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Decolonizing big data: addressing data colonialism in social work's grand challenges

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ABSTRACT

The acceleration and escalation of datafication has increased interest in advancing the use of big data throughout social work. While one of the current Grand Challenges of Social Work focuses on harnessing technology for the social good, the present work expands on this endeavor with a particular focus on big data in social work. Despite mandates from the CSWE EPAS to engage in research-informed practice and practice-informed research, prior work has extensively documented social work students' general fear and apprehension of research in practice. At the same time, big data continues to grow, perpetuating colonialism inherent within the data. This work delineates how social work can rise to the occasion, remain dedicated to social justice, and work to decolonize big data.

KEYWORDS

Big data; grand challenges; data colonialism; decolonization

The use of data has transformed the field of social work (Andersen et al., 2022); however, social work is just beginning to reckon with the Big Data movement. The acceleration and escalation of datafication has increased interest in advancing the use of big data across social sciences (Montiel & Uyheng, 2022), social work not excluded. While one of the current Grand Challenges of Social Work focuses on harnessing technology for the social good, the present work expands on this endeavor with a particular focus on big data in social work. The intersection of social work and Big Data has been described as an “unprecedented opportunity” (Frey et al., 2020, pg. 43) to investigate sections of the population that were previously deemed too difficult to reach (Andersen et al., 2022).

The digital revolution has dramatically increased the quantity of data (Coulton et al., 2015). Datafication is defined as the “quantification of human life through digital information (Couldry & Mejias, 2019, p. 1). Big data can best be understood through the “3 V’s.” The 3 V’s of big data have been described as follows: 1) volume – the increasing amount of data, 2) velocity – the high speed of data flowing in and out, and 3) variety – the ever-broadening range of data types and sources (Thatcher et al., 2016). Big data has wide appeal because it offers huge generalizable amounts of data from multi-view real-time perspectives (Montiel & Uyheng, 2022). There is also excitement surrounding the availability of new data and the potential for new insights and perspectives to be found (Thatcher et al., 2016), lending big data to be seen as more precise or accurate (Montiel & Uyheng, 2022). This excitement surrounding big data fuels the movement to incorporate it into social science research (Montiel & Uyheng, 2022).

Social work has been turning to data through research calls to investigate problems, possibilities, and lasting effects of data (Andersen et al., 2022). Social work has a long history of embracing emerging technologies to aid social work research and practice (Shaw, 2012). Data is vital to social work practice to inform policy decisions (Andersen et al., 2022), influence managed care policies, and bridge the ever-growing gap between practice and research. In a scoping review of data in social work,

Andersen et al. (2022) found a multitude of ways in which data are used in social work, ranging from automatization and decision-making, holistic views and transparency, quality, assessment and evaluation, and identification or prediction.

Social work education

The Council on Social Work Education's EPAS mandate that social work students be equipped to engage in research-informed practice and practice-informed research (Shaw, 2012); however, social work has been critiqued as having a research capacity deficit in both the production of research and application of research into practice (Fouché & Bartley, 2016). Research coursework in MSW programs fails to develop statistical skills among students (Lery et al., 2015). The use of actual data for students to learn hands-on experiential analyses in order to answer practice and policy questions is not the norm in schools of social work (Shaw, 2012). Two main approaches are taken to teaching research in social work programs: the fear-based model vs. the junior scientist. The fear-based model assumes that social work students enter programs with lower levels of quantitative experience, aptitude, and interest; thus, the program leans into this belief and provides limited opportunities for students to work with actual data (Lery et al., 2015). On the other hand, the junior scientist model stresses relatively advanced statistical methods that are infrequently used after graduation (Lery et al., 2015). This model sets up unrealistic expectations for MSW students to be proficient in statistical analyses after 1–2 semesters while simultaneously learning research methods (Lery et al., 2015). Both of these approaches to teaching research in social work miss the mark in preparing students to become critical consumers of research and knowledgeable data users that will help guide practice, programs, and policy development (Lery et al., 2015). Ultimately, there is a continued reluctance in social work practice and education to embrace research (Fouché & Bartley, 2016).

Social workers often fear or shy away from data as it is perceived as a difficult or complicated task (Andersen et al., 2022). Previous work on education of research in social work practice often focuses on attitudes toward social work research (Lery et al., 2015; Morgenshtern et al., 2011; Shaw, 2012) and how difficult it is to transfer knowledge from MSW programs into practice (Lery et al., 2015). Nearly half a century ago, social workers were already contending with stereotypes surrounding research and data. Basom et al. (1982) investigated the negative attitudes of social work students toward the role and relevance of research, their aptitude in quantitative analysis skills, and the perception that social work was selected as a way to avoid the rigor of harder, more scientific disciplines. While social work students generally appreciate the value of research in their professional and personal lives (Morgenshtern et al., 2011), they typically enter research courses with high levels of anxiety, particularly surrounding methods and statistics (Lery et al., 2015). Prior research has found that MSW students feel apprehensive about the process of learning research and intimidated when faced with the prospect of conducting research (Talbot & Lee, 2020; Morgenshtern et al., 2011). Others have found that students feel anxious and insecure about research and statistics and feel generally unprepared and unmotivated (Shaw, 2012). Similarly, stereotypical views of research in social work include the belief that research is considered irrelevant, abstract, obscure, and non-translatable in direct practice (Fouché & Bartley, 2016), fear of too many demands in practice and not enough time to devote to research, and the attitudes to research and general fear of statistics (Lery et al., 2015). In fact, the very inaugural issue of the *Journal of Teaching in Social Work* highlighted the challenge in teaching students with anti-research attitudes (Fouché & Bartley, 2016).

Data colonialism

While social work struggles to rise to the occasion of teaching research and wrangling big data, a larger problem is looming – data colonialism. Big data advances the problems of coloniality, further suppressing and marginalizing communities and widening the research to practice gap (Montiel & Uyheng, 2022). Researchers have delineated the concept of data relations in which daily life is naturally

converted into a stream of information – data (Herther, 2022). This process essentially results in a new social order characterized by nonstop tracking and surveillance, giving way to unprecedented opportunities for discrimination and prejudice (Herther, 2022). Data relations can best be understood through the lens of historic colonialism, which appropriated territory and resources for the sole purpose of settler profit and gain (Couldry & Mejias, 2019), except data colonialism is the normalizing of exploitation of populations through data (Herther, 2022). Data have as much global flow and are as expansive as historic colonialism's appropriation of land and lives (Couldry & Mejias, 2019). Ultimately, this appropriation and extraction of data is data colonialism.

Just as scientific knowledge is located within systems of oppression, so too is big data; without proper consideration of power dynamics, those invested in big data haphazardly replicate marginalization (Montiel & Uyheng, 2022). For example, Reardon and TallBear (2012) bring attention to the data colonizing that happens from the ever-growing DNA and ancestry testing kits; this accumulation and availability of Indigenous members' DNA parallels and expands on Western history and European settlers' attempts to physically colonize Indigenous people. This cumulative mining and study of Indigenous data has the potential to be exploited for the use of personal advancement in research, especially by non-Indigenous researchers, than to use the data to address needs among the Indigenous communities (Reardon & TallBear, 2012).

Data produced from data colonialism is then acted upon by universities, governments, and societal institutions to then inform policy and programs (Mills, 2022). This practice perpetuates policies and programs that flatten and homogenize already underrepresented knowledge systems (Mills, 2022). As a result, marginalized communities are exoticized and/or pathologized in comparison (Montiel & Uyheng, 2022). This is seen in big data by treating all data points as equal and decontextualizes the data from specific societal conditions (Montiel & Uyheng, 2022). This practice essentially excludes community-driven knowledge, particularly Indigenous ways of knowing and being, that fail to fit within the dominant, western scientific paradigms (Mills, 2022). These practices often look like receiving institutional review board approval to answer research questions that address a “gap” in the literature, receiving letters of support from the affected communities, populations, or organizations within respective social networks, collecting data, and then not using the data as originally agreed upon or disclosed in early conversations in building community-based support. Data colonialism is perpetuated in these instances when the collected data is then privatized and shared with additional researchers outside of the research institution for additional research without permission of the study participants (see *ASU v Havasupai*; Reardon & TallBear, 2012) to further produce publications likely not based in the original research question(s) that were mutually agreed upon or perpetuate harmful narratives about the marginalized community being researched. Ultimately, non-critical use of big data amplifies existing coloniality in social sciences and replicates harm (Montiel & Uyheng, 2022). How will social work continue its mission of social justice given these growing concerns of data colonialism in big data?

Future grand challenge of social work: decolonize big data

A future grand challenge of social work must rise to the occasion to address data colonialism. The authors propose a future grand challenge of decolonizing data in social work. The first step to decolonizing data is to name the practice of data colonialism (Couldry & Mejias, 2019). Decolonizing data must fundamentally reject the idea that continuous collection of data is natural or rational, disrupting the idea that data extraction is a normal state of being (Couldry & Mejias, 2019). Decolonizing data does not mean to reject data collection and use in totality, but it does mean to reject the appropriation and exploitation and subsequent social order that coincide with contemporary data practices (Couldry & Mejias, 2019). There is a need for decolonial attitudes of resistance that include both recognition and renewal (Montiel & Uyheng, 2022). Decolonial recognition seeks to amplify the voices of long-marginalized communities within the scientific arena while renewal encourages the

pursuit of non-colonial directions and new horizons in a contemporary data-fied world (Montiel & Uyheng, 2022).

There are several parallels with decolonial work and general ethical considerations that one can take toward social justice in big data. This recognition and renewal of big data and pursuit of non-colonial means of data collection can start with, but are not limited to 1) centering consent and transparency throughout the duration of the data collection stages and beyond the initial enrollment and consent process in ensuring participants know how their data is going to be used, 2) ensuring due diligence and “fact checking” preliminary and final results by holding dissemination focus groups with participants or equally impacted population to honor their lived experience and personal expertise relating to the research topic, and 3) acknowledging at every stage from collection, to analysis, to publication where the data comes from, to whom it belongs (hint: not the researcher/s), how it was obtained, and applying relevant political and historical factors to each stage of the study, analyses, and publication. This level of reflexivity among big data is often not asked of quantitative methodologies; however, it provides a critical opportunity to engage with or center the inherent bias in research versus denying or silencing the colonial history in much of epistemology and inquiry (Jamieson et al., 2023). While these practices are certainly steps toward preventing data colonialism haphazardly, decolonial approaches to big data take these considerations a step forward, in conjunction with an understanding of an ecology of knowledges, collective ontology, and through the lens of a naturalistic epistemology, in order to culminate into a critically reflexive praxis.

Ecology of knowledges

Decolonial scholars from the global south emphasize the need for decolonial work to move beyond critique (Mills, 2022). It is vital to build and foster multiple ways of knowing through an “ecology of knowledges” (Mills, 2022, pg. 483). This ecology would center and prioritize non-academic, community-driven knowledge for its immediate applicability (Mills, 2022). Indigenous scholars have much to teach western scientists about how power, politics, and colonialism shape the process of data generation (Phan & Lee, 2022). One such approach to addressing structural biases in existing knowledge schemes is to commit to integrating Indigenous epistemologies into knowledge management (Knight, 2022). Social work can decolonize big data by listening to and incorporating worldviews of Indigenous scholars in both the teaching of and implementation of research endeavors.

Collective ontology

Decolonial big data must move from individual to collective ontology (Montiel & Uyheng, 2022). One such way to achieve this collectivism in big data is to treat the collective societal phenomena as the basic unit of analysis, pushing back on the mainstream focus of individual differences (Montiel & Uyheng, 2022). Further, it is important to move beyond the colonial perspectives reflected within statistical assumptions, such as treating societal differences as mere moderating variables (Montiel & Uyheng, 2022). Social work education in research must reflect these collective perspectives. Decolonial big data in social work must model collective social justice issues afflicting marginalized communities, rather than perpetuating the individual deficit-based statistical modeling approaches. Social work struggles to teach advanced statistical methods at all, but should center critical research methods and statistical analysis to prepare for the future of decolonial big data.

Naturalistic epistemology

Decolonial scholars also recommend a shift from controlled to more naturalistic epistemologies (Montiel & Uyheng, 2022). Naturalism values authentic behavior, allowing the unfolding of localized social interactions as they would naturally occur in the real world, producing knowledge in the participants’ own emergent voices (Montiel & Uyheng, 2022). Social work is an ideal fit to allow

marginalized communities to tell our own stories with data. Naturalist epistemology can be achieved through both temporal responsiveness and linguistic fidelity (Montiel & Uyheng, 2022). Temporal responsiveness allows for precise timing in data collection, as phenomena emerge, rather than waiting and collating between waves (Montiel & Uyheng, 2022). Decolonial big data in social work can teach research to students using real-time data, rather than antiquated administrative datasets. Linguistic fidelity is a component of naturalism that captures participants' own words, not changing language away from local expressions (Montiel & Uyheng, 2022). Rather than recoding or collapsing into quantitative measures, decolonial big data in social work has the capacity to capture participants' ideas in their own words, a feat typically infeasible for qualitative work conducted independently. Decolonial big data in social work would produce critical scholars adept at both quantitative analyses and the integration of qualitative content together. Social work should model data-driven dialogs and work to deconstruct the process of quantitative meaning making, especially related to social justice in and around social work practice (Slayter, 2017). Tying social justice to statistics can prepare social work students to be agents of change (Slayter, 2017).

Patterson Silver Wolf et al. (2021) capture this concept in a pilot study testing the feasibility of an organizational dashboard using client-level outcome data to gauge change in successful discharges from a community-based drug and alcohol treatment center. The authors found that incorporation of a clinical dashboard utilizing cumulative data from therapist's caseloads helped inform effective treatment practices that yield an increase in successful discharges compared to the baseline (pre-dashboard implementation; Patterson Silver Wolf et al., 2021). While the scope of this manuscript is on big data, this real-world practice example highlights the promise of utilizing macro-level data (e.g., cumulative individual-level outcome data), considering politics, resources, and funding (e.g., organizational policies, procedures, and program), and then engaging in thoughtful discussion and dialog with relevant/affected stakeholders/participants to guide future steps (e.g., using clinical dashboards in session with clients to get feedback and determine appropriate treatment strategies).

Critical reflexivity

Neither the burgeoning big data enterprise nor the technical skills designed to manage said data are separable from the unequal global relations they arise from (Montiel & Uyheng, 2022). Big data promotes a detached view of researchers, limiting the researcher's relationship with human populations (Montiel & Uyheng, 2022). This is seen in big data by discounting the researcher's relationship with big data (Montiel & Uyheng, 2022). Both data and the analyses replicate systems of oppression (Montiel & Uyheng, 2022) as that is the environment within which they were designed and created. Decolonial scholars put forward a critical reflexivity from the margins in knowledge production (Montiel & Uyheng, 2022). Moving beyond hollow privilege checks from the researcher or analyst, a critical reflexivity is an embodied positionality, carrying through the entire analysis. Put simply, good statistics are the foundation for good thinking, but good statistics cannot replace good thinking (Grogan-Kaylor & Delva, 2008).

Conclusion

In order to prepare for the rising data colonialism issue, social workers must be trained to decolonize big data. By embracing an ecology of knowledge, moving toward a collective ontology, shifting to a naturalistic epidemiology, and developing a practice of critical reflexivity, social work can give rise to the decolonial occasion. Social workers have recommended cross-sector interdisciplinary collaborations with government agencies, business sectors, and social movements (Coulton et al., 2015), these collaborations are ideal avenues for social work practicum placements. Similarly, service-learning pedagogy has been put forward as a solution to addressing research reluctance in social work education through the integration of academic learning and relevant services (Lery et al., 2015). Service-learning pedagogy can be utilized to

demonstrate the relevance of data and research in decolonial social work practice and policy (Lery et al., 2015). Overall, scholars have recommended building an infrastructure of social workers trained to use data (Lery et al., 2015), particularly big data. This infrastructure would include identifying target populations, connecting and evaluating interventions with specified outcomes, adapting practice to various contexts and populations, and ultimately evaluating the effectiveness of said interventions (Lery et al., 2015). However, this infrastructure must also attend to emerging social justice concerns inherent within data and resist haphazard perpetuation of data colonialism. It is important to expand data access and use; implement advanced data management, security, and analysis; prepare data savvy social workers; and promote data-driven social policy and practice (Coulton et al., 2015). Given the speed at which big data has burst onto the scene, it is crucial to begin to prepare for and plan for the growing need to address data colonialism and decolonize data in social work.

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References

- Andersen, L. B., Christensen, M., Danholt, P., & Lauritsen, P. (2022). The role of digital data on citizens in social work research: A literature review. *The British Journal of Social Work*, 53(2), 848–865. <https://doi.org/10.1093/bjsw/bcac158>
- Basom, R. E., Jr., Jacono-Harris, D. A., & Kraybill, D. B. (1982). Statistically speaking: Social work students are significant. *Journal of Education for Social Work*, 18(2), 20–26. <https://doi.org/10.1080/00220612.1982.10778571>
- Couldry, N., & Mejias, U. A. (2019). Data colonialism: Rethinking big data's relation to the contemporary subject. *Television & New Media*, 20(4), 336–349. <https://doi.org/10.1177/1527476418796632>
- Coulton, C., Goerge, R., Putnam-Hornstein, E., & de Haan, B. (2015). Harnessing big data for social good: A grand challenge for social work. *American Academy of Social Work and Social Welfare*. Working Paper No. 11.
- Fouché, C., & Bartley, A. (2016). Teaching data analysis to the data-averse: A framework for educators. *Journal of Teaching in Social Work*, 36(1), 70–83. <https://doi.org/10.1080/08841233.2016.1125231>
- Frey, W. R., Patton, D. U., Gaskell, M. B., & McGregor, K. A. (2020). Artificial intelligence and inclusion: Formerly gang-involved youth as domain experts for analyzing unstructured twitter data. *Social Science Computer Review*, 38(1), 42–56. <https://doi.org/10.1177/0894439318788314>
- Grogan-Kaylor, A., & Delva, J. (2008). Thoughts on Social Work knowledge development activities within a quantitative framework. *Social Work*, 53(4), 293–296. <https://doi.org/10.1093/sw/53.4.293>
- Herther, N. K. (2022). Data colonialism: A new way to look at the complex world of information. *Information Today*, 39(3), 16–19. <http://newsbreaks.infotoday.com/NewsBreaks/Data-Colonialism-A-New-Way-to-Look-at-the-Complex-World-of-Information-151302.asp>
- Jamieson, M. K., Govaart, G. H., & Pownall, M. (2023). Reflexivity in quantitative research: A rationale and beginner's guide. *Social and Personality Psychology Compass*, 17(4), e12735. <https://doi.org/10.1111/spc3.12735>
- Knight, F. T. (2022). Term circles: Using linked data as a tool to mitigate colonial subject bias. *Journal of Library Metadata*, 22(1/2), 105–133. <https://doi.org/10.1080/19386389.2022.2051980>
- Lery, B., Putnam-Hornstein, E., Wiegmann, W., & King, B. (2015). Building analytic capacity and statistical literacy among title IV-E MSW students. *Journal of Public Child Welfare*, 9(3), 256–276. <https://doi.org/10.1080/15548732.2015.1043421>
- Mills, D. (2022). Decolonial perspectives on global higher education: Disassembling data infrastructures, reassembling the field. *Oxford Review of Education*, 48(4), 474–491. <https://doi.org/10.1080/03054985.2022.2072285>
- Montiel, C. J., & Uyheng, J. (2022). Foundations for a decolonial big data psychology. *Journal of Social Issues*, 78(2), 278–297. <https://doi.org/10.1111/josi.12439>

- Morgenshtern, M., Freymond, N., Agyapong, S., & Greeson, C. (2011). Graduate social work students' attitudes toward research: Problems and prospects. *Journal of Teaching in Social Work, 31*(5), 552–568. <https://doi.org/10.1080/08841233.2011.615287>
- Patterson Silver Wolf, D. A., BlackDeer, A. A., Beeler-Stinn, S., Zheng, K., & Stazrad, K. (2021). Performance-based practice: Clinical dashboards for addiction treatment retention. *Research on Social Work Practice, 31*(2), 205–211. <https://doi.org/10.1177/1049731520972798>
- Phan, N. T., & Lee, K. L. (2022). Toward a decolonial quantitative political science: Indigenous self-identification in the 2019 Native Hawaiian Survey. *Journal of Race, Ethnicity, & Politics, 7*(1), 90–118. <https://doi.org/10.1017/rep.2021.39>
- Reardon, J., & TallBear, K. (2012). “Your DNA is our history” genomics, anthropology, and the construction of whiteness as property. *Current Anthropology, 53*(S5), S233–S245. <https://doi.org/10.1086/662629>
- Shaw, I. (2012). The positive contributions of quantitative methodology to social work research: A view from the sidelines. *Research on Social Work Practice, 22*(2), 129–134. <https://doi.org/10.1177/1049731511420171>
- Slyter, E. M. (2017). Teaching note—“by any means necessary!” Infusing socioeconomic justice content into quantitative research course work. *Journal of Social Work Education, 53*(2), 339–346. <https://doi.org/10.1080/10437797.2016.1237912>
- Thatcher, J., O’Sullivan, D., & Mahmoudi, D. (2016). Data colonialism through accumulation by dispossession: New metaphors for daily data. *Environment & Planning D: Society & Space, 34*(6), 990–1006. <https://doi.org/10.1177/0263775816633195>