss them, you would have to ask for consent. You would do that by… [let students volunteer some answers]. You'd have to ask for consent by visually selecting their face in the body overlay, and you would have to wait for if and when the face overlay changes from yellow to green. Also keep in mind that if your partner's body overlay is red, you cannot ask for consent to any kind of bodily contact and you do not have consent to touch them. You can see your own settings through the small avatar hovering in your field of vision.

Comment from George: *Students might want to know about the data privacy policy applied here. Inform them about the CDC's data policy for Spatial Consent. This data is encrypted, stored on-device and it auto-deletes every 30 days. No one can access it, even the owner. Only police are allowed to decrypt it with a judge's order, in case you are accused or suspected of forcing someone into a sexual act.*

4.10 Infographic on Spatial Consent

Comment from George: *The CDC recently put out this infographic, which I've found to be a helpful summary for students about the basics of Spatial Consent and the positive impact it has already been found to have on reductions in sexual violence.*

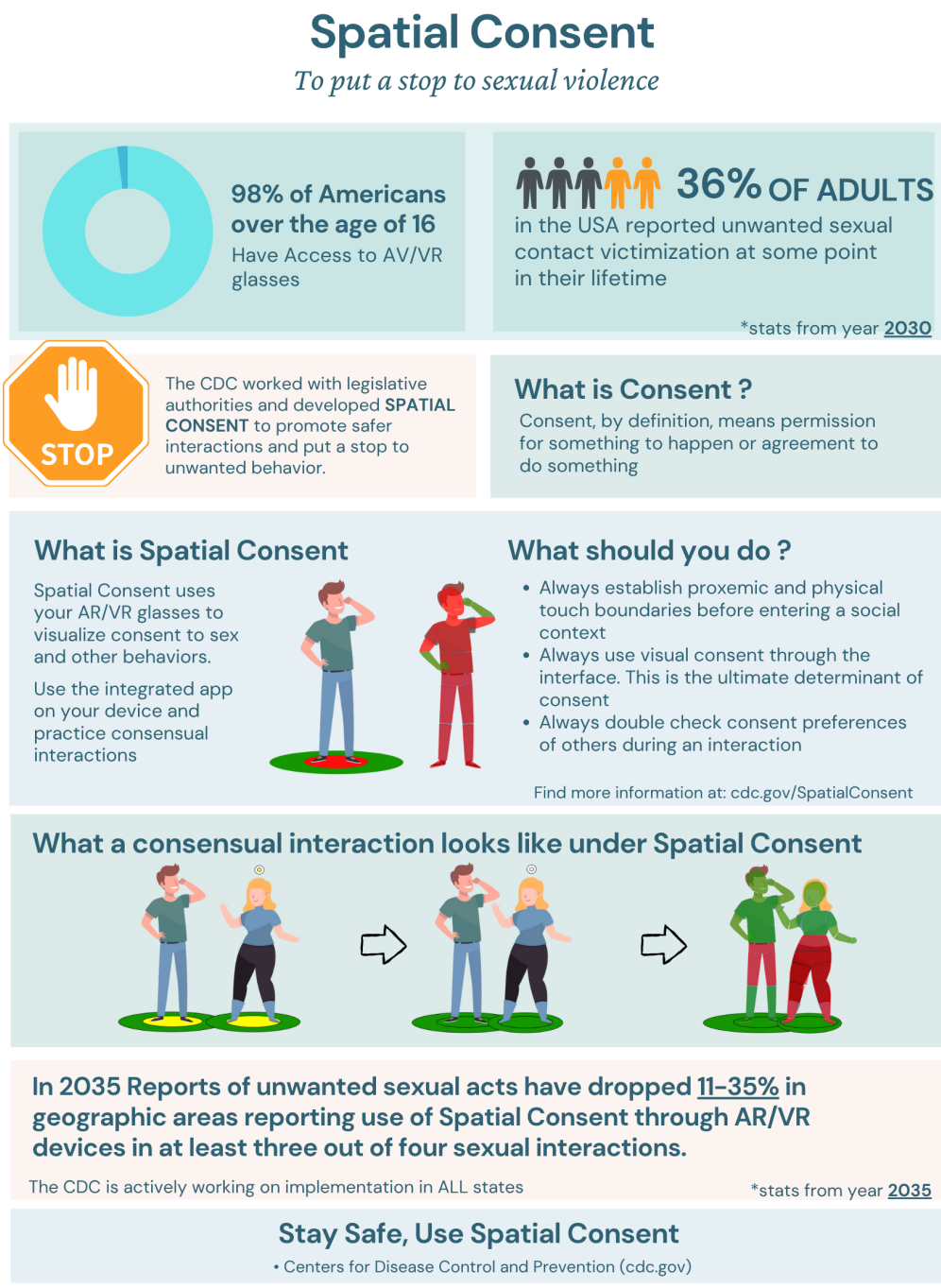


Fig. 16. Infographic for Spatial Consent. Best to review this at the end of class as a recap.

Comment from George: *In the year 2030, about 36% of adults in the US reported experiencing unwanted sexual contact to their physical body at some point in their life. That number has remained relatively consistent since 2016. We are in 2035 now, and for the past five years, the Spatial Consent model has been taught in schools, in workplaces through HR training on harassment prevention, and through social media campaigns. In the five years since then the CDC has found notable decreases in unwanted sexual acts in geographic areas where a majority of sexual interactions reportedly used Spatial Consent. After investigating, the CDC announced that this comes back to several reasons, which you might want to discuss with students (let me know if you want the URLs for the full reports):*

- *Unwanted physical sexual contact (groping, touching) was reduced because default boundaries around physical touch were more explicit.*
- *Explicit visual consent decisions created "pause points" for individuals to reflect on whether they were truly comfortable with a sexual act. This resulted in greater willingness to clearly visualize "no" to unwanted sexual acts.*
- *Unintentional perpetration of unwanted sex was reduced by explicit visualizations of "no" that corrected self-acknowledged mis-assumptions about a partner's willingness to engage in sex.*

5 Authors' Reflections

Towards creating prescriptive guidance for computer-mediated consent to sex as an approach to sexual violence mitigation, we undertook a 15-month design fiction writing process that culminated in the Spatial Consent model: teachable guidance for giving, receiving, and denying permission to sexual and other interpersonal activity in a future where AR/VR glasses are a pervasive personal computing device.

The writing process allowed us to reflect on the choice of design fiction as a trauma-informed method; one that seeks to mitigate retraumatization better than alternative methods such as participatory approaches with user-stakeholders. We present those methodological reflections here in section 5.1 as guidance to other HCI researchers looking to foreground trauma mitigation in their research methods.

With our Spatial Consent model now presented in the form of a sex education lecture, and therefore shareable beyond our immediate team, we are also able to look ahead—not to an imagined diegetic universe, but to a near-term future research agenda for broader stakeholder inclusion in assessment, revision, and adoption of computer-mediated consent practices as a sociotechnical means of reducing unwanted sexual activity. We conclude the paper with section 5.2 by reflecting on three open challenges to the diffusion and practice of computer-mediated consent models.

5.1 Reflection on Design Fiction as a Trauma-Informed Method

Inspired by the Trauma-Informed Approach [29]—both through our direct interactions with clinical experts in sexual violence and survivor care, and the HCI field's own growing concern for trauma [4, 29, 37, 39, 40, 67, 100, 104]—we adopted design fiction as a method to articulate a learnable or teachable computer-mediated consent model while protecting against retraumatization that may be incurred through immediate and prolonged participation of user-stakeholders (which was our initial "default" methodological choice given prior work's inclination in this direction [20, 115, 116]). We consider the mere existence of our Spatial Consent education lecture as an indicator that the design fiction approach was successful, given that it is a literal representation of a consent model that can be taught to the general public.

To support other researchers in determining if and how to apply trauma-informed design fiction in their own work, this section provides methodological reflections based on our own use of the method. First, we offer prescriptive guidance on how to use trauma-informed design fiction through

four practices that were incredibly beneficial to our team in retrospect. Second, we reflect on when and why to choose trauma-informed design fiction over other methodological choices.

5.1.1 How to Practice Trauma-Informed Design Fiction. Our design fiction writing process evolved as time went on, which we chronicle in detail in the Methodology section for other researchers to consider in their own implementations of trauma-informed design fiction. In retrospect, there were four practices that we adopted during the 15-month design fiction writing process that provided advantages over participatory methods with user-stakeholders, for retraumatization mitigation as well as creativity in design speculation.

Practice 1: "Allowed" Chaos. Throughout the 15-month writing process, we transitioned from "anything goes" design fiction outputs (which ranged from functional VR prototypes to arts-and-crafts displays and multi-paragraph stories) to gradually converge on sex education as the shared medium through which to present and iterate on our formative computer-mediated consent models. This stemmed from our extended effort to unpack what a "consent model" actually entails; clarifying what we were designing for, and identifying which conceptual and behavioral elements such a model should include. This shift took significant time, for iterative experimentation, reflection, and refinement of "what" and "how" we were designing. While this extended internal chaos was ultimately productive, and personally rewarding, it might not be as rewarding for other labs that might fall into an endless loop of exploration without structure, underscoring the need for clearer scaffolding when applying this method elsewhere.

Practice 2: Space for Critique. The recurring meetings among the writing team hinged on deep trust and familiarity across the team members, all of whom have previously worked together. This was essential to facilitating honest expression and honest critique of each other's design fictions, both of which (the writing and the reaction to each other's writing) were frequently rooted in deeply personal experience. Such critical assessment of each other's fictional works would have represented a severe risk of retraumatization had we involved user-stakeholders at this stage, who would presumably not know each other and the researchers very well. Imagine a survivor of sexual violence being told their vision for preventing that experience has logical errors or debatable behavioral choices of characters within their diegetic universe. While at least one of our team members self-identifies as a survivor of sexual violence, the camaraderie among the team and deep mutual trust across its members enabled this traumatic experience to be reflected on in a mutually supportive way. It may be challenging to recreate that safety structure when recruiting outside participants to, say, a participatory design workshop.

Practice 3: Alternating Between Individualized Introspection and Collective Retrospection. During our writing phase, we followed a rhythm that alternated between individual and collective work. Each cycle began with an initiation meeting where we discussed the upcoming prompt and clarified expectations. Afterward, team members departed to ideate, reflect, and write independently over a period of several days or even weeks. The results of these individual writing sessions were then shared and collectively discussed in the following meeting. These individual sessions allowed participants to process complex and violence-laden topics at their own pace and within environments that felt safe and comfortable. Writing alone, in private, allowed team members to individually unpack those emotionally charged conversations at both an emotional and creative level. This alternating rhythm between individualized introspection and collective retrospection not only sustained emotional safety, but also improved the richness of our ideas. Similar to how our prior and interrelated practice of providing space for critique would not be practical with user-stakeholders due to the sheer time commitment, this practice of alternating introspection and retrospection is more about the time "between" team meetings than those meetings themselves, which may be untenable for long-term participation of user-stakeholders.

Practice 4: Deliberate Writing Team Construction Through Trauma Audit. As our Methodology section explains, our six design fiction writing team members were chosen for very deliberate reasons: balanced gender representation, diverse cultural backgrounds, prior publication experience, and representation among demographics at elevated risk of sexual violence, among other qualities. We would surely recommend that other researchers make similar team construction decisions at the outset of their trauma-informed design fiction writing process. But a process that our team adopted during the team construction phase, particularly to inform each member's personal decision to participate over what became a 15-month process, was a practice we informally called a "trauma audit" (not to be confused with a similarly named practice for evaluating the quality of trauma-informed care in clinical settings [105]). This entails having prolonged conversations between (potential) team members about the subject matter to be discussed and designed for, thus allowing each individual to privately assess or "audit" their personal experiences intersecting with the topics of sexual violence and consent to anticipate retraumatization and develop personal procedures and practices for self-care ahead of time. (Note: we did not discuss or ask each other about our personal self-care processes for privacy reasons). We would strongly advocate for a similar practice in future trauma-informed design fiction work, while recognizing that such an introspective practice (which in our case necessitated well-understood concepts of trauma, sexual violence, and consent) may not be advisable or possible when involving user-stakeholders or other writing team members depending on their professional background.

5.1.2 When and Why to Choose Trauma-Informed Design Fiction. In this subsection we reflect on when and why researchers may choose trauma-informed design fiction. This involves, first, articulating the general conditions under which we recommend the use of this method. Second, we recognize that "choosing" trauma-informed design fiction necessitates selecting it over (or prior to) other methods, thus necessitating a clear understanding of how it differs from "traditional" design fiction and related methods such as participatory design and scenario-based design.

We initially chose trauma-informed design fiction because of the risk of retraumatization associated with empirical methods that center the immediate involvement of user-stakeholders, whose research participation, in itself, may incur trauma. We would more generally advocate for trauma-informed design fiction as a *first step* in design agendas involving topics commonly associated with, or triggering of, trauma (which can include contexts well beyond sexual violence). We say "first step" because speculative design activities can hone or inform subsequent empirical studies or participatory methods that do involve technology users or other stakeholders who may have experienced trauma related to the research topic (our own future work with Spatial Consent involves user-stakeholders refining the model). This is to say: trauma-informed design fiction need not be chosen *instead* of other methods. Trauma-informed design fiction reframes user-stakeholder involvement and associated empirical study as a calculated, deliberate choice (potentially later in research agendas) that is informed by precautions for retraumatization, rather than a default first step that de-centers or even overlooks the retraumatization risks associated with participation.

One may argue that design fiction, in general, may afford the same inherent retraumatization mitigation that we just described, prompting questions of what unique methodological dimensions distinguish *trauma-informed* design fiction. We argue that the trauma-informed design fiction approach differs from conventional design fiction in terms of deliberate considerations for the well-being of the fiction writer(s). Traditional design fiction often seeks to provoke, challenge, or speculate freely about future technologies, sometimes through intentionally discomforting scenarios that reveal social tensions [21, 102, 107]. Trauma-informed design fiction, as we define it, necessitates conscious consideration of the potential for retraumatization through the act of design fiction writing and making deliberate methodological choices to protect the design fiction writers

from retraumatization and other adverse consequences. In simpler terms: if design fiction inherently protects user-stakeholders from retraumatization through bypassing or delaying their involvement entirely, trauma-informed design fiction extends this protection to researchers themselves. It consciously considers how to mitigate retraumatization of researchers involved in the design fiction writing. Whereas design fiction publications in HCI commonly do not have dedicated sections to describing the design fiction writing *process*, with trauma-informed design fiction it is a necessity in order to foreground the methodological considerations for retraumatization.

The motivation of using design fiction to avoid retraumatization of user-stakeholders should make apparent how the method diverges from participatory design, which very much does necessitate users or other stakeholder groups taking a "seat at the table" to co-construct a design artifact. These are not diametrically opposed methods however, but rather complementary approaches. For example, next steps in our own research for the Spatial Consent model involve user-stakeholders in assessing and refining the model based on their lived experience. By engaging in trauma-informed design fiction first, researchers can 1) experiment with retraumatization structures for the writing team, that could similarly be used with outside stakeholders in participatory design, and 2) better anticipate the time commitment and nature of design activities for future stakeholders in participatory design to refine, improve, and modify formative artifacts from design fiction.

5.2 Taking Computer-Mediated Consent from Fiction to Non-Fiction

Previous contributions into computer-mediated interpersonal consent models have been made through 1) researchers' own ideas in myriad forms, often inspired by affirmative consent (e.g., interface mockups, design patterns, and general guidelines) [43, 99, 116] and 2) participatory methods with user-stakeholders to either critique existing consent models in their applicability to computer-mediated communication [20] or identify which types of technologies could play a role in mediating sexual consent, often with hand-drawn sketches [116]. While excellent starting points, there is a significant gap between these abstract premises for technology in consent communication and discrete behavioral rules that are learnable by technology users and therefore reliably practicable in sexual interactions.

The intent behind our trauma-informed design fiction writing process was to create a "teachable" computer-mediated consent model that gives clear, prescriptive direction for the responsibilities of human partners and technology in communicating agreement to sexual activity. This is in reaction to formative HCI research into conceptual directions for how various technologies could scaffold communication of consent to interpersonal behavior, but which falls short of "teachable" behavioral rules that would facilitate consistent and widespread practice by the general public. Now that such "behavioral rules" have been created and iterated in the form of the Spatial Consent model, the question remains of how we move towards consistent and widespread practice of Spatial Consent (or any other computer-mediated consent model). In retrospect, the process of writing, revising, and discussing the Spatial Consent model made apparent three open challenges to computer-mediated consent diffusion and adoption.

5.2.1 Awareness of Computer-Mediated Consent Models by the General Public. The ability of a consent model to be adopted depends heavily on widespread diffusion and understandability of the model to the general public. This is particularly apparent in light of the historic failures of affirmative consent to achieve widespread adoption due in part to ambiguity and inconsistency in its behavioral prescription [36].

We experienced that challenge of understandability firsthand during our design fiction writing process. Even in our own writing team, we found it was difficult to communicate our formative consent models to one another, often needing whole meetings to simply clarify the behavioral

rules of our respective models, let alone debate them. This is part of why we adopted sex education lectures as our standard format for communicating our individual consent models to one another; as a means of more clearly communicating our own ideas among the design fiction writing team and minimizing challenges in coherence of the models. This turn to education is almost ironic given that we initially distinguished computer-mediated consent as a fundamentally different approach from traditional education and policy solutions to problematic sexual consent practices, yet it underscores the importance of considering the vehicle for communicating a consent model.

While we found a sexual education framing to be personally valuable to our team, we recognize that there are geocultural limits to organizing and communicating a computer-mediated consent model en masse through sexual education. Sex education, as an institutionalized practice, is far from universal. In some countries, formal sex education is minimal or absent altogether for various reasons (e.g. cultural norms and religious beliefs) [80, 106]. In other territories, open discussion of sexual behavior, particularly among adolescents or unmarried adults, may be restricted by law or met with significant social stigma [54, 69, 75, 101]. Even within the same country, such as the United States, availability and content of sex education can vary wildly. For instance, portions of the country still rely on abstinence-only sex education that lacks explicit guidance about consent [1, 72, 89].

These disparities highlight a serious challenge to the diffusion of computer-mediated consent models: if the communicative format itself assumes cultural openness around sexuality, its reach will inevitably be limited. For such models to achieve global or cross-cultural relevance, their methods of instruction and dissemination must be adaptable to different social norms, educational infrastructures, and levels of discourse permissibility.

5.2.2 Consistent Practice of Computer-Mediated Consent Over Time. The "diffusion issue" mentioned above also raises questions about long-term adoption of computer-mediated consent models. Sex education, like any other education taught in schools, may be forgotten over time [110], especially if a student may go an extended period of time before having a sexual experience. This raises the question of how computer-mediated consent models can be remembered and consistently practiced beyond the point of initially learning about the model. The history of affirmative consent can serve as a cautionary tale here; despite awareness campaigns, because the model clashes with existing social scripts and expectations surrounding intimacy [97] it is seen as disruptive to the natural flow of sexual interaction [97]. When a consent model is incongruent with social norms, sustained adoption becomes much more difficult.

To counter this, computer-mediated consent models may need to give prescriptive guidance to system designers as well as sexual partners. One advantage of computer-mediated consent over affirmative consent lies in the availability of technology to scaffold consent practice through ongoing cues and reinforcement. Technology has the potential to make consent habitual by embedding reminders and signals into everyday life. Whereas affirmative consent may necessitate sexual partners to consciously remember the consent model and adhere to its behavioral tenets, Spatial Consent (or similar model associated with a ubiquitous computing peripheral) could be habitualized through omnipresent signals and reminders integrated into head-mounted displays, particularly if the consent model is practicable in social contexts beyond strictly sexual ones. For instance, consent model guidance to developers may include interface mechanisms that scaffold consistent, "plug and play" practice of the consent model.

5.2.3 Accommodating Inconsistent Technology Access in Computer-Mediated Consent Models. The consistent practice of any computer-mediated consent model may be shaped by socioeconomic and political realities. We gesture to this briefly in our CDC-style infographic through the inclusion of a "regions"-based statistic, acknowledging that implementation of the Spatial Consent model even

in our diegetic universe is unequally distributed across states. Our Spatial Consent model assumes ubiquity of AR/VR devices running consent technology, which would presumably be possible either through widespread purchase or government subsidies.

However, the model's reliance on ubiquitous access to AR/VR devices raises new questions about how sexual consent exchanges should unfold when at least one partner lacks the necessary technology. In the United States today, where our sex-education-based design fiction is situated, 91% of adults own a smartphone [23]. If we project a similar adoption rate for AR/VR devices in the future, one in ten individuals would not be able to practice Spatial Consent. Moreover, even if device access was truly ubiquitous, technology can fail: devices can malfunction, lose power, or experience connectivity issues at critical moments. Beyond the technical constraints, device-use may also be inaccessible for some individuals with certain disabilities that limit engagement with immersive or wearable interfaces, particularly people with vision impairment. These not-so-edge cases suggest a need for a plurality of consent models and consideration of how to support multiple, synergistic consent models that work across devices, user capabilities, and sociocultural contexts.

Some of these open questions can be contended with in future work by using the product of our trauma-informed design fiction—a sex education lecture—as a research instrument: a rapidly consumable premise that can ultimately make participation of other stakeholders more productive and mutually rewarding. For instance, user-stakeholders could be shown the fictional lecture and invited to critique, revise, or expand it based on their perspectives and experiences.

Acknowledgments

This material is based upon work partially supported by the U.S. National Science Foundation under Grant No. 2211896, 2401775, and 2339431. It was also partially supported by University of Michigan-Flint through the CIT Research Seed Grant Program and IST Large Grant Award. We thank the other members of our design fiction writing team—Meryem Barkallah, Braeden Burger, Emma Walquist, and Devin Tebbe—for their collaboration, critique, and support throughout the long writing process, and for cultivating a supportive environment that made this work possible.

References

[1] Guttmacher Institute 2025. *Sex Education and HIV Education.* Guttmacher Institute. https://www.guttmacher.org/state-policy/explore/sex-and-hiv-education

[2] 360info. 2022. When Tunisia Changed Its Laws to Protect Women, It Shook the Arab World. https://360info.org/when-tunisia-changed-its-laws-to-protect-women-it-shook-the-arab-world/.

[3] Naseem Ahmadpour, Lian Loke, Carl Gray, Yidan Cao, Chloe Macdonald, and Rebecca Hart. 2023. Understanding How Technology Can Support Social-Emotional Learning of Children: A Dyadic Trauma-Informed Participatory Design with Proxies. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems.* ACM, Hamburg, Germany, 1–17. doi:10.1145/3544548.3581032

[4] Alex A. Ahmed, Teresa Almeida, Judeth Oden Choi, Jon Pincus, and Kelly Ireland. 2018. What's at Issue: Sex, Stigma, and Politics in ACM Publishing. In *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems* (Montreal QC, Canada) *(CHI EA '18).* Association for Computing Machinery, New York, NY, USA, 1–10. doi:10.1145/3170427.3188400

[5] Syed Ishtiaque Ahmed, Steven J. Jackson, Nova Ahmed, Hasan Shahid Ferdous, Md. Rashidujjaman Rifat, A.S.M Rizvi, Shamir Ahmed, and Rifat Sabbir Mansur. 2014. Protibadi: A platform for fighting sexual harassment in urban Bangladesh. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems.* ACM, New York, NY, USA, 2695–2704. doi:10.1145/2556288.2557376

[6] Mohammed Eunus Ali, Shabnam Basera Rishta, Lazima Ansari, Tanzima Hashem, and Ahamad Imtiaz Khan. 2015. SafeStreet: empowering women against street harassment using a privacy-aware location based application. In *Proceedings of the Seventh International Conference on Information and Communication Technologies and Development.* ACM, New York, NY, USA, 1–4. doi:10.1145/2737856.2737870

[7] Nada Amroussia, Isabel Goicolea, and Alison Hernandez. 2016. Reproductive Health Policy in Tunisia: Women's Right to Reproductive Health and Gender Empowerment. *Health and Human Rights* 18, 2 (Dec. 2016), 183–194.

https://pmc.ncbi.nlm.nih.gov/articles/PMC5395000/

[8] Nazanin Andalibi, Oliver L. Haimson, Munmun De Choudhury, and Andrea Forte. 2016. Understanding Social Media Disclosures of Sexual Abuse Through the Lenses of Support Seeking and Anonymity. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*. ACM, New York, NY, USA, 3906–3918. doi:10.1145/2858036.2858096

[9] Kathleen C Basile, Sharon G Smith, Matthew Breiding, Michele C Black, and Reshma R Mahendra. 2014. Sexual violence surveillance: Uniform definitions and recommended data elements. Version 2.0. (2014).

[10] Laina Y. Bay-Cheng and Rebecca K. Eliseo-Arras. 2008. The Making of Unwanted Sex: Gendered and Neoliberal Norms in College Women's Unwanted Sexual Experiences. *Journal of Sex Research* 45, 4 (Nov. 2008), 386–397. doi:10.1080/00224490802398381

[11] Lori A. Bednarchik, Mark Alan Generous, and Paul Mongeau. 2022. Defining Sexual Consent: Perspectives from a College Student Population. *Communication Research Reports* 35, 1 (2022), 12–24. doi:10.1080/08934215.2021.1974506

[12] Jessica Bennett. 2016. Campus Sex...With a Syllabus. https://www.nytimes.com/2016/01/10/fashion/sexual-consent-assault-college-campuses.html.

[13] Melanie A Beres. 2007. 'Spontaneous' Sexual Consent: An Analysis of Sexual Consent Literature. *Feminism & Psychology* 17, 1 (2007), 93–108. doi:10.1177/0959353507072914

[14] Melanie A. Beres, Edward Herold, and Scott B. Maitland. 2004. Sexual Consent Behaviors in Same-Sex Relationships. *Archives of Sexual Behavior* 33, 5 (2004), 475–486. doi:10.1023/B:ASEB.0000037428.41757.10

[15] Lindsay Blackwell, Nicole Ellison, Natasha Elliott-Deflo, and Raz Schwartz. 2019. Harassment in Social Virtual Reality: Challenges for Platform Governance. *Proceedings of the ACM on Human-Computer Interaction* 3, CSCW (November 2019), 1–25. doi:10.1145/3359202

[16] Mark Blythe. 2014. Research through design fiction: narrative in real and imaginary abstracts. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '14)*. Association for Computing Machinery, New York, NY, USA, 703–712. doi:10.1145/2556288.2557098

[17] Virginia Braun and Victoria Clarke. 2021. *Thematic Analysis: A Practical Guide*. SAGE Publications. 1–376 pages.

[18] Matthew Breiding, Kathleen C. Basile, Sharon G. Smith, Michele C. Black, and Reshma R. Mahendra. 2015. *Intimate Partner Violence Surveillance: Uniform Definitions and Recommended Data Elements*. Tech. Rep. National Center for Injury Prevention and Control, Centers for Disease Control and Prevention. https://stacks.cdc.gov/view/cdc/31292

[19] Barry Brown, Julian Bleecker, Marco D'Adamo, Pedro Ferreira, Joakim Formo, Mareike Glöss, Maria Holm, Kristina Höök, Eva-Carin Banka Johnson, Emil Kaburuan, Anna Karlsson, Elsa Vaara, Jarmo Laaksolahti, Airi Lampinen, Lucian Leahu, Vincent Lewandowski, Donald McMillan, Anders Mellbratt, Johanna Mercurio, Cristian Norlin, Nicolas Nova, Stefania Pizza, Asreen Rostami, Mårten Sundquist, Konrad Tollmar, Vasiliki Tsaknaki, Jinyi Wang, Charles Windlin, and Mikael Ydholm. 2016. The IKEA Catalogue: Design Fiction in Academic and Industrial Collaborations. In *Proceedings of the 2016 ACM International Conference on Supporting Group Work (GROUP '16) (GROUP '16)*. Association for Computing Machinery, New York, NY, USA, 335–344. doi:10.1145/2957276.2957298

[20] Braeden Burger, Devin Tebbe, Emma Walquist, Toby Kind, and Douglas Zytko. 2025. Saying No to "Yes Means Yes": Limitations of Affirmative Consent for Mitigating Unwanted Behavior Online According to Women and LGBTQIA+ Stakeholders. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '25)* (Yokohama, Japan). ACM, New York, NY, USA, 1–17. doi:10.1145/3706598.3713236

[21] Julia Cambre, Samantha Reig, Queenie Kravitz, and Chinmay Kulkarni. 2020. "All Rise for the AI Director": Eliciting Possible Futures of Voice Technology through Story Completion. In *Proceedings of the 2020 ACM Designing Interactive Systems Conference (DIS '20)*. Association for Computing Machinery, New York, NY, USA, 2051–2064. doi:10.1145/3357236.3395479

[22] J.M. Carrol. 1999. Five reasons for scenario-based design. In *Proceedings of the 32nd Annual Hawaii International Conference on Systems Sciences. 1999. HICSS-32. Abstracts and CD-ROM of Full Papers*, Vol. Track3. 11 pp.–. doi:10.1109/HICSS.1999.772890

[23] Pew Research Center. 2024. Mobile Fact Sheet. https://www.pewresearch.org/internet/fact-sheet/mobile/.

[24] Centers for Disease Control and Prevention. 2019. School Health Profiles 2018: Characteristics of Health Programs Among Secondary Schools. https://www.cdc.gov/school-health-profiles/media/pdf/CDC-Profiles-2018.pdf.

[25] Centers for Disease Control and Prevention. 2025. About CDC. https://www.cdc.gov/about/index.html. Centers for Disease Control and Prevention, U.S. Department of Health and Human Services.

[26] Centers for Disease Control and Prevention. 2025. CDC Priorities. https://www.cdc.gov/about/cdc/index.html. Centers for Disease Control and Prevention, U.S. Department of Health and Human Services.

[27] Centers for Disease Control and Prevention et al. 2022. Fast Facts: Preventing Child Sexual Abuse. https://www.cdc.gov/violenceprevention/childsexualabuse/fastfact.html. CDC Violence Prevention.

[28] Praneeth Chakravarthula. 2025. Present and Future of Everyday-Use Augmented Reality Eyeglasses. *IEEE Computer Graphics and Applications* 45, 1 (2025), 56–66. doi:10.1109/MCG.2024.3491532

[29] Janet X. Chen, Allison McDonald, Yixin Zou, Emily Tseng, Kevin A. Roundy, Acar Tamersoy, Florian Schaub, Thomas Ristenpart, and Nicola Dell. 2022. Trauma-Informed Computing: Towards Safer Technology Experiences for All. In *Proceedings of the CHI Conference on Human Factors in Computing Systems*. ACM, New Orleans, LA, USA, 1–20. doi:10.1145/3491102.3517475

[30] Michelle Cortese and Andrea Zeller. 2020. Designing Safe Spaces for Virtual Reality: Methods for Merging Body Sovereignty Theory into VR Design Practice. In *Ethics in Design and Communication*, Laura Scherling and Andrew Derosa (Eds.). Bloomsbury Publishing, 49–60.

[31] Jena Nicols Curtis and Susan Burnett. 2017. Affirmative Consent: What Do College Student Leaders Think About "Yes Means Yes" as the Standard for Sexual Behavior? *International Journal of Sexual Health* 12, 3 (2017), 201–214. doi:10.1080/15546128.2017.1328322

[32] Stephanie J. Dallam. 2010. *A Model of the Retraumatization Process: A Metasynthesis of Childhood Sexual Abuse Survivors' Experiences in Healthcare.* Ph.D. Dissertation. University of Kansas.

[33] Isha Datey, Hunter Soper, Khadeejah Hossain, Wing-Yue Geoffrey Louie, and Douglas Zytko. 2023. Ethical Participatory Design of Social Robots Through Co-Construction of Participatory Design Protocols. In *2023 32nd IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*. 2454–2461. doi:10.1109/RO-MAN57019.2023.10309539

[34] Almaany dictionary. [n. d.]. consent — English-Arabic Dictionary. https://www.almaany.com/en/dict/ar-en/consent/ Accessed January 20, 2026.

[35] Christopher Dietzel. 2024. Clickable Consent: How Men Who Have Sex with Men Understand and Practice Sexual Consent on Dating Apps and in Person. *The Journal of Sex Research* 61, 3 (March 2024), 481–494. doi:10.1080/00224499.2023.2235584 Publisher: Taylor & Francis.

[36] Justin Dillon and Hanna L. Stotland. 2017. The Hidden Perils of Affirmative Consent Policies. *The Harvard Crimson*, Opinion Section. https://www.thecrimson.com/article/2017/3/22/dillon-stotland-affirmative-consent/

[37] Kari N. Duerksen and Erica M. Woodin. 2019. Technological Intimate Partner Violence: Exploring Technology-Related Perpetration Factors and Overlap with In-Person Intimate Partner Violence. *Computers in Human Behavior* 98 (September 2019), 223–231. doi:10.1016/j.chb.2019.05.001

[38] Duke Global Reproductive Health. 2022. The Failures of American Sex Education. https://dukecenterforglobalreproductivehealth.org/2022/07/25/the-failures-of-american-sex-education/. Global Reproductive Health at Duke University.

[39] Catherine D'Ignazio, Rebecca Michelson, Alexis Hope, Josephine Hoy, Jennifer Roberts, and Kate Krontiris. 2020. "The Personal is Political": Hackathons as Feminist Consciousness Raising. *Proceedings of the ACM on Human-Computer Interaction* 4, CSCW2 (October 2020), 1–23. doi:10.1145/3415221

[40] Diana Freed, Jackeline Palmer, Diana Elizabeth Minchala, Karen Levy, Thomas Ristenpart, and Nicola Dell. 2017. Digital Technologies and Intimate Partner Violence: A Qualitative Analysis with Multiple Stakeholders. *Proceedings of the ACM on Human-Computer Interaction* 1, CSCW (December 2017), 1–22. doi:10.1145/3134681

[41] Guo Freeman, Julian Frommel, Regan L. Mandryk, Jan Gugenheimer, Lingyuan Li, Daniel Johnson, Cecilia Aragon, Syed Ali Asif, Jakki Bailey, Meryem Barkallah, Braeden Burger, Sebastian Cmentowski, Jamie Hancock, Leanne Hides, Hongxin Hu, Yang Hu, Wangfan Li, Ruchi Panchanadikar, Niloofar Sayadi, Devin Tebbe, Leslie Wöhler, Xinyue You, Zinan Zhang, and Douglas Zytko. 2024. Understanding and Mitigating New Harms in Immersive and Embodied Virtual Spaces: A Speculative Dystopian Design Fiction Approach. In *Companion Publication of the 2024 Conference on Computer-Supported Cooperative Work and Social Computing (CSCW Companion '24) (CSCW Companion '24)*. Association for Computing Machinery, New York, NY, USA, 288–295. doi:10.1145/3678884.3681865

[42] Jaclyn Friedman and Jessica Valenti. 2019. *Yes means yes!: Visions of female sexual power and a world without rape.* Seal Press.

[43] Nicholas Furlo, Jacob Gleason, Karen Feun, and Douglas Zytko. 2021. Rethinking Dating Apps as Sexual Consent Apps: A New Use Case for AI-Mediated Communication. In *Companion Publication of the 2021 Conference on Computer Supported Cooperative Work and Social Computing*. ACM, New York, NY, USA, 53–56. doi:10.1145/3462204.3481770

[44] Future of Sex Education Initiative. 2020. National Sex Education Standards: Core Content and Skills, K-12 (Second Edition). https://www.advocatesforyouth.org/wp-content/uploads/2020/03/NSES-2020-web.pdf. Advocates for Youth.

[45] Rosa Gavey. 2019. Affirmative Consent to Sex: Is It Enough. *NZWLJ* 3 (2019), 35. Publisher: HeinOnline.

[46] David S. Hall. 1998. Consent for Sexual Behavior in a College Student Population. *Electronic Journal of Human Sexuality* 1, 10 (1998), 1–16.

[47] Kelli Stidham Hall, Jessica McDermott Sales, Kelli A. Komro, and John Santelli. 2016. The State of Sex Education in the United States. *The Journal of Adolescent Health: Official Publication of the Society for Adolescent Medicine* 58, 6 (June 2016), 595–597. doi:10.1016/j.jadohealth.2016.03.032

[48] Janet Halley. 2016. The Move to Affirmative Consent. *Signs: Journal of Women in Culture and Society* 42, 1 (Sept. 2016), 257–279. doi:10.1086/686904

[49] Amy Adele Hasinoff. 2015. *Sexting panic: Rethinking criminalization, privacy, and consent.* University of Illinois Press.

[50] Brooke A. De Heer, Siréne Lipschutz, and Sydney Shevat. 2024. "I Was Just So Confused, Like Does This Even Count as Sexual Assault?": Understanding LGBTQA+ Sexual Victimization, Help-Seeking, and Mental Health Outcomes. *Journal of Gender Studies* (2024), 1–15. doi:10.1080/09589236.2023.2260323

[51] Lori L. Heise, Kirsten Moore, and Nahid Toubia. 1995. *Sexual Coercion and Reproductive Health: A Focus on Research.* Research Report. Population Council.

[52] Susan E. Hickman and Charlene L. Muehlenhard. 1999. "By the semi-mystical appearance of a condom": How young women and men communicate sexual consent in heterosexual situations. *Journal of Sex Research* 36, 3 (Aug. 1999), 258–272. doi:10.1080/00224499909551996

[53] Noah Hilgert. 2016. The Burden of Consent: Due Process and the Emerging Adoption of the Affirmative Consent Standard in Sexual Assault Laws. *Arizona Law Review* 58 (2016), 867–899.

[54] D. A. Hines and D. Finkelhor. 2007. Statutory sex crime relationships between juveniles and adults: A review of social scientific research. *Aggression and Violent Behavior* 12, 3 (2007), 300–314. doi:10.1016/j.avb.2006.10.001

[55] Jennifer S Hirsch, Shamus R Khan, Alexander Wamboldt, and Claude A Mellins. 2019. Social Dimensions of Sexual Consent Among Cisgender Heterosexual College Students: Insights From Ethnographic Research. *Journal of Adolescent Health* 64, 1 (2019), 26–35. doi:10.1016/j.jadohealth.2018.06.011

[56] Tad Hirsch. 2020. Practicing Without a License: Design Research as Psychotherapy. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20).* Association for Computing Machinery, New York, NY, USA, 1–11. doi:10.1145/3313831.3376750

[57] Connor Homayouni and Douglas Zytko. 2023. Consensual XR: A Consent-Based Design Framework for Mitigating Harassment and Harm Against Marginalized Users in Social VR and AR. In *2023 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct).* IEEE, Sydney, Australia, 360–364. doi:10.1109/ISMAR-Adjunct60411.2023.00077

[58] Larke N. Huang, Rebecca Flatow, Tenly Biggs, Sara Afayee, Kelley Smith, Thomas Clark, and Mary Blake. 2014. *SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach.* Technical Report. Substance Abuse and Mental Health Services Administration (SAMHSA). https://library.samhsa.gov/sites/default/files/sma14-4884.pdf

[59] Terry Humphreys and Ed Herold. 2007. Sexual Consent in Heterosexual Relationships: Development of a New Measure. *Sex Roles* 57, 3 (2007), 305–315. doi:10.1007/s11199-007-9264-7

[60] Jane Im, Jill Dimond, Melody Berton, Una Lee, Katherine Mustelier, Mark S. Ackerman, and Eric Gilbert. 2021. Yes: Affirmative Consent as a Theoretical Framework for Understanding and Imagining Social Platforms. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems.* ACM, New York, NY, USA, 1–18. doi:10.1145/3411764.3445778

[61] N. K. Jeffrey and C. Y. Senn. 2024. Gender Differences in Sexual Violence Victimization Experiences and Validity of Victimization Reports: A Think-Aloud Study. *The Journal of Sex Research* (2024), 1–17. doi:10.1080/00224499.2024.2397496

[62] Shagun Jhaver, Sucheta Ghoshal, Amy Bruckman, and Eric Gilbert. 2018. Online Harassment and Content Moderation: The Case of Blocklists. *ACM Transactions on Computer-Human Interaction* 25, 2 (April 2018), 1–33. doi:10.1145/3185593

[63] Kristen N. Jozkowski. 2015. "Yes Means Yes"? Sexual Consent Policy and College Students. *Change: The Magazine of Higher Learning* 47, 2 (2015), 16–23. doi:10.1080/00091383.2015.1004990

[64] Naveena Karusala and Neha Kumar. 2017. Women's Safety in Public Spaces: Examining the Efficacy of Panic Buttons in New Delhi. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems.* ACM, New York, NY, USA, 3340–3351. doi:10.1145/3025453.3025532

[65] Shannon Kelly, Benjamin Lauren, and Kaitlyn Nguyen. 2021. Trauma-Informed Web Heuristics for Communication Designers. In *The 39th ACM International Conference on Design of Communication.* ACM, Virtual Event, USA, 172–176. doi:10.1145/3472714.3473638

[66] Una Lee and Dan Toliver. 2017. Building Consentful Tech.

[67] Roxanne Leitão. 2018. Digital Technologies and their Role in Intimate Partner Violence. In *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems.* ACM, Montreal, QC, Canada, 1–6. doi:10.1145/3170427.3180305

[68] Miriam Lewin. 1985. Unwanted Intercourse: The Difficulty of Saying No. *Psychology of Women Quarterly* 9, 2 (1985), 184–192.

[69] Mona Malacane and Jonathon J. Beckmeyer. 2016. A Review of Parent-Based Barriers to Parent–Adolescent Communication about Sex and Sexuality: Implications for Sex and Family Educators. *American Journal of Sexuality Education* 11, 1 (2016), 27–40. arXiv:https://doi.org/10.1080/15546128.2016.1146187 doi:10.1080/15546128.2016.1146187

[70] Tiffany L. Marcantonio, Arianna Lestingi, Melissa Meadows, Anna Thrash, and James DiLoreto-Hill. 2025. What do States Recommend We Teach Adolescents about Sexual Consent? A Content Analysis of K-12 Health Education Standards in the US. *The Journal of Sex Research* 62, 4 (2025), 622–631. doi:10.1080/00224499.2024.2344682 Publisher: Taylor & Francis _eprint: https://doi.org/10.1080/00224499.2024.2344682.

[71] Richard E. Mattson, Maggie M. Parker, Allison M. McKinnon, Sean G. Massey, Ann M. Merriwether, Melissa Hardesty, and Sarah R. Young. 2022. Just Say Yes? A Cluster Analytic Approach to Evaluating College Students' Understandings of Affirmative Consent. *Archives of Sexual Behavior* 51, 6 (2022), 3197–3209. doi:10.1007/s10508-021-02217-z

[72] Jillian McKoy. 2025. Only 37% of U.S. States Require Sexual Education in Schools to Be Medically Accurate. News release, Boston University School of Public Health. https://www.bu.edu/sph/news/articles/2025/only-37-of-us-states-require-sexual-education-in-schools-to-be-medically-accurate/

[73] A. M. Messinger and S. Koon-Magnin. 2019. Sexual Violence in LGBTQ Communities. In *Handbook of Sexual Assault and Sexual Assault Prevention*, William T. O'Donohue and Paul A. Schewe (Eds.). Springer, Cham. doi:10.1007/978-3-030-23645-8_39

[74] Charlene L Muehlenhard, Terry P Humphreys, Kristen N Jozkowski, and Zoë D Peterson. 2016. The Complexities of Sexual Consent Among College Students: A Conceptual and Empirical Review. *The Journal of Sex Research* 53, 4-5 (2016), 457–487. doi:10.1080/00224499.2016.1146651 Publisher: Taylor & Francis.

[75] A. M. Munea, G. D. Alene, G. T. Debelew, and K. A. Sibhat. 2022. Socio-cultural context of adolescent sexuality and youth friendly service intervention in West Gojjam Zone, Northwest Ethiopia: a qualitative study. *BMC Public Health* 22, 1 (2022), 281. doi:10.1186/s12889-022-12699-8

[76] Josef Nguyen and Bonnie Ruberg. 2020. Challenges of Designing Consent: Consent Mechanics in Video Games as Models for Interactive User Agency. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*. Association for Computing Machinery, New York, NY, USA, 1–13. doi:10.1145/3313831.3376827 Series Title: CHI '20.

[77] Mari Norbakk. 2016. *The women's rights champion: Tunisia's potential for furthering women's rights.* Technical Report. Chr. Michelsen Institute, Bergen. 32 pages. https://www.cmi.no/publications/file/5973-the-womens-rights-champion.pdf

[78] Alejandra Gómez Ortega, Jacky Bourgeois, and Gerd Kortuem. 2023. What is Sensitive About (Sensitive) Data? Characterizing Sensitivity and Intimacy with Google Assistant Users. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*. ACM, Hamburg, Germany, 1–16. doi:10.1145/3544548.3581164

[79] Letitia Anne Peplau, Zick Rubin, and Charles T. Hill. 1977. Sexual Intimacy in Dating Relationships. *Journal of Social Issues* 33, 2 (1977), 86–109.

[80] Education Profiles. [n. d.]. Comprehensive Sexuality Education. https://education-profiles.org/themes/~comprehensive-sexuality-education. Accessed January 20, 2026.

[81] Brandie Pugh and Patricia Becker. 2018. Exploring Definitions and Prevalence of Verbal Sexual Coercion and Its Relationship to Consent to Unwanted Sex: Implications for Affirmative Consent Standards on College Campuses. *Behavioral Sciences* 8, 8 (Aug. 2018), 69. doi:10.3390/bs8080069

[82] RAINN. 2025. *Statistics: Victims of Sexual Violence.* Rape, Abuse & Incest National Network (RAINN). https://rainn.org/facts-statistics-the-scope-of-the-problem/statistics-victims-of-sexual-violence/ Last updated August 28, 2025.

[83] Anjana Rajan, Lucy Qin, David W. Archer, Dan Boneh, Tancrede Lepoint, and Mayank Varia. 2018. Callisto: A Cryptographic Approach to Detecting Serial Perpetrators of Sexual Misconduct. In *Proceedings of the 1st ACM SIGCAS Conference on Computing and Sustainable Societies*. ACM, Menlo Park and San Jose, CA, USA, 1–4. doi:10.1145/3209811.3212699

[84] Casey Randazzo and Tawfiq Ammari. 2023. "If Someone Downvoted My Posts—That'd Be the End of the World": Designing Safer Online Spaces for Trauma Survivors. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*. ACM, Hamburg, Germany, 1–18. doi:10.1145/3544548.3581453

[85] Afsaneh Razi, Seunghyun Kim, Ashwaq Alsoubai, Gianluca Stringhini, Thamar Solorio, Munmun De Choudhury, and Pamela J. Wisniewski. 2021. A Human-Centered Systematic Literature Review of the Computational Approaches for Online Sexual Risk Detection. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW2 (October 2021), 1–38. doi:10.1145/3479609

[86] Jacob W. Richardson. 2022. "It Doesn't Include Us": Heterosexual Bias and Gay Men's Struggle to See Themselves in Affirmative Consent Policies. *Sociology of Gender and Power* 5, 1 (2022), 69–86. doi:10.1002/sgp2.12040

[87] Mary Kirtley Righi, Katherine W. Bogen, Caroline Kuo, and Lindsay M. Orchowski. 2021. A Qualitative Analysis of Beliefs About Sexual Consent Among High School Students. *Journal of Interpersonal Violence* 36, 15 (2021), NP8290–NP8316. doi:10.1177/0886260519842855

[88] Mary Beth Rosson and John M. Carroll. 2002. Usability Engineering: Scenario-Based Development of Human-Computer Interaction. In *The Human-Computer Interaction Handbook: Fundamentals, Evolving Technologies and Emerging Applications*, Julie A. Jacko and Andrew Sears (Eds.). Lawrence Erlbaum Associates, 1032–1053. https:

//acs.ist.psu.edu/ist521/papers/rossonC02.pdf

[89] John S. Santelli, Leslie M. Kantor, Stephanie A. Grilo, Ilene S. Speizer, Laura D. Lindberg, Jennifer Heitel, Amy T. Schalet, Maureen E. Lyon, Amanda J. Mason-Jones, Terry McGovern, Craig J. Heck, Jennifer Rogers, and Mary A. Ott. 2017. Abstinence-Only-Until-Marriage: An Updated Review of U.S. Policies and Programs and Their Impact. *Journal of Adolescent Health* 61, 3 (2017), 273–280. doi:10.1016/j.jadohealth.2017.05.031

[90] Muhammad Yasir Sarosh, Muhammad Abdullah Yousaf, Mair Muteeb Javed, and Suleman Shahid. 2016. MehfoozAurat: Transforming Smart Phones into Women Safety Devices Against Harassment. In *Proceedings of the Eighth International Conference on Information and Communication Technologies and Development*. ACM, New York, NY, USA, 1–4. doi:10.1145/2909609.2909645

[91] Christine Satchell and Marcus Foth. 2010. Fear and Danger in Nocturnal Urban Environments. In *Proceedings of the 22nd Conference of the Computer-Human Interaction Special Interest Group of Australia on Computer-Human Interaction*. ACM, New York, NY, USA, 380–383. doi:10.1145/1952222.1952308

[92] Devansh Saxena, Karla Badillo-Urquiola, Pamela Wisniewski, and Shion Guha. 2020. Child Welfare System: Interaction of Policy, Practice and Algorithms. In *Companion of the 2020 ACM International Conference on Supporting Group Work*. ACM, Sanibel Island, Florida, USA, 119–122. doi:10.1145/3323994.3369888

[93] Kelsea Schulenberg, Lingyuan Li, Caitlin Lancaster, Douglas Zytko, and Guo Freeman. 2023. "We Don't Want a Bird Cage, We Want Guardrails": Understanding & Designing for Preventing Interpersonal Harm in Social VR through the Lens of Consent. *Proc. ACM Hum.-Comput. Interact.* 7, CSCW2 (Oct. 2023). doi:10.1145/3610172 Place: New York, NY, USA Publisher: Association for Computing Machinery.

[94] Carol F. Scott, Gabriela Marcu, Riana Elyse Anderson, Mark W. Newman, and Sarita Schoenebeck. 2023. Trauma-Informed Social Media: Towards Solutions for Reducing and Healing Online Harm. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*. ACM, Hamburg, Germany, 1–20. doi:10.1145/3544548.3581512

[95] Tracy M. Scull, K. N. Stump, R. Evans-Paulson, C. V. Dodson, and A. M. Schoemann. 2025. Moving Toward a More Comprehensive Standard for Sex Education: A Latent Class Analysis and Examination of Young Adult Sexual Health. *The Journal of Sex Research* 0, 0 (2025), 1–14. doi:10.1080/00224499.2025.2475549

[96] Erin J. Shumlich and William A. Fisher. 2018. Affirmative Sexual Consent? Direct and Unambiguous Consent Is Rarely Included in Discussions of Recent Sexual Interactions. *Canadian Journal of Human Sexuality* 27, 3 (2018), 248–260. doi:10.3138/cjhs.2017-0040

[97] Erin J. Shumlich and William A. Fisher. 2020. An Exploration of Factors That Influence Enactment of Affirmative Consent Behaviors. *The Journal of Sex Research* 57, 9 (2020), 1108–1121. arXiv:https://doi.org/10.1080/00224499.2020.1761937 doi:10.1080/00224499.2020.1761937 PMID: 32420803.

[98] Sharon Smith, Jieru Chen, Kathleen Basile, Leah Gilbert, Melissa Merrick, Nimesh Patel, Margie Walling, and Anurag Jain. 2016. National Intimate Partner and Sexual Violence Survey: 2010-2012 State Report. (2016). Publisher: Centers for Disease Control and Prevention (CDC).

[99] Yolande Strengers, Jathan Sadowski, Zhuying Li, Anna Shimshak, and Florian 'Floyd' Mueller. 2021. What Can HCI Learn from Sexual Consent?: A Feminist Process of Embodied Consent for Interactions with Emerging Technologies. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. ACM, New York, NY, USA, 1–13. doi:10.1145/3411764.3445107

[100] Angelika Strohmayer, Jenn Clamen, and Mary Laing. 2019. Technologies for Social Justice: Lessons from Sex Workers on the Front Lines. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. 1–14.

[101] Sophia I. Sánchez, Hannah R. Jones, Katherine W. Bogen, and Tierney K. Lorenz. 2023. Barriers experienced by emerging adults in discussing their sexuality with parents and health care providers: A mixed-method study. *The American Journal of Orthopsychiatry* 93, 4 (2023), 335–349. doi:10.1037/ort0000677

[102] Marie Louise Juul Søndergaard and Lone Koefoed Hansen. 2018. Intimate Futures: Staying with the Trouble of Digital Personal Assistants through Design Fiction. In *Proceedings of the 2018 Designing Interactive Systems Conference*. ACM, New York, NY, USA, 869–880. doi:10.1145/3196709.3196766

[103] Devin Tebbe, Braeden Burger, Toby Kind, and Douglas Zytko. 2024. Consent, Deception, and Retaliation: Articulating What it Means to Feel Safe in Social Cross-Reality with Participatory Design of VR Dating. In *Companion Publication of the 2024 Conference on Computer-Supported Cooperative Work and Social Computing* (San Jose, Costa Rica) *(CSCW Companion '24)*. Association for Computing Machinery, New York, NY, USA, 616–623. doi:10.1145/3678884.3681915

[104] Emily Tseng, Mehrnaz Sabet, Rosanna Bellini, Harkiran Kaur Sodhi, Thomas Ristenpart, and Nicola Dell. 2022. Care Infrastructures for Digital Security in Intimate Partner Violence. In *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems* (New Orleans, LA, USA) *(CHI '22)*. Association for Computing Machinery, New York, NY, USA, Article 123, 20 pages. doi:10.1145/3491102.3502038

[105] National Clinical Guideline Centre UK. 2016. Major trauma service delivery systems model. In *Major Trauma: Service Delivery*. National Institute for Health and Care Excellence (NICE).

[106] United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Children's Fund (UNICEF), Joint United Nations Programme on HIV/AIDS (UNAIDS), United Nations Population Fund (UNFPA), World Health Organization (WHO), and United Nations Entity for Gender Equality and the Empowerment of Women (UN Women). 2021. The journey towards comprehensive sexuality education: global status report. https://cdn.who.int/media/docs/default-source/hrp/379607.pdf

[107] Daisuke Uriu and Shun Arima. 2025. Designing Virtual Funerals as a Design Fiction: A Film-Based Exploration of Near-Future Memorial Rituals. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25)*. Association for Computing Machinery, New York, NY, USA, 1–19. doi:10.1145/3706598.3713399

[108] Krishna Venkatasubramanian and Tina-Marie Ranalli. 2022. Designing Post-Trauma Self-Regulation Apps for People with Intellectual and Developmental Disabilities. In *Proceedings of the 24th International ACM SIGACCESS Conference on Computers and Accessibility*. ACM, Athens, Greece, 1–14. doi:10.1145/3517428.3544798

[109] Michael W Wiederman. 2005. The Gendered Nature of Sexual Scripts. *The Family Journal* 13, 4 (2005), 496–502. doi:10.1177/1066480705278729

[110] Daniel T. Willingham. 2015. Ask the Cognitive Scientist: Do Students Remember What They Learn in School? *American Educator* Fall 2015 (2015). https://www.aft.org/ae/fall2015/willingham

[111] Malachi Willis and Kristen N. Jozkowski. 2018. Barriers to the Success of Affirmative Consent Initiatives: An Application of the Social Ecological Model. *American Journal of Sexuality Education* 13, 3 (July 2018), 324–336. doi:10.1080/15546128.2018.1443300

[112] Christine T. Wolf. 2019. Explainability scenarios. In *Proceedings of the 24th International Conference on Intelligent User Interfaces*. ACM, New York, NY, USA, 252–257. doi:10.1145/3301275.3302317

[113] Chaeyoon Yoo and Paul Dourish. 2021. Anshimi: Women's Perceptions of Safety Data and the Efficacy of a Safety Application in Seoul. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW1 (April 2021), 1–21. doi:10.1145/3449221

[114] John Zimmerman, Jodi Forlizzi, and Shelley Evenson. 2007. Research through design as a method for interaction design research in HCI. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '07)*. Association for Computing Machinery, New York, NY, USA, 493–502. doi:10.1145/1240624.1240704

[115] Douglas Zytko and Jonathan Chan. 2023. The Dating Metaverse: Why We Need to Design For Consent in Social VR. *IEEE Transactions on Visualization and Computer Graphics* X, X (May 2023). doi:Inpress

[116] Douglas Zytko and Nicholas Furlo. 2023. Online Dating as Context to Design Sexual Consent Technology with Women and LGBTQ+ Stakeholders. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23)*. Association for Computing Machinery, New York, NY, USA, 1–17. doi:10.1145/3544548.3580911

[117] Douglas Zytko, Nicholas Furlo, Bailey Carlin, and Matthew Archer. 2021. Computer-Mediated Consent to Sex: The Context of Tinder. *Proc. ACM Hum.-Comput. Interact.* 5, CSCW1 (April 2021). doi:10.1145/3449288 Publisher: Association for Computing Machinery Place: New York, NY, USA.

[118] Douglas Zytko, Nicholas Mullins, Shelnesha Taylor, and Richard H. Holler. 2022. Dating Apps Are Used for More Than Dating: How Users Disclose and Detect (Non-)Sexual Interest in People-Nearby Applications. *Proceedings of the ACM on Human-Computer Interaction* 6, GROUP (January 2022), Article 30, 1–14. doi:10.1145/3492849

Received July 2025; revised November 2025; accepted December 2025