Researching the invisible: troubling qualitative research approaches through information architecture and design thinking

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Abstract

Information Architecture (IA) is a digital design process constituting the structural design of shared information environments (originally websites and databases) through organising, labelling, and navigation systems. However, due to the complexities of cross-channel, pervasive and ubiquitous computing, IA has shifted its approach to consider the design of information spaces in larger social, cultural and technological contexts. In practice, values of universality and certainty have given place to plurality and complexity. The practice of IA can be explained as an (inter)play between the science and the art of shaping information to support usability and facilitate findability. Design Thinking (DT) is a commonplace approach in IA, and both are means to interconnected problem (re)solutions at their core. Ultimately, IA presents a method of intelligibility design which is no longer constrained to digital practice.

Censoring information and visuals by and within sub-communities and digital interactive information technologies sets a dangerous precedent and disseminates strategies of what does and does not 'matter'. The stigmatisation of lesbians often results in violent hate crimes, which are emblematic of social violence against sexual embodied diversity outside the imperial, (hu)man-, phallo-, hetero-, cisgender-norm. The vis-à-vis between the epistemic violence of communication technologies and the real-life brutality of lesbian actualities points to an expansive system of visual 'knowledge management', which needs to be addressed in discourse, technology, and technique.

A more extensive research project explored how un/intelligible lesbian representational practices recursively shape and are shaped by their interactions with the informatic architectures of Instagram's censorship mechanisms. The research argued that the search and retrieval techniques of Instagram's Explore Tab act as an agent of intelligible (dis)allowance. More so, Instagram's shadowbanning, and its predecessor, soft-banning, cannot be separated from policies that inform it and the foundation of its algorithmic architecture. However, as participants' invisibilities and concealed architectures informed the research project, particular methodological challenges became apparent. This paper responds to the methodological challenges faced when researching indeterminate problems, opaque participants, and covert knowledge management of vulnerable materialities and their representations.

Comparable to research design, DT can be seen as a strategy, a method, or even an epistemology. IA and DT are inherently interdisciplinary, and the collision between traditional approaches with novel techniques offers the potential to overcome normative conventions in both fields and present alternative assemblages of support. The conceptualised methodology recursively positions conventional qualitative research practices against DT and IA-informed phases and their corresponding activities. Specifically, the research compares data collection methods to synthetic conceptualization; data analysis approaches to understanding and defining design problems; interpretation of findings to ideation; and evaluation of findings to prototyping. Lastly, the research troubles both qualitative methods of validation and solution-led approaches within DT and IA praxis.

Author keywords

Information architecture; design thinking; systemic problem solving; qualitative research; data collection methods, social media research; censorship; queer visibility; lesbian representation

Introduction

The stigmatisation of lesbians often results in violent hate crimes, which are emblematic of social violence against non-normative sexual embodied diversity. Unescapable homophobia in traditional patriarchal cultures of the global south, which makes up more than 80% of Instagram's user base outside of the United States, requires lesbians to negotiate layers of visibility due to social factors, interpersonal relationships, and economic implications (Duggan et al., 2015; Msibi, 2011; Waterhouse, 2019; Smuts, 2011). The fear of stigmatisation and prosecution often leads queer bodies to seek (visual) information and validation elsewhere rather than in mainstream media (Aslinger, 2010; Molabocus, 2010). The trouble is that this 'elsewhere' is not always there. Instagram has a legacy of censoring queer content. However, #lesbian has faced far more stringent 'management' from removing of all tagged content predating 2015 to the imposed 'soft' censorship up to 2017 and, finally, the more covert techniques of

shadow banning from 2018 onward. Censoring information and visuals by and within sub-communities and digital inter-active information technologies sets a dangerous precedent and disseminates strategies of invisibility and unintelligibility. The *vis-à-vis* between the epistemic violence of communication technologies and the real-life brutality faced by lesbian actualities points to an expansive *'knowledge management system'* that needs to be addressed in discourse, technology, and technique.

The discipline of Information Architecture (IA) concerns the structural design of shared information environments to facilitate findability-come-usability. Although initially applied to the web and large databases, the practice of IA has shifted due to the cross-channel, physical and digital complexities of web 2.0 technologies. IA's fundamental interest now considers the design of information spaces in larger social, cultural and technological contexts; in other words, values of universality and certainty have given place to plurality and complexity (Lacerda & Lima-Marques, 2014). Likewise, Resemi (2014) affirms that practice-led issues of labelling, website conventions and hierarchy structures have been replaced by sense and place-making, design, cross-media, complexity and embodied cognition. Design Thinking (DT) is a common-place approach in IA, and both are means to interconnected problem (re)solutions at their core. Ultimately, DT and IA present methods of intelligibility design, which is no longer constrained to digital practice. More so, contemporary DT and IA offer techniques to address (societal) 'knowledge management' problems.

IA solutions are not immediately clear to the end user, presenting disadvantages and challenges but also resilience and opportunity. For users, the product's interface, functionality and content constitute its user experience, and the IA is only tacitly understood. Fenn and Hobbs (2014) argue that the disconnect between IA deliverables and user perception poses an opportunity for the discipline to extend beyond its current practical application. Conversely, the opaqueness of information domains' structural components obscures the representational logic behind a design but also raises methodological challenges when researching the complexities of information domains and technologies.

When indeterminate problems present themselves, they do so as a struggle to determine where a problem-centre lie, and as with most wicket problems, the problem itself is but a symptom of a much larger and more systemic problematic (Buchanan, 1992). As such, it was essential for the research to move beyond the determinate phenomena of censorship on Instagram to identify the indeterminate problem-centre of the technological disallow through information technologies and the actors therein. The study at large explored how un/intelligible lesbian representational practices recursively shape and are shaped by their interactions with Instagram's information architecture, censorship mechanisms and value-laden, complex and contradicting terms of use. However, as participants' invisibilities and concealed architectures informed the research project, particular methodological challenges became apparent and necessitated a systemic and strategic approach to problem-solving.

Like research practice, DT can be seen as a strategy, a method, and even an epistemology in its own right (IDEO, 2018). In short, DT is a way of solving problems using a designer's toolkit, and because design, like IA, is fundamentally and foundationally interdisciplinary, it can be applied to qualitative research approaches of 'problem-solution'. Be that a way of overcoming field and methodology issues or grappling with 'problems' embedded in research questions or purpose statements. For this reason, rather than considering conventional research concepts, the research turned to an intra-disciplinary approach by interweaving the principles and processes of DT and IA with conventional qualitative research practices. In response to the methodological field issues raised above, this paper critically reframes what *can*, does and should be considered research data by employing synthetic conceptualisation. Further, through recursive feedback between DT, IA and qualitative research designs, the research compares data analysis approaches to understanding and defining design problems, interpretation of findings to ideation, and evaluation of findings to prototyping. Lastly, the research troubles both qualitative methods of validation and solution-led approaches within DT and IA praxis.

Synthetic Solutions for Qualitative Data Collection

By comparing various design thinking frameworks, Fenn and Hobbs (2014) illustrate an aggregated design thinking model with three phases: *research, ideation* and *prototyping*. Each phase frames specific but overlapping conceptual activities, and the continuum of the phases are iterative and self-regulating. Equivalently, an IA project is outlined as iterations of *research, strategy, design*, and *implementation*. IA methodologies are transient, iterative, and evolving due to temporal changes, emerging phenomena, and advanced understanding of the referential context that frames user needs (Fenn & Hobbs, 2014; Rosenfeld et al., 2015; Resmini & Rosati, 2011). Congruent to the iterative and recursive methodologies of DT and IA, Creswell and Poth (2016) posit that qualitative research activities of data collection and analysis as interrelated and frequently super-imposed.

The entry point of data collection is identifying a site or individual (Creswell & Poth, 2016). The larger study motivated both thresholds, but it is valuable to unpack how the individuals that occupy the problem domain were identified and how their 'data' was gathered. Plummer (2011) proposes a *Purposeful Identification of Persons* approach with three typologies of 'persons' to demarcate a research milieu. According to Plummer (2011), *great persons* fundamentally impact their epoch, community or discourse, *marginal persons* are embedded in conflicting cultures, and *ordinary persons* exemplify the larger culture of the research milieu. By such consideration, the research acknowledges seminal authors in the field of IA as great persons. Access to these great persons is granted through reviewing their literature and consulting their instructional texts. Identifying individuals who occupy the conflicting culture of censorship or stand as an exemplar of technological disallows is more challenging as they refer to predominantly silent and almost exclusively invisible users of a social media platform. What the research *could* do was uncover traces and utterances of marginal and ordinary persons. Published user accounts reflecting on personal experiences of Instagram's censorship mechanisms contextualised

these users as research participants. Moreso, this maneuver frames 'participant voices' in the form of their blog and Instagram posts, news articles and references in academic literature. It is worth noting that this reframing moves beyond traditional accounts of field observation, interviews and focus groups. Still, what constitutes participants and their voices in this account is no less mediated than they would be through primary data collection methods, as data generated by research activities can only ever be interpretive (Bourdieu cited in Fenn & Hobbs, 2014).

Creswell and Poth (2016, p.156) urges researchers to consider a multi-phased approach to data collection and recognise that each phase extends "beyond the typical reference point of conducting interviews or making observations." Once the research site is selected, a researcher must evaluate the most appropriate data collection approach, and due to the exponential growth enabled by (information) technologies, a researcher will have to collect multiple data from multiple sources. More so, considering the ethical representation of volumes of data across information channels, a researcher must develop a systematic but flexible protocol for capturing data. (Creswell & Poth, 2016, Ellingson 2011, Jackson & Mazzei, 2012). Rosenfeld et al. (2015) recommend a *Noah's Ark* approach when undertaking content analysis. A Noah's Ark approach aims to capture a 'couple of each species' data types. The range of formats, in turn, must span textual, audio-visual, interactive materials and resources to represent 'surrogate' records of the environment. Rosenfeld et al. (2015) locate that what you may find in a content analysis may not match the vision, techniques and technologies, strategy or quality of information put forward by an organisation. By undertaking a content analysis, a researcher can "identify and address the gaps between top-down vision and bottom-up realities" (Rosenfeld et al., 2015, p.323).

The research mapped the navigation flow of Instagram's *Community Guidelines Portal* and *Help Centre* to represent a surrogate record of Instagram's top-down vision. Additionally, the research iteratively engaged the 'voice of Instagram', *Instagram Blog*, as a representative of Instagram's organisational culture and politics. The bottom-up realities were captured by recording four biannual episodes of #lesbian content on Instagram's Explore Tab feed through screenshots and vocabulary mapping. In reference to Creswell and Poth's (2016, p.159) *Compendium of Data Collection,* the collection of audio-visual material includes "examining physical trace evidence" and "examining favourite possessions or ritual objects". Although the *Explore Tab* feed may not be considered physical trace evidence, it is nonetheless trace evidence of material representation. Additionally, #lesbian can be considered a ritual object of identification and identity representation (Palmer, 2015). Therefore, the user accounts detailed above also indicate the bottom-down realities of queer users on the platform.

While the research offered recommendations to address data collection concerns, primarily informed by IA's approach to content analysis, what to do with this data is still to be discerned. To follow is the account of how - through qualitative approaches, DT principles and IA processes - data becomes information.

(In)Forming Qualitative Methods of Data Analysis through DT and IA Research

The *research phase* in DT concerns understanding the 'societal world' within which the final design solution will exist and intervene. The user-centric approach of DT and IA maintains that meaningful solutions must acknowledge and address user needs and desires as they emerge (and evolve) from their cultural, social, economic and political contexts. Correspondingly, Fenn and Hobbs (2014) advocate that more than understanding a user's phenomenological context, a designer must consider the user's epistemological framework or how they think and justify their actions. DT research can, as a result, conceptualise the interpretation of the context from which the problem emerges and the "relational social logic" of a meaningful solution (Fenn & Hobbs, 2014, p. 14).

Alike the iterative nature of DT and IA phases and processes and the series of interrelated activities required in data collection, Creswell and Poth (2016, p.150) argues that the course of analysis and data visualisation are "interrelated and often go on simultaneously". Consequently, qualitative research conceptualises the practice of data analysis as a spiral. The entry point to the *Data Analysis Spiral* is data, or rather volumes of data produced through rigorous research exploring the complex social reality of a design or research problem. The data 'as is' is a messy and unruly collection of 'stuff' and therefore requires a sort of 'management' which constitutes the first loop on the Data Analysis Spiral (Creswell & Poth, 2016, p.185). According to Creswell and Poth (2016), a researcher typically organises data into (computer) files, followed by converting files into "appropriate text units" in preparation for analysis. It is worth noting that the preliminary stage of data analysis constitutes adding data to data. More than creating a meta-data schema for easy information retrieval as an information architect would do, adding data to data also appends meaning to the data set.

The research phase of IA entails gathering and reviewing background materials and current strategies. Put differently, IA research establishes the existing structural framework of the information site. The high-level framework, or contextual understanding of an information environment and the user's needs and behaviours, sets the foundation upon which an IA strategy builds. Similarly, once the unruly collection of data is managed in qualitative research, the data is set to be 'read'. Reading and memo-ing present the second loop in the Data Analysis Spiral. In this phase, the researcher immerses themselves in the data set to develop a holistic understanding of the information before abstracting it (Creswell & Poth, 2016).

At "the heart of qualitative data analyses" is the third loop of the data analyses spiral, where a researcher describes, classifies, and interprets data into codes and themes (Creswell & Poth, 2016, p.186). Detailed description entails recounting what the research 'sees', but of particular importance is that the detailing is provided within the context of the persons, places or events. Between analysis and interpretation, the designer, information architect and researcher stand as a conduit. The tension of data becoming information through the conceptual activities of the designer or researcher is best described in DT and IA's ideation phase. Furthermore, ideation, as framed by DT and IA, is comparable to the interpretation of qualitative research findings.

(In)Forming Qualitative Interpretation of Findings through DT and IA Ideation

A key characteristic of the *ideation phase* in DT and IA is that activities of constructing, understanding and creating a design connect in a mutual relationship. In the seminal text, *Dilemmas in A General Theory of Planning* (1973), Rittel and Webber argue that one cannot understand and then solve. To this account, a researcher, a designer and an information architect cannot understand a problem without first understanding its relational context. Moreover, these actors cannot meaningfully find information without a form of orientation. Rittel and Webber define the pivot that enacts useful information gathering as a "solution concept" (Cited in Fenn & Hobbs, 2014, p.14). By placing the context of a problem and the potential solutions in an iterative loop that cyclically and reciprocally edits the understanding of both fields, an artificial solution transforms into a problem/solution conjecture. Through multiple cycles of recursive feedback, a corresponding problem-solution pair become apparent. Fenn and Hobbs (2014, p.15) elaborate that the conceptual process of formulating matching problem-solutions allows solutions to emerge from a "designer's analysis, categorisation, structuring, organisation, prioritisation and consideration of the rich data.". The evolving solution, or best-matched problem-solution pair, reciprocally reduces the range of relevant data. In this way, only the data that will impact a more advanced understanding of the problem-solution conjectures amalgamate to form new meanings and develop better possible solutions.

Haverty (2002) presents a corresponding interconnected and iterative process in the practice of IA, known as Constructive Induction (CI). CI employs two intertwined searches to generate a design solution. The first search requires identifying the most adequate representational framework for the problem. The second search involves locating the best design solution within the representational framework. The intertwining is how the synthetic design solution translates back to the problem now situated in a representational framework (Haverty, 2002). In the context of CI, a representational framework signifies the constraint on user interactions through information platforms, technologies, and policies. This research argues that the concept of a representational framework can extend to qualitative research approaches (such as ethnography, narrative, phenomenological, grounded theory, and case study designs) or theoretical lenses (such as post-classical discourses) employed by the researcher, as they frame both the research question and approaches necessary to address the research question.

The interpretation of qualitative research requires abstraction beyond codes and themes into more amassed meanings or better problem-solution pairs. To demonstrate, Creswell and Poth (2016) posit that the information is further abstracted once thematically coded by organising and categorising them into larger 'meaning units'. In qualitative research, what reifies the interpretation of data is representing or visualising the data-now-information in text, tabular or figure form (Creswell & Poth, 2016). In the practice of IA, the data gathered and interpreted as (relevant) information is developed into a high-level strategy. The high-level strategy, in turn, informs IA design. In the design phase, an information architect creates detailed visual representations of the high-level strategy through conventions such as sitemaps, wireframes and metadata schemas (Rosenfeld et al., 2015). What follows ideation in DT and design in IA is prototyping and implementation. Similar to qualitative research's evaluation of findings, prototyping is not a concluding action or phase. These conceptual activities rather stand as a trigger for further iteration until a meaningful problem-solution pair emerges or solid hypotheses are crafted in response to a research question.

(In)Forming Qualitative Evaluations of Findings through DT and IA Prototyping

The iterative conceptual repositioning of problems and solutions informs the generation of design outputs. Generating becomes generative, and the feedback between the research and ideation phases develops into the *prototyping phase*. Equivalently, the *implementation phase* prescribed by IA is where information architecture is built, tested, and launched through organising and tagging content, improving processes, and developing policies. The implementation phase ensures that the information architecture can be maintained and improved over time as prototypes are iteratively validated against context, content, and users' needs and behaviours (Rosenfeld et al., 2015; Harverty, 2002). Haverty (2002) argues that this process ensures the quality of an IA solution as it avoids reductionism which manifest through a series of abstractions.

Criteria that evaluate qualitative research findings are replete with strain, not because the concept of quality is subjective but because it is contextual. Therefore, Howe and Eisenhardt (cited in Creswell & Poth, 2016) suggest that broad, abstract standards are the only way quality can be assessed. Conversely, evaluating quality in DT and IA is antithetical to broad, abstract terms because the synthetic concept is reified in each iteration to be the most appropriate, but not necessarily the only, solution within the conceptual framework of the problem. Moreso, evaluating the quality or appropriateness of a design solution by broad abstract standards proposes that the design solutions respond to broad abstract problems rather than contextual and often systemic problematics.

According to Fenn and Hobbs (2014), DT and IA are oddly framed in product-led fields, and systemic design problems are often obscured as product problems in briefs drafted by stakeholders. If products, as opposed to 'appropriate' solutions, are automatically applied in response to a design problem, they fail to engage with the complexities that emerge from design research and early ideation. Applying a generic product as a solution further implies that design problems share the same data and research setting. Consequently, a generic product effectively erases the design and research concerns which emerge from particular histories, cultures, knowledge systems and narratives. What is obscured is often tied into socio-political actualities, and more than undermining cultural values, generic responses to contextual and systemic problems may be ecologically and economically unsustainable (Fenn & Hobbs, 2014).

Truisms of universality and generality also encumber qualitative research. Referential to product-led disciplines, hard sciences often question the reliability and validity of qualitative enquiry, and in response, some qualitative research designs will adopt positivist and constructivist terminology

to facilitate acceptance by the harder sciences (Creswell & Poth, 2016). Conversely, other qualitative enquiries aim to recontextualize the universal underpinnings of validation by substituting the criteria with more naturalistic research terms such as credibility, authenticity, transferability, dependability, consensual validation and referential adequacy (Creswell & Poth, 2016; Lincon & Guba, 2011; Eisner, 2017). Two things are worth noting. Firstly, the substitution of generic universality through qualitative criteria, as listed above, draws parallels to the conceptual activities of ideation, where representational frameworks are evaluated against problem-solution conjectures. Secondly, supported by the critical repositioning of solution-led design instead of product-led approaches, DT and IA strategies can reframe qualitative 'assessment' away from abstract *criteria* to iterative validation *strategies* such as prolonged engagement and persistent observation, triangulation, and thick description.

Conclusion

In summation, the research required to understand a design or societal problem produces vast amounts of information, and understanding the complexities of design research data through synthesis can be considered the critical act of problem resolution. The conceptual process of formulating matching problem-solutions allows design solutions to emerge through analysis, categorisation and prioritisation of rich research data.

In this way, information architects and designers *research to discover* and *organise information to be understood* by others in a meaningful way (Fenn & Hobbs, 2014). Therefore, the tools and techniques employed by DT and IA mediate complexity in a way in which vast and varied accounts of information can be discovered, understood and resolved.

This paper aimed to offer workable solutions to the methodological challenges faced when researching indeterminate problems, opaque participants, and covert knowledge management of marginal and vulnerable identities and their representations. In closing, introducing the technique of formulating problem-solution conjectures firstly acknowledges that 'indeterminate' design and research problems present themselves as a symptom of a larger and often more systemic problematic. More so, the conceptual activities required to generate appropriate problem-solution conjectures make clear that problems do not disappear in the advent of a solution but persist in the overlay. Therefore, employing approaches that mediate systemic problems, such as DT and IA, allows for a better understanding of the relational social logic of a societal design or research problem. Lastly, embedding design thinking and information architecture in systemic problems (re)solution allow culturally sensitive, ecologically, and economically sustainable solutions to emerge from their relational context.

References

Aslinger, B. (2010). PlanetOut and The Dichotomies of Queer Media Conglomeration. *LGBT Identity and Online New Media*, 113-24.

Buchanan, R. (1992). Wicked Problems in Design Thinking. *Design Issues*, 8(2), 5-21.

Creswell, J. W., & Poth, C. N. (2016). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. Sage Publications.

Duggan, M. (2013). *Photo And Video Sharing Grow Online*. Pew Research Internet Project.

Ellingson, L. L. (2009). *Engaging Crystallization in Qualitative Research: An Introduction*. Sage.

Eisner, E. W. (2017). *The Enlightened Eye: Qualitative Inquiry and The Enhancement of Educational Practice*. Teachers College Press.

Fenn, T., & Hobbs, J. (2014). The Information Architecture of Meaning Making. In *Reframing Information Architecture* (pp. 11–30). Springer, Cham.

Haverty, M. (2002). Information architecture without internal theory: An inductive design process. Journal of the American society for information science and technology, 53(10), 839–845.

IDEO. (2019, September 10). IDEO DESIGN THINKING. Retrieved from *DESIGN THINKING DEFINED*: https://designthinking.ideo.com/

Jackson, A. Y., & Mazzei, L. (2011). *Thinking With Theory in Qualitative Research: Viewing Data Across Multiple Perspectives*. Routledge.

Lacerda, F., & Lima-Marques, M. (2014). Information Architecture as A Discipline—A Methodological Approach. In *Reframing Information Architecture* (pp. 1–10). Springer, Cham.

Lincoln, Y. S., Lynham, S. A., & Guba, E. G. (2011). Paradigmatic Controversies, Contradictions, And Emerging Confluences, Revisited. *The Sage Handbook of Qualitative Research*, 4(2), 97–128.

Msibi, T. (2011). The Lies We Have Been Told: On (Homo) Sexuality in Africa. *Africa Today*, 58(1), 55-77.

Mowlabocus, S. (2010). Look at me!. Images, validation and cultural currency on Gaydar. In (Eds.) Pullen, C. & Cooper, M. *LGBT Identity and Online New Media*. Abingdon: Routledge.

Palmer, E. (2015). Instagram, Big Data & The New Symbolic Capital Of 21st-Century Media Photography. *Western Social Science Association*.

Plummer, K. (2011). Postscript 2011 to Living with the Contradictions. *The SAGE Handbook of Qualitative Research*, 208.

Rittel, H. W., & Webber, M. M. (1973). Dilemmas In a General Theory Of Planning. *Policy Sciences*, 4(2), 155-169.

Resmini, A. (Ed.). (2014). Reframing information architecture. Springer.

Rosenfeld, L., Morville, P., & Arango, J. (2015). Information Architecture: For The Web And Beyond (ed.). *O'Reilly Media*, Sebastopol, CA, 10, 2901628.

Smuts, L. (2011). Coming Out as A Lesbian In Johannesburg, South Africa: Considering Intersecting Identities And Social Spaces. *South African Review of Sociology*, 42(3), 23-40.

Waterhouse, L. (2019, November 1). Brazil: Murders of Lesbians Increased By 237% In 3 Years. Retrieved from *listening2lesbians.com*: https://listening2lesbians.com/2019/03/17/brazil-murders-of-lesbians-increased-by-237-in-3-years/