

Fugitive publics: sex, sexuality, and science communication

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Abstract

This article attends to the absences and silences of sexual identity and knowledge in science communication scholarship. It locates identitarian debates within this scholarship and utilises queer theory to encourage a shift towards a post-identitarian approach to conceptualising sex (as a social act) in science communication. In this way, this article advocates for a queer science communication that critically examines normative identities, practices, institutions, and policies, and makes room for subjugated knowledges within science communication theory and practice.

Keywords

Public engagement with science and technology; Science communication: theory and models; Social inclusion

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Introduction

Previous science communication scholarship has attended to the role of gender and sexuality within mainstream science, with a particular focus on the uneven distribution of power, equity, and identity within scientific cultures, practice, and public engagements [Cipolla, Gupta, Rubin & Willey, 2017; Dawson, 2019]. Yet the practice and theory of analysing sex (as a social act) in relation to science communication remains emergent within a growing 'sub-discipline' of queer science communication [Roberson & Orthia, 2023]. This theoretical essay contributes to this emergent subfield by tracing existing debates about identitarian claims about gender and sexuality and reveals how sex (the social act) is silenced within the making of science communication as a 'public good' [Gregory & Lock, 2008]. I ask: How and why does existing science communication scholarship conceptualise sexuality and sex, and what forms of analysis might be used to 'un-silence' ways of knowing and speaking about sex and sexuality? By answering these questions, I seek to develop a post-identitarian analysis that can inform new and queer(er) practices of science communication.

I begin by tracing the dominant identitarian analytic that defines gender and sexuality within science communication. I examine how both feminist and

emergent queer science communication scholarship foreground 'inclusion' politics [Roberson & Orthia, 2023, pp. 3–4] to define how individual difference relates to the minoritisation of the 'imagined publics' [Dawson, 2018] of science communication. This theorisation of gender and sexual difference is framed as necessary to articulate the impoverishment of queer identities, positionalities, and experiences within the practices of communicating science [Roberson & Orthia, 2023]. It thus helps to illuminate the political neglect of queer (i.e., LGBTQIA+) and marginalised publics within science communication scholarship and practice [Dawson, 2018, 2019; Dawson, Hughes, Lock & Wahome, 2022; Lewenstein, 2019, 2022; Rasekoala, 2023]. However, I suggest that this analytical framework collapses sexual differences within the imagined publics of science communication in society.

I suggest that the identitarian analytic ultimately, though not conclusively, falls short of attending to 'disqualified fields of knowledge and experience' [Foucault, 1995], especially related to sex and sexuality. To expand the potential of a queer analytic within science communication, I draw together this existing literature with queer theories of normativity and failure. I articulate a post-identitarian analytic by employing Jack Halberstam's [2011] meditations on 'queer failure' to articulate a framework for unsilencing sexual knowledges in science communication. Defining sexual knowledges as 'subjugated knowledges' [Foucault, 1995], I articulate one way to listen to the 'undisciplined' nature of sex and sexuality within science communication. I attend to the constitution of 'fugitive' queer publics [Halberstam, 2011] who disidentify with and critique the normative structures and strategies of dominant science communication practices. I thus conclude by situating these fugitive publics alongside identitarian publics and consider what these entangled publics might mean for queer science communication.

Background

Existing science communication scholarship has focused on identitarian aspects of gender and sexuality in science communication. Attending to how specific individuals identify and perform their gender and sexuality [Butler, 1990] follows from earlier feminist science studies debates, which focuses critique on patriarchal and heteronormative structures within scientific practice [Grebowicz, 2005]. By 'identitarian aspects' I mean the 'solidarity built around the assumption of a common identity and [social] agenda' [Seidman, 1995, p. 117]. The focus on counting and including individual identities follows previous cultural movements to identify and mobilise relevant communities around a strategic approach to including and integrating minoritised individuals within existing public institutions [Seidman, 1995, pp. 116–117]. This 'strategic essentialism,' or a temporary appeal to a universalist claim of inclusion that assumes internal coherence of a social group across a wide range of individuals to devise an intervention or movement in society [Spivak, 1985], creates a baseline for understanding how identity informs both the practice and communication of science. More specifically, appealing to a universalist claim of inclusion (and by extension, exclusion) helps to identify the uneven distribution of power and inequalities within public engagements with science [Dawson, 2019]. This approach foregrounds critique of normative identities in the making and communication of science [Roberson & Orthia, 2023] and thus recently has set up science communication theory to examine who is (not) seen and heard, what their experiences are (and the absences that follow exclusion), and why they matter (or what the absence means) [Dawson, 2019; Rasekoala, 2023].

For instance, Roberson and Orthia [2021, p. 3] identify that ‘in the past 150 years under Western science’s influence, queer people became objects of science,’ which raised critical questions about how and why gender and sexuality are understood ‘scientifically’. Until recently, scientific paradigms communicated gender and sexuality through empirical observation without clearly identifying the strategic role of including identities and lived experiences within our understanding(s) of the science(s) of both phenomena. As such, they appeal (very rightly) to the first step in promoting awareness and critique of gender and sexuality within science communication: namely, talking about the queer experience’ [2021, p. 4] As Roberson and Orthia attest, previous science communication conducted research *on* rather than *with* queer people, thereby collapsing the significance of queer people as ‘communicators, publics and stakeholders for science’ [2021, p. 4]. In this way, they set up a novel claim to empower the queer subaltern within science communication. Their queer science communication seeks to strategically investigate and question the ‘underlying structures and values [of dominant science cultures] which influence how [queer communities] think about science and technology’ [2021, p. 5]. The authors thus embrace ‘queer needs, experiences, perspectives, knowledge, skills, [and] expertise’ [2023, p. 3] as a means to reorient existing power structures and inequalities reproduced within the design and delivery of scientific practice and communication.

This *queering* of science communication exists within the ‘margins’ of the discipline. However, this process exists within a growing movement to centralise social justice and equity within the discipline [Dawson et al., 2022]. The queer ‘margin’ seeks to collect, understand, and integrate queer experiences within science communication and the broader STS discipline by identifying and critiquing ‘exclusive, unjust science communication busily reproducing advantages for those groups already most advantaged in our societies, while disadvantaging everyone else [Dawson et al., 2022, p. 2]. As stated above, the significance of this shift is to move the field beyond ‘privileged’ publics that have become entrenched within the disciplinary debate [Dawson, 2018] and to explore processes of marginalisation, absenting, and silencing — thereby critically examining what has previously been understood as ‘rogue publics’ and ‘incipient threats’ [Welsh & Wynne, 2013]. This ‘marginal’ critical thinking counters previous notions of disengaged publics by considering the inclusion of ‘queer publics’ in science institutions and museums [Armstrong & Lock, 2023], pedagogy and teaching [Lock & Armstrong, 2023; Motion & Wallace, 2023; Orthia & de Kauwe, 2023], technology and innovation [Roberson, 2023], public engagement and outreach practices [Davis, 2023; Harwell, 2023; Suciu, Pearlstone & Langford, 2023; Viaña et al., 2023], and community science activism [de Kauwe & Standen, 2023; Tan Liwag, Fidelino, Escosio, Ocampo & Santos-Ocampo, 2023]. As such, this margin is paving the way for new and critical investigations of the potentials — and absences — of *queerness* (and its unstable publics) within science communication theory and practice(s).

My intention in this article is not to counter this emergent scholarship. Instead, by articulating the identitarian trajectory of this work, I seek to add an additional layer of critical inquiry — namely, a post-identitarian theory — which I suggest will deepen and sharpen the forms of analysis that might take place in queer science communication. Specifically, I want to attend to the absence of sex (as a social practice) within these conversations and articulate how and why sex *as a social experience and practice* informs broader conversations about social justice and

equity in science communication. Before I articulate this approach, I wish to specify what I mean by the ‘new’ appeal to social justice in science communication. Emily Dawson has recently explored the minoritisation of racialised groups within science communication. Dawson identifies how and why particular ‘practices create publics through exclusion and what these publics make of [these practices]’ [2019, p. 12]. She raises critical insight into how everyday science learning is constrained by the tendency to privilege pre-existing community networks or educational structures — and more specifically, how previous discursive and theoretical framings of science communication and STS scholarship has largely ignored questions of social justice, equity, and inclusion [2019, pp. 25–26]. She thus explores how imagined audiences and engagements are limited by dominant publics who are always-already inscribed in the public understanding of science lexicon [2018, pp. 773–774; 2019, p. 26]. It is here that I identify further need for the queer margin to consider how normative practices and publics both inform theory and practice *and* sustain processes of marginalisation and exclusion within (queer/ing) the discipline.

I argue that the queer margin must develop an awareness of the ‘sexual knowledges’ that inform current identitarian priorities and then create alternative pathways for understanding, communicating with, and engaging queer publics. This will entail explorations of both normative and anti-normative theory and practice. It will also involve ‘experiments’ with and alternatives to dominant science communication practices. In what follows, I propose a theoretical intervention that uses Jack Halberstam’s [2011] critical thinking about ‘undisciplined’ and ‘fugitive knowers’ to examine the emergence of a ‘queer public’ within science communication. I articulate how we might contest and transform the marginalisation of queer publics by revisiting how ‘subjugated knowledges’ [2011, p. 11] are understood and circulate within science communication. I thus explore the ‘boundary work’ [Gieryn, 1983] between queer inclusion and science communication and introduce post-identitarian theory of ‘fugitive publics’. I suggest that this critique of the normative and ‘privileged’ publics within existing scholarship is essential to push the queer margin beyond its formative investments in identitarian politics.

Sexual knowledges

Within science communication and allied disciplines such as STS, sex and sexuality (as a social practice) have until recently remained discrete disciplinary concerns within sexology and sexuality studies [Naples, 2020; Weeks, 2022] and social studies of HIV and sexual health [Epstein, 2022]. As such, consideration of sex as an analytic within science communication, including questions of power, social inequality, and knowledge production within the broader remit(s) of ‘public science’ [Gieryn, 1983], remains impoverished. Critical consideration of sex and sexuality is particularly relevant for science communication scholarship and practice, given that the siloing of sexual knowledges within public health and medicine, for instance, tends to privilege science communication, STS and allied social science perspectives [e.g. Epstein, 1997; Escoffier, 1999] over more critical medical humanities analyses of the politics of sex and sexuality, including and forms of contestation and dissent, within science and science cultures [e.g. Spieldenner & Escoffier, 2023]. The science communication discipline is, thus, well placed to newly consider the operation, function, practice, and politics of sex and sexuality in the making of science and its communication in society.

New engagements with *sexuality* in science communication ask questions about the disclosure and boundary-work of identifying as LGBTQIA+ within laboratories, scientific institutions, museums, and cultural institutions. For instance, Eleanor Armstrong asks critical questions about how and why sexuality informs social or cultural expectations by both researchers and research participants [Lock & Armstrong, 2023, p. 5]. Simon Lock suggests that attending to sexuality will enable close attention to reified gender and sexuality stereotypes in the making of science communication, and thus a critical analytical framework must be developed to understand how and why ‘oppositional binaries are constructed’ within science communication [Lock & Armstrong, 2023, p. 7]. Thinking about public science institutions, Lock and Armstrong consider the normative structures that underpin the production and (e)valuation of knowledge [Armstrong & Lock, 2023, p. 1]. Their identitarian theory attends to the ‘frontstage’ and ‘backstage’ of physical infrastructures to understand and assess how public encounters are mediated and produced through existing, dominant, and organising logics of patriarchy, colonialism, heteronormativity, sexism, and other forms of oppression. Their work raises the need for additional analytical lenses that attend to the situated context [Haraway, 1988] of how popular science is traditionally framed and produced for dominant imagined audiences of largely white, middle-class people living with their families [Dawson, 2018, pp. 774, 782–783].

Armstrong and Lock focus on the identities of individual practitioners, participants, and community members interested in engaging public science. Their contributions raise new questions within science communication about the specificity of sexual identification within the making of public science engagement. Principally, drawing out a social justice ethos of inclusion and equity, they tackle the role of power and situated context as determining factors that shape how marginalised publics engage with public science [Dawson, 2018]. This focus on identity, however, is only the first step in understanding the situated context of sex and sexuality (as social practices) and the practice of science engagement. As Steven Seidman has argued, ‘battling heteronormative structures toward the end of legitimising homosexuality’ [1995, p. 126] — or in the contemporary context, ‘queerness’¹ — reaches a natural end when self-limited identities and boundaries are incorporated into existing structures and institutions [1995, pp. 126–127]. The focus on identitarian politics ‘leaves politically uncontested a range of particular sexual and intimate values’ [1995, p. 127] that are always-already marginalised within existing science communication practices. Hence in addition to these identitarian inclusion practices, to effectively attend to, rather than subsume, existing hierarchies of privilege amongst social communities, we must incorporate an ‘intimate politics’ of queer theory [Berlant & Warner, 1998, p. 553]. Here, social anxieties about the taboo of sex (as identity, experience, and practice) and its public life within mass media and public spaces [Berlant & Warner, 1998] seems an obvious place to begin thinking critically with and beyond the identitarian beginnings of queer science communication.

More than locating an intimate politics of individual needs, priorities, and privileges, I suggest that scholars should conceptualise the practice of sex and

¹Roberson and Orthia [2021, pp. 1–3] define queer as ‘non-normative,’ or more specifically, the alignment with ‘a diverse array of sex, sexuality and gender’ identities, experiences, practices, and orientations that diverge from the privileged structures of heteronormativity and heteropatriarchy in the Global North.

sexuality as a 'subjugated knowledge' within science communication's epistemic structures. Following Foucault, subjugated knowledge is a form of knowledge production that has been 'buried or masked in functional coherences or formal systemizations' [2003, p. 7]. This means that these knowledge forms are 'disqualified, rendered nonsensical or nonconceptual or "insufficiently elaborated"' [Halberstam, 2011, p. 11]. These knowledge forms are constructed as 'hierarchally inferior [...] knowledges that are below the required level of erudition or scientificity' [Foucault, 2003, p. 7]. In other words, subjugated knowledges are 'oppressed groups' voices and ways of thinking that have been devalued by dominant, patriarchal, forms of knowledge' [Hesse-Biber, 2012, p. 138]. For queer science communication, sex and sexuality might be understood as a subjugated knowledge precisely because their significance (i.e., identity, experience, and practice) is collapsed within larger identitarian concerns about inclusive gender and sexual orientation policies and practices within public engagements with science. Sex and sexuality remain under-theorised in this domain even whilst they are affixed to 'polygenic' 'differences' that link scientific practice with presentations of that science. I argue that this collapse of sex and sexuality, including its multiplicity through its constellation of social meanings and experiences, into identitarian claims impoverishes critical understanding(s) of how sex and sexuality inform engagements with science — and specifically delimits how and why 'queer publics,' whose identities are informed by sexual practice, remain marginalised within the broader imagined publics of science communication.

Attending to sexual knowledges means first articulating who and what constitutes a 'queer public' and how/why they might or might not engage with public science. This theoretical essay does not provide empirical evidence for defining and articulating queer voices that constitute the queer publics of science communication. Instead, as a provocation to undertake this work, this essay explores the implications of centering considerations of sex (as a social practice) within emergent queer science communication scholarship. To do so, in the next section, I attend to the imagined publics of science communication by articulating how and why sexual knowledges may shape some aspects of queer communities as 'fugitive publics'. By fugitive publics, I mean 'a marooned community of outcast thinkers who refuse, resist, and renege' the normative principles and practices of engaging with public science [Halberstam, 2011, p. 8]. I draw on Jack Halberstam's [2011] theories of *queer failure* to articulate how and why these fugitive publics may oppose the strictures of dominant science communication. I suggest that this theoretical intervention will be useful for scholars who seek alternatives to the identitarian politics of queer science communication, and more specifically, may provide greater analytical depth and ties across the new movement to (re)consider social justice and equity within the field [Dawson et al., 2022].

Fugitive publics

In *The Queer Art of Failure*, queer theorist Jack Halberstam asks: "How do we participate in the production and circulation of 'subjugated knowledge'? How do we avoid precisely the 'scientific' forms of knowing that relegate other modes of knowing to the redundant or irrelevant?" [2011, p. 11]. Halberstam's questions raise interesting parallels between the scientism of public imaginaries [Welsh & Wynne, 2013] and the alternative or 'irrelevant' ways of knowing and being in society that are estranged from the public imaginary of science communication. I want to unearth subjugated sexual knowledges from these 'irrelevant' contexts

within science communication to develop an analytic that can counter the valorisation and hegemony of heteropatriarchy within dominant science [Dawson, 2018; Lock & Armstrong, 2023]. How and why knowledges are produced, and for whom, exists at the heart of science communication scholarship [Welsh & Wynne, 2013; Davies, 2014; Dawson, 2019; Mattei, 2023]. But a theory of why — and indeed, to what end — ‘scientific forms of knowing’ about sex and sexuality within science communication is yet to be explored. I thus suggest that critical attention to the absence of sex-as-practice (in particular) within this discipline can provide insight into how and why science communication creates ‘fugitive publics’ through unmediated processes of marginalisation.

Dawson argues that science communication ‘constructs a narrow public that reflects the shape, values and practices of dominant groups, at the expense of the marginalised’ [2018, p. 772]. The established procedures of ‘imagining publics’ in science communication, then, is a normative practice. By normative practice I mean the orientation of the ‘moral order’ towards ‘certain social forms that characterize Western modernity’ [Taylor, 2002], including the ‘heterosexual imaginary’ [Ingraham, 1994]. This orientation creates a binary between dominant and minority individuals imagined as the target audience of science communication. As Dawson [2018] suggests, this orientation towards white, heterosexual, family-orientated communication creates a margin where ‘good publics’ are understood as effectively engaging and other publics (for instance, queer-identifying minoritised groups) are decentred or absented from the discourse. To represent the queer margin, thereby rendering those individuals visible, we must recognise that the absence of both queerness, sexuality, and sex within the broader field of science communication is itself a normative process. In attending to and critiquing normative claims, as queer theory does [Berlant & Warner, 1998, pp. 547–548], we become aware of the willed marginalisation of queer publics through dominant moral claims — especially related to the authority and significance of science and its utility in society. Sidestepping the context and significance of ‘sex in public’ [Berlant & Warner, 1998] places sanctions on sexual imagery, interests, desires, pleasures, and affects [1998, p. 550] within communication practices and thus zones both queerness and sex *away from* the imagined publics of science communication.

In these terms, sexual experience and practice is not merely absented from the imagery, discourses, scholarship, and public engagement practices that commonly constitute public engagements with science and science communication. Sex and sexuality are compartmentalized, obfuscated and ignored precisely because in society sex is constructed as superfluous, ‘irrelevant,’ and only about pleasure [Berlant & Warner, 1998]. By side-stepping the specific logics and politics of sex/uality in society, and its necessary entanglement in the production, implementation and engagement with science communication, the field’s imagined publics remain impoverished. Queer-identifying publics whose life worlds are intimately linked with sexual politics [Singer, 1993] are left to engage on their own, becoming ‘fugitive knowers’ who both live within the margin and fail to engage the discursive centre. This failure of engagement, for queer publics and with sexual knowledges, is both a normative orientation and a political choice. To survive in a heteropatriarchal society, queer publics often fail to make sense of their marginalisation. This failure to engage and its associated political resistance is not currently understood within science communication. However, as Halberstam argues,

Under certain circumstances failing, losing, forgetting, unmaking, undoing, unbecoming, not knowing may in fact offer more creative, more cooperative, more surprising ways of being in the world. Failing is something queers do and have always done exceptionally well; for queers, failure can be a style, to cite Quentin Crisp, or a way of life, to cite Foucault, and it can stand in contrast to the grim scenarios of success that depend upon “trying and trying again.” In fact, if success requires so much effort, then maybe failure is easier in the long run and offers different rewards. [Halberstam, 2011, pp. 2–3]

Hence the failure to be seen and known within science communication can be understood as a means of surviving the normative procedures of engagement. Queer publics, by failing to be seen and therefore engage, operate as ‘fugitive publics’ whose failure constitutes a ‘style’, a form of creativity and cooperation, in the face of erasure and absence.

What forms of analysis might be used to ‘un-silence’ ways of knowing and speaking about sexuality and queer publics in science communication? Beyond the identitarian claim of counting and including queer individuals, which of course is a crucial first step, we must next pay attention to different (‘queer’) knowledge systems through processes of public engagement. As Halberstam argues, ‘Failure preserves some of the wondrous anarchy of childhood and disturbs the supposedly clean boundaries between adults and children, winners, and losers’ [2011, p. 3]. A clear reorientation of the dominant order(s) and publics within science communication might mean attending to the failures to engage, the *desires* to avoid, the *pleasures* experienced in living against the norm, and the *feelings* that emerge from ‘refusing mastery’ [2011, pp. 11–12] of normative ways of understanding and ‘living’ with science. In other words, attending to queer experiences, sexual knowledges, failed engagements, and fugitive publics might enable a ‘critique of the intuitive connections within capitalism between success and profit’ [2011, pp. 11–12] which underlies the current agendas of public engagements with science [Thorpe & Gregory, 2010; Mattei, 2023]. Drawing attention to the failures to engage — and later, failed engagements — can illuminate ‘the limits of certain forms of knowing and certain ways of inhabiting structures of knowing’ [Halberstam, 2011, pp. 11–12]. In turn, this raises critical questions about the practices of inclusion — and more specifically, the forms of knowledge production — that constitute the epistemologies of science communication.

The point here is that science communication operates through reified and normative assumptions about imagined publics. To move beyond hegemonic publics, and to avoid reifying identitarian processes of counting and merely including individuals in the existing practices of science communication, we need to think critically about the epistemologies and knowledge systems that underlie these practices. As Halberstam usefully writes, ‘We may want new rationales for knowledge production, different aesthetic standards for ordering or disordering space, other modes of political engagement than those conjured by the liberal imagination. We may, ultimately, want more undisciplined knowledge, more questions, and fewer answers’ [Halberstam, 2011, p. 10]. Whilst this *undisciplining* process — that is, attending to fugitive publics — may at first sound foreign to the practice and dissemination of positivist science, ultimately, the deconstruction of assumed knowledges will help to raise awareness about how and why the discipline needs to be critically reoriented towards issues of social justice, equity,

and alternative ways of knowing about science in society. This queer theory of fugitive publics in the making of science communication therefore raises new questions about how to develop analytical frameworks for differently understanding and engaging queer publics with science.

Conclusion

In this theoretical essay, I have argued that sexual knowledges are absented within science communication because of a normative alignment with identitarian pursuits to count and include marginalised, queer-identified groups. Whilst this identitarian aim is not inherently problematic, I suggest that limiting the current queer margin and growing movement of queer science communication to identitarian politics will result in a natural end. To avoid this terminus, I argue that scholars should attend to the discipline's normative epistemologies and paradigms, to articulate critical theories of engagement, inclusion, and equity within science communication. Furthermore, scholars can better identify both alternatives and anti-normative strategies for communicating science. I suggest that thinking of queer-identified individuals as 'fugitive publics' has the double effect of recognising and contesting heteronormative practices of science communication whilst creating spaces and encounters (including educational and political agendas) that differ from dominant narratives and practices of the 'public good' of science. This argument contributes to a queer(er) science communication by drawing attention to privileged publics in agendas to engage communities with science. It also raises new questions about how and why science communication operates within and through hegemonic and reified systems of dominant imagined publics.

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