RESEARCHING THE EDTECH INDUSTRY FOR CHILDREN: METHODOLOGICAL REFLECTIONS ON A DESIGN-BASED APPROACH

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Introduction

Digital platforms and services are making inroads into the everyday lives of even very young children. As with many other domains of life, children's learning and education are increasingly digitised through 'educational technology' software, or more commonly EdTech. Today, EdTech has evolved into a global industry, attracting unprecedented financial investments from various sources (Williamson, 2022; Williamson & Komljenovic, 2022). The rise of this industry provokes new questions about children's education in the digital age. What are the EdTech products available to children and families? How is the EdTech market made and sustained and who are the players in the field? How do EdTech companies frame the educational needs of children? How are

children's data collected and used by these companies via digital services? Methodologically, answering these questions falls in the field of the political economy of digital childhood (Sefton-Green et al., 2022). This interdisciplinary approach is underpinned by an overall interest in understanding the critical roles of institutions, especially companies and governments, in producing and distributing digital services that shape children's and families' everyday consumption of digital technologies. In this paper, we focus on the methodological offerings of a design-based method (see below) for researching the political economy of digital childhood. We explore how a design-based approach is compatible with the research interests of a political economy perspective by drawing on the processes and findings of a collaborative design intervention study which aimed to conceptualise and build a database of EdTech companies and products for young children living in Australia.

The political economy of digital childhood has attracted a wide range of methodological approaches (Williamson et al., 2023), but not usually involving design thinking and methods. As Lupton (2018) has advocated for the development of 'design sociology', the incorporation of design-oriented methods can 'develop insights into how objects and systems are designed, developed, promoted to users, and taken up by users and also retain a reflexive perspective on the use of design research methods as themselves context-specific and discursive research devices, involving multiple and often contested knowledge claims that can work to serve or support certain interests and futures over others' (p. 7). In this respect, on top of disclosing power relations in the children's EdTech market, design-based approaches are conducive to social and cultural changes that respond to social injustice and improve people's lives.

The study

The study presented in this paper aimed to map the market trends and characteristics of children's EdTech in Australia by designing an EdTech Database (hereafter referred to as Database). Adopting a 'design intervention' approach (Fraser & Galinsky, 2010), the study uses the Database as a 'design artefact' to challenge the power relations between corporations and individual users and to stimulate ideas (Bergman et al., 2007). The design process consisted firstly of collecting and curating publicly available data about EdTech companies and services for young children in Australia, including those that may be intentionally obscured by commercial providers, such as countries of operation, APIs, and third-party data sharing. This process enabled the researchers to observe the difficulty of locating information about EdTech companies and their software as a method to raise awareness and provoke changes. In total, information about 96 EdTech companies and 324 EdTech products for young children was collected.

The second part of the process involved running 'design sprints' (Banfield et al., 2015), in the format of small-group workshops, parents and educators to help identify the problem, design a prototype that is user-centred, and evaluate the efficacy of the Database to provide novel awareness of corporate practices. The main purpose of employing this technique is to understand and critique processes of product development from within the commercial convention. To do this, we visualised the Database in a design prototype in the form of a working website. We used the prototype to showcase what the Database might look like in real life to motivate stakeholder

responses. This part of the process allowed the researchers to understand, from the users' perspectives, what their expectations of the Database are and what the Database can actually do.

Findings

Based on the findings of the Database, we make three arguments in relation to the methodological potential of a design-based approach for researching the political economy of digital childhood.

First, analysis of the information collected for the Database illustrates key industry trends and characteristics. For example, EdTech services that integrate entertainment elements and are used mostly outside of educational institutions, referred to as 'Edutainment' software, are dominantly produced by US-based companies. The Edutainment market is highly 'synergised' in that big, international EdTech players continually expand their influence by acquiring smaller businesses. Reading platform *Epic!*, for instance, is now part of Indian tech-giant BYJU, while Discovery Education has acquired reading and numeracy software developer *Dreambox*. Big media companies, such as Entertainment One, are also entering the market, offering 'educational' apps as spin offs of popular TV shows such as *Peppa Big* and *PJ Masks Hero Academy*.

Second, the process of designing and building the Database surfaces the difficulty of accessing information about the targeted EdTech companies and products. Often, the requested information was not publicly available or was hidden somewhere on the company website. In other cases, the information was framed in ways that made identifying it difficult. For example, when trying to locate information about the specific category of an EdTech product (e.g., childcare management, family engagement, or documentation), companies seemed to be reluctant to provide a clear self-identification. As a response to this challenge, we had to rely on third-party online sources (e.g., Crunchbase, Apple App Store, etc.) to search for some information. This was not ideal due to the difficulty of verifying the validity of information included in these sources. It also indicates the power of these 'intermediary' organisations which significantly control the information flow between EdTech companies and the users in the absence of credible information from the companies themselves.

Third, the stakeholder workshops, which involved the use of the design prototype, revealed both the *normative* and *pedagogical* offerings of the Database. On the one hand, parents and educators talked about categories of information that they considered helpful while sharing what was missing that could have helped them decide in relation to using or purchasing an EdTech product. This helped the researchers improve the design prototype. On the other hand, participants indicated that some categories of information tacitly provoked questions about the commercial practices, such as the countries where the technology was being used. They, for example, questioned the agendas of the EdTech investors behind the companies when they receive the information from the Database, wondering if the investors may shape how the companies produce educational content. In a way, the Database as a design artefact

encourages everyday users to think more critically about corporate practices in educational settings.

In conclusion, the design-based approach employed in this study not only makes visible EdTech companies' market-making practices, but also works toward imagining and enacting positive futures for and with the various EdTech stakeholders. It contributes to the field of the political economy of digital childhood by offering a way to provoke potential solutions to address the power asymmetries between the EdTech industry and individual users.

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