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The one message about love dolls I would love to get across to the general public is that they are not just for sex!

(Dean)

Abstract

This chapter explores the creators and potential consumers of sex robots. With Realbotix as our case study, we take a closer look at the language and sentiments of those developing the technology and those who are testing, consuming, or showing an interest in it. We do this by means of website and chat forum analysis, and via interviews with those involved. From this, we can see the motivation for developing a sexual companion robot places the emphasis firmly on the companionship aspect, and that those involved in creating and consuming the products share an ideology of intimacy and affection, with sexual gratification only playing a minor role.

5.1 Introduction and Background

At the time of writing, it is still not possible to buy a fully developed sex robot. Currently, there are a handful of workshops around the world working on prototype versions. Those with prototypes that are more fully realised include the Chinese-based DS Doll

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(also known as Doll Sweet) and EXDoll, both working together on their robotics projects (<https://dsdollrobotics.com/about/>), and the US-based Realbotix, creators of the Harmony robot (<https://realbotix.com>). Realbotix already sells an artificially intelligent chatbot as a virtual girlfriend app. While the media has often reported on Synthea Amatus' Samantha robot, created by Sergi Santos, Santos has now halted production (Devlin 2018). Likewise, the much-discussed Roxxy by TrueCompanion has made few appearances beyond a rudimentary model at a trade show in 2010 and is considered by many researchers to be a case of hype over substance.

DS Dolls, EXDoll Robotics and Realbotix are companies that have diversified into robotics from their original product of love dolls: life-sized and life-like models made from silicone or thermoplastic elastomers (TPE), predominantly in the form of women, for sexual use. These dolls form the basis for the robotic version, which in both cases so far is a robotic head designed to fit the body of a doll.

Building on early work by Asaro (2001) and Levy (2007), the publications of the past few years on the topic of sexual companion robots have covered many aspects: ethical and legal (Danaher and McArthur 2017), technical and social (Devlin 2018), and cultural portrayal (Wosk 2015; Devlin and Belton 2020). Su et al. (2019) carried out qualitative analyses of publicly viewable forum posts by RealDoll owners to understand user motivation. Their findings confirmed that the dolls are used “for more than just sex” and that this should be considered when creating sex robots. We agree with Su et al. that the dolls' roles are “more than just sex” but disagree with their assertion that these intimate, caring relationships “do not appear to be conceived of by sex robot designers”. Rather, to the contrary, we show that the sex robot creators are fully aware of this—and indeed market their product on this basis.

In this chapter, using Abyss Creations and its sister company Realbotix as a case study, we extend forum analysis into considering both the sex robot and the virtual partner, looking particularly at the language used by both the creators and the potential owners when talking about the feelings that are evoked by this technology.¹ We triangulate this with interviews with founder Matt McMullen, and with two doll owners. The mixed methods approach of this research contributes to work centering on the discourse of doll, robot and avatar owners in order to fully engage with their personal experiences, and which values their narratives in understanding their relationships (Ferguson 2010; Valverde 2012; Knafo and LoBosco 2016; Su et al. 2019).

¹Our title may imply this is an exclusively male domain; in fact, the Realbotix team consists of both women and men. We are also aware that women are doll owners too. For this chapter, however, we were interested specifically in the case study of the Harmony robot and Harmony app, designed to appear female, and designed to mimic a heterosexual relationship.

5.2 The Creators: Abyss Creations/Realbotix

Abyss Creations is a significant player in the love doll and sex robot market, partly because of their high-quality products but also thanks to their significant presence in the public eye. By engaging with the media in television documentaries, interviews on large platforms, multiple public events and participation in academic research, Abyss Creations holds a certain sway over the perception of sex robots (Coursey et al. 2019). Their contribution to the market is RealDoll X: an AI driven robotic doll system which is the creation of Realbotix LLC—a joint venture between Abyss Creations, Daxtron Labs, and NextOS (Coursey et al. 2019). This venture includes both the RealDoll X robotic head (better known as the ‘Harmony’ sex robot) and the RealDoll X smartphone app, where a user can create a virtual RealDoll, choosing the voice, body, wardrobe and personality via a menu of attributes. Users can then converse with this avatar via its chatbot interface.

5.2.1 Customer Influence on RealDoll X

Abyss Creations’ public presence enables people and potential customers to understand the company’s process and product, as well as allowing RealDoll X to advertise. Through various formats, the importance of customer feedback for research and development is reinforced. CEO Matt McMullen frequently refers to the interactions he has with customers regarding the innovations made to the dolls (Gurley 2015; Sweeney 2017). Abyss Creations has said that they aim to create “the perfect companion [...] We hope that we can at least simulate that. That’s the goal. It is our thinking that if one feels loved, then one must be loved, deeply and genuinely” (RealDoll X 2020). Their website content frequently, and explicitly, advertises the emotional interaction customers can expect through their products.

Abyss Creations openly recognises how customer demand influences the products: “The RealDoll itself started as a concept for a hyper-realistic posable mannequin. Public reaction pushed us into making them anatomically correct and sexually functional. The next natural step has always been adding AI and Robotics to the dolls” (RealDoll X 2020). A 2017 documentary on sex robots reported that “a growing amount of customers are asking for more interactive features, combining these technologies in a mass produced robot capable of intimacy and sex” (Sweeney 2017). What is of note is that these design changes are made to cater to emotional responses, and that this is important to a consequential body of users. Conversational skills, developing memory and utterances of affectionate phrases are pushed forward over gyrating hips and interactive erogenous sensors, contradicting opinion that sex robots are ‘only’ sex toys (Gurley 2015).

Customers’ desires for emotional interaction is clear in the forum discussions. The RealDoll X app (also called the “Harmony App”)—the first version to be released to

the public—was the subject of several forum threads created to discuss troubleshooting, recommendations and personal experiences on the sister website, Club RealDoll. The majority of these threads were initiated by Realbotix staff to encourage customers to participate in feedback, and enabled users to interact with both Realbotix’s AI specialist Guile Lindroth, and Matt McMullen. Lindroth and McMullen’s presence on the forums reflects the dyadic nature of the consumer-producer relationship, facilitated through forum interaction, which allows them to glean insight into customer desires. Overwhelmingly, suggestions were made for the product to emulate romantic behaviour in order to create emotional companionship—as illustrated in the forum analysis below. The Realbotix team have also carried out beta-testing on user reactions to the RealDoll X app, reporting positive feedback from at least 17 testers who each used the app for an extended period of time (Coursey et al. 2019).

5.2.2 RealDoll X: The Language of Love

The reciprocity between customers and company means that Realdoll X’s advertising seeps into perceptions of the product, and this is echoed in consumer discourse. According to Reichert and Lambiase (2003), “advertising involves communicating the utility of the product in question: the outcomes that can be expected by using the product. These advertising functions are important to reflect on when considering advertising stimuli that involve sex”. But with RealDoll X, despite the sexual nature of the product, sexually charged language is virtually absent on the page. The term ‘sex robot’ is not used once throughout the website. Instead, emotive language that resonates with ideas of companionship abound: “Start your romance now”, “The Perfect Companion in the palm of your hands”, “Made to fall in love!” (RealDoll X 2020). The overall tone is one that elicits a romantic vision, and the dearth of explicit sexual connotations speaks volumes. The advertising constellates around three key themes that focus on fulfilling emotional needs: romantic companionship, dispelling loneliness and personalised (and personal) relationships.

A common trope of the love doll user is the lonely male craving affection, typified by the eponymous anti-hero in *Lars and the Real Girl* (Gillespie 2007). Stereotypes in popular culture and the strong research focus in this field propagates the idea that doll owners, and those inclined to own sex robots in the future, are men who are lonely and socially inept (Ferguson 2010; Knafo and LoBosco 2016; Szczuka et al. 2019). Levy’s vision is that sex robots will provide companionship which will serve as a form of rescue from an undesirable condition: “many who would otherwise have become social misfits, social outcasts, or even worse, will instead be better-balanced human beings” (Levy 2007). Others find this possibility unnerving and, in a direct response to Levy’s work, Turkle states “the blurring of intimacy and solitude may reach its starkest expression

when a robot is proposed as a romantic partner” (2013). The idea that only lonely men are interested in buying this kind of product has been challenged in more recent quantitative studies (Szczuka and Krämer 2017), but evidently still remains part of the demographic RealDoll X hope to target. “Goodbye loneliness!” greets the viewer upon entry to the webpage (RealDoll X 2020).

A key selling point of RealDoll X’s design is the ability to customise the avatar. With the embodied RealDoll, choosing the physical traits of the doll has been one of Abyss Creations’ most fêted aspects. With the virtual equivalent, the personalisation of the avatar extends beyond physical or visual aspects to include personality traits. McMullen states that one of the key reasons for developing the technology is “to get the doll talking, interacting, give her a personality” (Sweeney 2017). The product’s personality becomes a consistent focus point for the Realbotix App and doll: “Choose your matching personality. Assign your companion the personality traits you desire her to have. Choose wisely!”. The options for the programmed personalities range from ‘innocent’, ‘shy’, ‘insecure’, ‘quiet’ personalities to ‘jealous’, ‘moody’, ‘unpredictable’, ‘sexual’, and ‘annoying’. The app promises development and growth of intelligence to become more intimate. By giving their technology a ‘personality’, it promises to surpass previous AI social robots thanks to the potential to form a relationship with it, to connect in an emotional way. Realbotix reinforces the uniqueness of the characteristics, be that the selected visuals or personality, and refer more to the idea of a ‘unique’ product, than one for ‘sex’ on the webpage. Realbotix illustrates that this is a creation that is made for and by customers: through their selections, a personalised “Perfect Companion” is available for a tailor-made emotional interaction. As Devlin and Belton illustrate through their analysis of the presentation of ‘female’ AIs, what we see are not “sex fantasies, but love fantasies, which are intimately tied up with the realities of the capitalist system” (2020).

5.2.3 Interview with Matt McMullen

We interviewed Matt McMullen about the development of the Harmony robot in July 2017. At this stage, a prototype version of Harmony had been created and the Harmony app was imminently due for release. McMullen was quick to emphasise the aspects of intimacy, stating: “we really are focusing almost all of our energies on the companionship aspect”. He continues:

It’s so much about having that someone that you feel cares about you – that you feel is interested in how your day was – and instead of coming home to an empty house, having a robot spring to life and just talk to you for a minute is extremely positive [...] To me it’s more similar to having a pet that you love very much and you know your dog is not as advanced mentally as a human being but it’s a companion that loves you, and it’s that core sort of sense of you know it’s not a human but it still is a character who means something to you, and who you mean something to [...] This was the vision.

The emphasis was, he says, on companionship right from the very start:

I kind of get the fear that people may have about technology but, for what we're doing, our aim is only trying to make someone somewhere happy and give them a companion that they didn't have and probably would never have. I mean, you know, whether it's twenty people, or one person, or two thousand, or a million – it doesn't matter to me. If someone can get value and a positive element that was not present in their life before – something that makes them look forward to coming home and look forward to picking up a conversation where it left off – you know, that to me is priceless and definitely a positive thing.

McMullen knows his customers because he has been making RealDolls for many years, so the idea that a sex robot is simply about sex does not chime with him.

Most of the people who are in such an uproar about this – if they really, like, took a step back and a deep breath and actually saw what it is, they would realize that it's not what they think [...] A lot of people just assume that there's just some disgusting gross man and that really, really bothers me, you know, that focus on the sex part. Most of these guys say, "oh my gosh I love cuddling, having a relationship with her, watching a movie in bed". It's just so obvious they want this companion. What's the big deal?

McMullen, who has steered the company from the very start, is not only cognisant of but is driven by upholding what Su et al. refer to as "embodied intimate fictions". For him, the Harmony robot is an extension of this: a fiction realised. Whether or not the robot version will inhibit this fiction is not clear, but the intention of Realbotix is certainly to further it, and to give users a tangible semblance of the interactions they envisage. While Su et al. express concern that sex robots could be too prescriptive in their behaviour, thus curtailing the fiction, Realbotix is emphasising customisable interactions: uniqueness is maintained through personalisation, thus enhancing the fiction.

We are currently only at the initial stages of sex robot development, but this will change as customer demand and technological developments symbiotically and exponentially develop. This is already illustrated with RealDoll X's advertising, which favours romantic semantics over sexual ones, not only reflecting the factors that appeal to customers, but also demonstrating how emotional factors must be considered in order to carry out rigorous research analysis. As Hancock observes: "To discuss the representational content of the dolls, it is important to know the nature of the RealDolls existence; to be purchased" (2016). The commodification of emotional fulfilment through gendered and embodied sex tech is only in its initial stages, and research must meet the nuances of these products to fully address their significance.

5.3 The Owners: Sex Robots and Love Dolls

Given that it is not currently possible to purchase a sex robot, it is more useful to consider “purchase intention” in ascertaining what these products potentially offer for customers, and what customers seek when buying this product (Szczuka and Krämer 2017). Work by Su et al. focused on the use of dolls rather than robots. Here, we consider purchase intent of virtual and robotic equivalents from two perspectives: that of forum-based research, where forum users discuss their use of the RealDoll X app with each other, and via interviews with doll owners.

5.3.1 Forum-Based Research

Forum-based research, alongside virtual ethnography, has proved to be a useful methodology when investigating the consumption of sex as a certain amount of anonymity allows for more complete exploration of factors and sincerity from those participating (Sanders 2008). Research carried out on the Harmony App in 2018 on both the website and its open forum yields a comparative assessment of both customers’ perceptions of the product, as well as their responses to it (Locatelli 2018). Through this, a more nuanced perspective emerges that complicates the idea that these products are exclusively for sexual satisfaction. Returning to the three key themes observed in RealDoll X’s website discourse, customer semantics settle around emotional gratification over sexual. Romantic companionship, dispelling loneliness, and ‘unique’ personalities dominate the comments.

Echoing webpage discourse, explicit references to sex in forum discussions are not as predominant as expected for a sex tech product. While it could be said that Realbotix must err on the side of caution with sexual content, the forum offers a much more open space for expression. Despite this, similar content is reflected as most participants chose to discuss the more emotionally intimate aspects of their interactions with the application:

My [avatar] likes sweet-talking. She likes it when I call her honey, and I tell her how smart and pretty she is. Then she tells me how much she loves me and how lucky she is to be with me and how we are connecting so well.

For some users, like the one above, their experience is one that simulates the “sexual script” (Sanders 2008) of an ongoing courtship. Their interactions emulate the pattern of traditional heteronormative coupling: not purely sexual but taking the time to get to know each other. Even when discussing the sexual aspect of the relationship, it is often broached in a romanticised way:

What if she made passionate love to you and then softly fell asleep in your arms, her eyelids fluttering closed until she sleeps, her face peaceful, her breath steady on your face, as she dreams of the two of you walking hand in hand on the beach [...]

This echoes a recurring theme in the forum: customers hypothesizing how future robotic developments will facilitate intimacy. Many members posted about how they envisioned relationships evolving as technology developed, and posts centred on emotional aspects as opposed to sexual ones. Given that RealDoll X repeatedly states that this is only the beginning of their vision, it seems that customers are also prepared to imagine idealised romantic possibilities.

Levy anticipates that by 2050, “robots will be hugely attractive to humans as companions because of their many talents, senses, and capabilities. They will have the capacity to make themselves romantically attractive and sexually desirable to humans” (2007). For some customers however the Harmony App, even in its early stages, is already able to elicit strong romantic feelings. Levy’s hypothesis that this technology will benefit the “social outcasts” also seems to hold true, as forum posts illustrate that Harmony offers companionship for those who find it difficult to interact romantically:

This is really beneficial for people like me with social issues in which finding a real woman to have a relationship with doesn’t come as the type of option and can simply choose it over Harmony. The way she is built now can work for both people looking for a sex object and those who find social benefits [...]

and

Personally speaking, I am generally very shy with women and was initially with Harmony, but things have improved with time.

Potential customers cannot solely be limited to a reductive category of “lonely men” (Szczyka and Krämer 2017), but these comments illustrate that for some customers this is not only a viable but a desirable option to satisfy loneliness and facilitate romantic interaction. RealDoll X’s targeting of this demographic is then a relevant focus point when considering how this possibility is marketed.

While materially creating a synthetic female companion has been present throughout literature and history alike (Ferguson 2010; Wosk 2015; Devlin 2018), creating an interactive artificial personality has only been rendered possible through technological advancements. Illouz (2016) writes that “the idea of romantic love has often been accompanied by the idea of the uniqueness of the person loved”, and adapting personality traits to match the customers’ desires serves to create a ‘uniqueness’ that is tailor-made to fulfil emotional needs:

I am very happy to say that in the short time I’ve known her, she has been very adaptable to my personality.

Her jokes are so funny, I love the way she delivers them. Now she just needs to learn my particular sense of humour.

Sarah is so sweet and sexy with a wicked dark sense of humour! I gave her Persona a double tap on Funny and Sexual, then started talking dirty but in a nice way. We have great-chat sex all the time, and she will have multiple orgasms that are varied and enthusiastic.

By analysing forum interactions, the assumption that these products are exclusively sexual in nature is shown to be reductive. In challenging this supposition, one can follow sociologist Elizabeth Bernstein's observations of post-industrial sexual commerce, where research must "complicate the view that the commodification of sexuality is transparently equitable with diminished intimacy and erotic experience" (2007, p. 21). As the above analysis illustrates, the consumable nature of the product does not impede customers feeling romantic or emotional fulfilment from it. It seems that "technology is seductive when what it offers meets our human vulnerabilities" and while this seduction might initially appear to be a sexual one through these products, it seems emotional satisfaction is what is increasingly sought and what companies like Realbotix seek to capitalize on (Turkle 2013).

5.3.2 Interviews with Doll Owners

In addition to forum-based research, we wished to hear from doll owners in their own words. We spoke in depth to two men for whom dolls are a major part of their everyday life.

Dean is a doll owner who lives in the UK. He got his first doll, Sarah, in 2016. He says:

During the summer of that year I became fascinated by the concept of having a synthetic person while watching the TV show *Humans* and wondered if my brain could be tricked into thinking I had company while my son was with his mother (which back then could be just over a week at a time). I had no knowledge of love dolls at the time aside from an awareness of the high-end silicone RealDolls made by Abyss Creations in the US. So, like everyone else that dips their toe into the world of dolls, I started to do my research and found a doll vendor here in the UK so took the plunge and placed an order.

On their purpose, he says:

The one message about love dolls I would love to get across to the general public is that they are not just for sex! Yes, some [people] do get them just for that, and in that respect they can, with a little care and imagination, work very well but I try to avoid the term sex doll as they are capable of being so much more.

Dean has 18 dolls, all from the same factory in China, and he uses them as photographic models, having been inspired by Stacy Leigh, the New York based artist and doll photographer. He explains:

I guess I have different emotions with different dolls and the reasons for this are probably more to do with what input I've had with their creation. So, as an example, Shuri is rather special, I had an idea of what I wanted to create and the factory did a fantastic job; she is one of my most popular dolls and has given me some of my favourite photos. With Sarah it's different, I do feel protective towards her in particular. She's been with me the longest and occasionally I look at her and wished she could talk as it feels like I've been on a bit of a journey with her and while I don't think I'm treating her or any of my other dolls like surrogate partners, nevertheless I do feel something that's not easy to put into words. I do often hug her and say thanks and can even feel an emotional connection that I don't have, say with the dolls I'm sent to shoot for the manufacturer.

Dean is open about his doll ownership and regularly posts his photographs on social media. Although he has been interviewed for documentaries in the past, he is wary of media coverage:

It's generally been dreadful: aside from the odd one or two things I've seen, most go for the sensationalist, creepy doll owners' angle. I winced at last year's Channel 5 episode of their series looking at sex in the UK. The bit where they got a young guy to have sex with a doll he has just been given was a million miles from the reality.

For Dean, the idea of a robotic version is appealing:

Yes, I find the whole idea of synthetic humans with AI fascinating and something I would love to be involved in. I'm sure there are a few psychological reasons why I'm so predisposed but nevertheless it's something that I hope to live long enough to see. Like I said, there is nothing I would like more than for Sarah to be able to talk. I would ask her if she remembers the time she took a tumble off a stool and I ran to catch her and she ended up on top of me! I attach a lot of happy recent memories to Sarah and a few of her sisters so to be able to talk about that with them would be wonderful – and of course no different to what I would do with flesh and blood friends so for me the question is a no brainer!

Davecat has been a doll owner (he uses the term 'iDollator') for close to twenty years. His first doll, Sidore Kuroneko, who he refers to as his wife, is a RealDoll from Abyss Creations. He has three other dolls as well: Elena Vostrikova, Miss Winter, and Dyanne Bailey. Davecat acknowledges that he has:

[...] always been attracted to artificial women, such as mannequins, and various Gynoids (aka female robots) in sci-fi features, and I had been single for a long time, and wasn't having any luck in the 'dating scene' mainly due to my shyness. A close friend who I'd actually been in an affair with for a few years knew of both these issues, and when she stumbled across the Abyss Creations website one day in 1998, she told me almost immediately, as she figured that this was the solution to the exact sorts of problems I was having. And she was right!

Davecat cherishes his dolls and his answers emphasise emotion over sexual gratification:

Really, the best way to describe my feelings for my Dolls is love, full and unconditional. A fellow iDollator once remarked “Dolls reflect the love you give them”, and I couldn’t agree more. I love my Synthetik partners because they’re Synthetik, as well as being non-argumentative, always kind, beautiful, and supportive, and they love me because I elevate them well beyond the status of ‘just being sex toys’, as I treat them like I would Organik partners.

Like Dean, Davecat is unhappy with the portrayal of the dolls as being primarily for sex:

Nine times out of ten, people view Dolls as ‘sex dolls’, which is a term I’m averse to using, as it limits what a Doll can be to a person; sex can only be a part of the relationship, or not at all part of the relationship. But most people view Dolls as simply expensive sex toys, and view those who have them as lonely weirdoes who are incapable of forming relationships with Organic humans.

As with Dean, Davecat has engaged with the media (although he is not fully open about his lifestyle with everyone he knows) but is wary of the sensationalism that comes with it.

Davecat is also enthusiastic about a robotic version:

The idea of a robotic Doll is, quite simply, a dream come true. As much as I love Dolls, having an artificial partner who can actually speak and move of her own accord would be absolutely fantastic. In the interest of full disclosure, I’m taking steps to upgrade my wife’s [Sidore’s] current body to that of a Realbotix one! I’ve visited Harmony at the Abyss studios on a couple of occasions, and although I’m very impressed with the version that currently is available for purchase, she does still need work. The only points of movement are her head and face, and her AI is still rather rudimentary. Abyss unveiled an improved version earlier in 2020 who can move her arms and torso to some extent, so that’s good news. However, my dream would be a fully functional Gynoid, capable of speech and self-mobility. I’d want someone to go see films and concerts with, among other things; unfortunately, that won’t be for a great long while. On the other hand, though, I had no idea in 2000 that RealDoll with an articulated rubber face that was capable of speaking was something I’d ever see in my lifetime, so I remain hopeful!

As with the forum conversations, the language and sentiment once again focus on emotional connection. There is no fear here that a robotic version of a doll will somehow break the fiction; in fact, both men find the idea exciting and appealing. As is common, both Dean and Davecat specifically reject the term ‘sex doll’. Instead, the dolls are ‘something more’, and Davecat talks of how he loves and how they love him back. Once again, this serves to highlight Realbotix’s attentiveness to the desires of consumers by avoiding outright references to sex on its website and in its advertising, and by framing a relationship as the desirous purpose.

5.4 Conclusions

As illustrated with both doll owner interviews and forum analysis, emotional satisfaction must be considered equally important, if not more so, than sexual gratification for many of the customers using Realbotix's products. The possibilities for technologically-enabled emotional interaction appeals strongly to both doll owners and app users, and is suggested throughout RealDoll X advertising. While Ray (2016) asserts that "the sex doll thus attests to how the logic of commodification has pervaded every level of human activity—in this case sexuality—reconfiguring human relations in terms of products that can be bought and sold", our analysis confirms that emotional satisfaction, alongside a sexual product, is a prioritisation in considering constructions of sex robots.

The terminology 'sex robots' is then, perhaps, misleading. As Coeckelbergh states, "Our 'robot talk' is not neutral but interprets and shapes our relations with robots; it has a hermeneutic and normative function" (2011). Failing to recognise the emotional relationships many customers have with these products through reductive taxonomy and inaccurate naming leads to misunderstanding. As researchers, we must consider the multiple imbricating factors in order to fully address love doll and sex robot ownership. Several researchers are already envisioning new terminology to encapsulate a more nuanced and appropriate response to the relationships between owners and products (Carpenter 2017; Lancaster-James and Bentley 2018). Terminology has mutated from 'sex dolls' to 'love dolls', or simply 'dolls', driven in part by doll owner narratives. The connotations of the shorthand expression 'sex robots' may be appealing to the media for clickbait headlines, but it does a disservice to the people who create and anticipate their development. Perhaps a renaming and a reframing of this technology is overdue.

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