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Personal, Institutional, and Societal Barriers to Educators' Engagement with Datafication on Campus: A Case Study

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Abstract

Datafied digital systems have permeated higher education over the past decade. Registration, grading, financial operations, and often teaching all take place through digital platforms that extract and collate data about students as well as faculty and staff. At the level of these data system processes, academics may not have the knowledge or practices to fully grasp the shift in their workplace that datafication represents. However, our research suggests that educators do understand the paradigm shift that datafication represents and have strong beliefs about how institutions should proceed to protect students and academia itself. Our team conducted an in-depth comparative case study (CCS) investigation of how university educators make sense of the datafied infrastructures in and on which they work. This proceeding overviews the knowledge, practices, experiences, and perspectives of educators in various institutional status positions from six different countries, in relation to datafied digital tools. We will focus particularly on the barriers that participants articulated to their own engagement with data, at personal, institutional, and societal levels. We will frame ways barriers are reinforced by institutional approaches to datafication and will overview participants' concerns as well as ways datafication has altered faculty's power position as knowers within the academy.

Keywords: datafication, digital education, higher education, faculty understanding, case study

Introduction

Over the past decade, higher education operations have become increasingly dependent on digital, datafied systems. The primary functions of the university, including registration and enrollment systems, payroll and financial systems, communications infrastructures, research systems, grading, and often professional development and teaching, are all increasingly datafied. The intersecting, proprietary platforms on which these functions occur serve to extract and collate user data each time they are used (Erickson, 2018; Williamson, 2020). Keystrokes, searches, and even deleted information are gathered (Mozur et al., 2022), often without students or faculty even being aware. Higher education data is lucrative for corporate vendors (Decuypere & Williamson, 2021), yet the sector has not fully grappled with the paradigm shift that datafication represents for its stakeholders or its mandate. Machine learning and analytics tools often promise "personalization" and insights into the relationships between teaching methods and student performance (Wong & Li, 2020), and the discourse on data in higher education tends to focus on technical processes, efficiencies, or on optimizing student retention and success (Siemens, 2013; de Freitas et al., 2014). Yet the risks and implications for academic staff and students, as well as for institutions themselves, have been minimally explored, as have the institutional barriers to more agential engagement with datafication. This paper shares findings from an international, qualitative comparative case study (CCS) on what educators in universities know and believe about datafication in higher education. It overviews what educators think should happen with datafication on their campuses, and the barriers that limit their engagement with the topic.

Risks

Automated decision-making, data extraction, non-transparent data collection, and surveillance all comprise aspects of risk in datafied systems (Decuypere & Williamson, 2021; Mozur et al., 2022). However, datafication poses particular risk to individuals already facing systemic discrimination within society (D'Ignazio & Klein, 2020). The algorithms that control datafied decision-making are often discriminatory (Gilliard & Culik, 2016), reinforcing racial, gender, and class stratifications. Some automated decision-making systems have, for example, denied students loans due to their zip codes registering as "too risky" (O'Neil, 2016).

Additionally, the pervasive nature of digital, datafied systems within contemporary higher education represents a new professional landscape for many faculty. This in turn poses risks for the sector and for the cultural role of the academic. The scientific method relies on the principle that correlation does not equal causation, but datafied systems run on mass scale correlational statistical associations. Datafication, then, represents a shift in both processes and paradigm for higher education, displacing the locus of power on campuses away from theory-informed academics and towards technical systems that benefit from the appearance of objectivity. Conversations about datafication in higher education also tend to be siloed, with IT, decision-makers, and educators seldom sitting at the same table. There is currently no sector-wide approach to data ethics or policy (Stewart, 2020, 2023), in spite of interest from users in learning manageable ways to protect their data (Ahvehainen, 2021). Our study aimed to explore educators' perspectives on these barriers to data engagement at the individual, institutional, and policy making levels.

Methods

Our research team chose comparative case study (CCS) method to explore educators' perspectives on datafication. CCS enabled us to synthesize and compare patterns and contexts across cases, taking shared contexts into consideration (Bartlett & Vavrus, 2006; do Amaral, 2022; Knight, 2001). We examined educators' perceptions, knowledge, practices, and experiences of datafication and datafied systems in the context of their work and traced these across three axes. The horizonal axis makes comparisons at the person-to-person level, the vertical axis traces phenomena across scale and structures, and the transversal axis situates analysis historically, in power relations of time and space. Each participant in our CCS was considered both an individual case and part of a collective case of educators teaching during the pandemic. Our data was collected through online semi-structured interviews with "field notes" as supplemental material. Transcripts and field notes documents were analyzed through hand-coding and additional coding in Dedoose. Themes were identified inductively, with two major themes and eight subthemes emerging.

Data Sources

There were 11 participants in the case study, all of whom had contributed to a pilot survey in 2020 (Stewart & Lyons, 2021) and volunteered to contribute further. The participant group for the case study included eight women and three men, based in six countries: Canada, the United States, Mexico, Ireland, Scotland, and Saudi Arabia. Three participants were living outside their countries of origin, and two worked and taught in languages that were not their first language. The women included one Associate Professor, two Assistant Professors, one Lecturer (UK designation equivalent to an Assistant Professor in North America), one Learning Technologist, one Coordinator of a Teaching and Learning Centre, one Program Coordinator teaching within her own program, and one Adjunct Professor. All three men were Associate Professors, in faculties of Business, Engineering, and Computer Science.

Results

Horizontal comparative analysis identified a meaningful distinction between educators' understandings and adoption of technical data processes and practices—which were generally low—and their understanding of the big picture paradigm shifts on their campuses. Participants overall were far more knowledgeable and comfortable in paradigm discussions than process discussions. Disciplinary background made a greater difference to educators' comfort with data conversations than geography or academic status, meaning that participants whose disciplines fostered some critical understandings of data were more likely to understand privacy risks and be willing to be involved in change. Specifically, those who worked in educational technology-related disciplines were consistently in favour of data ethics approaches for higher education, where those from other disciplines were more likely to articulate some advantages of datafication, including saving time and easier marking. That said, vertical and transversal axes of analysis indicated that all educators experience barriers to individual and institutional engagement, and that more engaged and knowledgeable participants often felt frustrated by their lack of inclusion in institutional conversations about datafication. Additionally, frustrations rooted in these barriers impact educators' trust in institutions, which in turn creates beliefs about digital and datafied systems that emerge from those spaces of altered trust, further reinforcing barriers to engagement. Through vertical analysis, it also became evident that academic practices and structures create subjects who are expected to just click "yes" to Terms of Service (TOS). In this way, higher education reflects the broader culture. On the transversal axis, it became evident that there are significant shortcomings within societal policymaking regarding data, but that higher education has failed to take an educative role in addressing this. Across all

levels, participants felt that at the institutional level, there was a lack of professional development and training on datafied systems.

Educational Implications

Overall, our study demonstrates that educators' work environments—and knowledge about their work environments—have been shifted by pervasive datafication. Yet despite growing concerns about privacy and surveillance, academic staff in higher education tend to be left out of data conversations and policy development within their institutions, and the sector overall is not taking an educative role regarding datafication. Our study shows that educators do have strong beliefs about what higher education should do with data, particularly the data of students, and that responses to the paradigm shift of datafication need to be systemic, rather than individual.

Author's Contributions

BS, EM, SS, and TL contributed to the research and presentation of this project. BS and EM were primarily responsible for the writing of this proceedings.

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Ethics Statement

Ethical approval was obtained from the University of Windsor Research Ethics Board.

Conflict of Interest

The authors do not declare any conflict of interest.

Data Availability Statement

The dataset analyzed in the current study is not publicly available due to potential identifiability of participants, but is available from the corresponding author upon reasonable request. Data from the 2020 pilot survey on which the case study was based, and which is referenced in the paper, is available as an open data set in the Zenodo repository: https://zenodo.org/record/4096183#.ZFrv9-zMLFo

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