CHARTING A PATH FOR PRIVACY AFTER CLASSROOM GOOGLEFICATION

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By

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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In the United States, public education is a mechanism for social mobility. However, the introduction of personal computers and the internet have brought novel challenges to students and parents. While some legislation exists to protect student privacy, nuances in policies have permitted educational corporations to act in morally dubious ways. Furthermore, in a congress that is insufficiently informed on technology, legal protections have not been thorough enough to deal with rapidly built, deployed, and integrated technology. Currently, the most prevalent company in public education is Google. Google's flagship educational product is Chromebooks, a laptop for students which comprise "60% of all education computers in the U.S" (De-Vynck & Bergen, 2020, para. 8). While the large market share of education computers should be concerning, Google's software suite installed on the chromebooks is equally precarious. Thus, the intention of the paper is to investigate the role of privacy in the development of Google educational products. While it would be ideal to analyze and dissect each of Google's products, due to the nature of this paper's scope it has been narrowed to focus on a high level overview of Google education products. Additionally, the focus will be on Google education products that public school students and teachers directly use. Furthermore, since privacy is a multifaceted topic, the focus will be on students' data privacy. The STS paper uses the Social Construction of Technology (SCOT) framework to examine how the relevant stakeholders and social groups' privacy are impacted by Google educational products.

To demonstrate the connection between the research paper and the technical paper, a brief summary of the technical work is required. There are three applications in the technical work. The first is a mobile application which improves the ability for immigrant university students to learn vocabulary by scanning text with a smartphone and presenting definitions for

any word. The second application allows parsing of questions from quizzes, prior exams, and displays them in an interface for students to review. The last application is an online office hour website whereby students can virtually queue and then discuss with instructors through video chat.

While Google education products are not tightly related in function toward the technical work, the domain is the same. Student privacy influences the technical work and Google's products. With a review of Google's practices and the understanding of relevant social groups the technical work becomes more consciousness. Thus, there are lessons which can inform future development of the technical products. The following section describes the mechanisms of the SCOT framework and Moeller's Corporate Education framework. Next, the background for Google's education involvement is described. Finally, SCOT is applied to the Google products and identity privacy's role in education.

ANALYTICAL FRAMEWORK

The Social Construction of Technology (SCOT) is a sociotechnical framework to investigate how different social groups influence the development of a technological artefact through the changing perceived needs of each group (Pinch & Bijker, 1984). SCOT through interpretative flexibility, interpretative design, and closure understands social groups determine the final product of a technology (Pinch & Bijker, 1984). Using SCOT we can better understand the dynamics and interconnectedness between Google educational products and relevant social groups.

Kathyrn Moeller, a Professor in Educational Policy studies in University of Wisconsin-Madison and winner of the National Women's Studies Association's Sara A. Whaley Prize (http://kmoeller.org/), in 2020 detailed a framework for examining corporations in education. Moeller's framework categorizes how corporations are segmented into the education space and common processes they undertake (2020). Meoller categorizes corporate actors into noneducational corporations, technology corporations, education corporations, venture capital firms, investment banking firms, and limited liability corporations. Furthermore, Moeller describes the notion of Corporatization as a "set of processes and power relationships through which for-profit actors ... influence the rationales, norms and goals, as well as the provision practices and policies of education" (2020, p. 235). With Moeller's framework the paper can better understand the corporate role that Google has.

GOOGLE'S EDTECH HISTORY

Through detailing the culture of technology in education, the growth of Google products, and current conflicts, the following sections provide context for SCOT analysis.

Technology Fervor

In 1998, a librarian named Chapman attended a hearing in Texas over replacing school textbooks with laptops and CD-ROMS (2003, para. 1). In the hearing, Chapman saw laptop vendors and associated software providers present products to the state legislature in a misleading manner. It seemed that some of the presentations were done for shock value as opposed to providing measurable benefits. For example, a vendor demonstrated their laptop's

resilience by having a large man "jump" on the laptop (2003, para. 3). Chapman considered the United States in a state of "frenzy over getting computers and the Internet into K-12 schools" (2003, para. 6). His account presents an instance of enthusiasm for technology in the classroom. While it may not be generalized for all state governments, the account is indicative of an instance of technologically focused legislators.

By 2019, Natalie Wexler, an author at MIT Technology Review, wrote *How classroom technology is holding students back* where she presented a case for how technology benefits in the classroom are ill perceived. Wexler, through a Gallup poll, found that 96% of administrators and principals fully or somewhat support digital learning tools (2019, para. 7). However, in the same poll, Wexler found that 18% of administrators thought that there is a significant amount of data regarding technology's effectiveness in education. Furthermore, Wexler found that computer use was "equivocal at best" as computers and digital devices use led to reduced academic performance (2019, para. 8). It is clear that a cultural force is influencing school administrators more toward technology.

Momentum

Natasha Singer, author of the "You for Sale" series which prompted legislation for a student privacy law in California (https://www.nytimes.com/by/natasha-singer), in 2017 wrote a detailed article describing Google's rise in education. According to Singer's article, Google's involvement in education started in 2006 when Jaime Casap, Google's future chief education evangelist, helped convince Arizona State University(ASU) to migrate their internal email service to Gmail and then later add Google Doc (A Campus Marketing Machine section, para.

1-2). Although Gmail and Google Docs were intended for business, Casap's ability to apply those technologies for education was a cornerstone for Google to build its educational sector. With the successful integration of ASU, other Universities were more willing to adopt Google's products into classrooms. Soon after, Google was contacted by schools interested in using Google's products and Google saw an opportunity. Google began to set up communities called Google Educator Groups (Singer, 2017, A Campus Marketing Machine section, para. 7) .These communities helped grow and improve how teachers used Google's products. However, while Google appears altruistic, the communities simultaneously increased the number of users for their products and gained political clout in favor of Google's products. As a result, the momentum of teachers adopting Google transcends into districts adopting Google. In effect, Google sidestepped existing protocols describing how technologies are adopted in schools. A teacher called Ms. Mariera demonstrated the urgency which teachers need Google products. She said "We were Bootlegging using Google apps" and "I just knew I needed my kids to collaborate" (Singer, 2017, Dethroning Microsoft section, para. 3). While there is no definitive answer for whether Google was using instructor's goodwill to enter the educational space, the presence of ambiguity is of concern.

Google Sidesteps Privacy Regulation

In February of 2020, in an article in the *New York Times,* Natasha Singer and Daisuke Wakabayashi, a veteran journalist (https://www.nytimes.com/by/daisuke-wakabayashi), informed the public of Google's privacy oversteps through *New Mexico Sues Google Over Children's Privacy Violations.* Now, in 2020, Google has amassed a large market share in the

public education technology space (i.e EdTech) by producing Chromebooks and GSuite for Educators (Singer, 2017). The seamless interaction and benefits between those products spurred teachers to integrate Google's technology into their classrooms. However, an intoxicating appeal for technology in classrooms and utility led several state governments to accept Google EdTech products without strict oversight on data collection (Singer, 2017). In New Mexico Sues Google Over Children's Privacy Violations, Singer and Wakabayashi discuss the New Mexico lawsuit with Google's EdTech's privacy history and inform parents with a clearer context of Google's actions (2020).

Google's reliance on data collection for its services and its role as a "predominant tech brand in American public schools" (Singer & Wakabayashi, 2020, para. 4) is concerning. Google interacts with millions of students (Singer & Wakabayashi, 2020) and as a result, needs to act in a careful manner since a significant majority of students are children. Google affirmed that responsibility in 2015 by signing a voluntary pledge to not "collect, maintain, use or share student personal information beyond that needed for educational purposes" (2020, para. 21). However, according to Singer and Wakabayashi, in September of 2019, Google was found by federal courts to have violated children's privacy through data collection in Google's video service Youtube. While Youtube is not heavily related to its EdTech products, the event highlighted Google's eagerness to collect data. In February 2020, Google found itself in another privacy controversy. A lawsuit from the State of New Mexico claimed that Google broke its voluntary pledge by violating the Children's Online Privacy Protection Act. (Singer & Wakabayashi, 2020, para. 7). A Google spokesperson responded to the lawsuit by claiming it was"factually wrong" and that schools had the ability to control accounts and ask for parental

consent when needed (Singer & Wakabayashi, 2020, para. 9). Despite Google's objections, Singer & Wakabayashi pointed out contradictions with the pledge such as having different privacy policies to different products, under detailed descriptions of data collection methods, and interconnecting children's school activity with personal activity with its multipurpose products. Singer and Wakabayashi through the sequencing of factual statements leads the audience, in particular parents, to be wary of Google.

ANALYSIS

In page 7, on Figure 1, a high level overview of the relevant social groups which influence Google education products is presented. There is broad interpretive flexibility, the meaning that each social group assigns to a technology, between the Google educational products' social groups. Teachers, parents, and Google advocacy networks such as Google Teacher Academy (https://sites.google.com/a/googleteacheracademy.com/cue/) view the tools as a method to improve student outcomes and reduce teacher work. Meanwhile, privacy advocacy groups such as the Electronic Privacy Information Center (https://epic.org/) and privacy conscious teachers, parents, administrators, and government officials see Google education products as a means to steal information from students. Nevertheless, Google will have to respond to those groups. Additionally, lawsuits from the federal, state and local governments can place additional pressures on how Google education products are implemented and further developed.

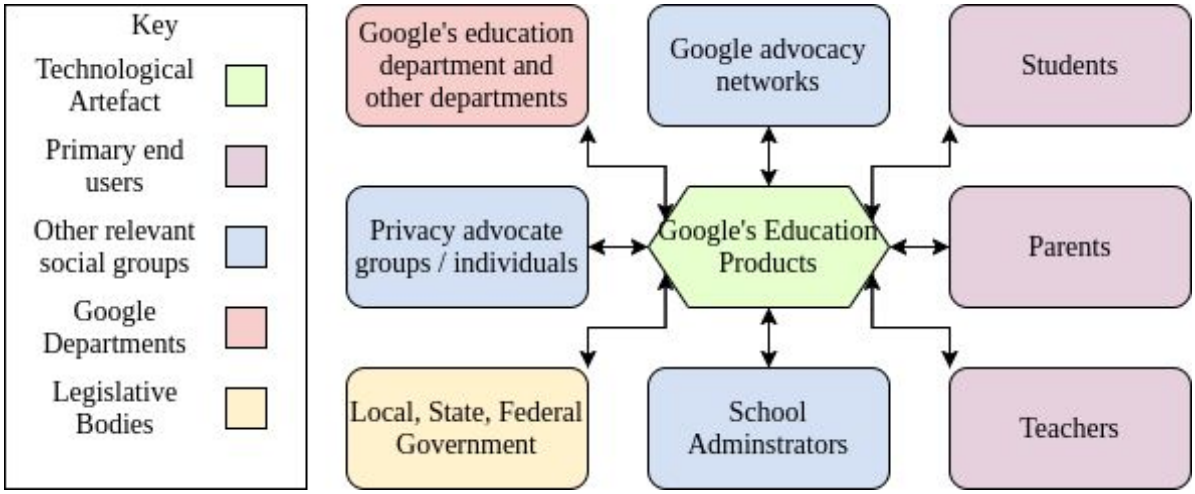

Figure 1: Existing SCOT Model: A SCOT chart describing the connection between different social groups and Google educational products (Created by Ramos, 2020).

Furthermore, by segmenting social groups into color coded categories, we can identify critical power distributions. Governmental officials and Google executives have their power centralized and determine how Google education products are made. Through an analysis of Microsoft, Moeller demonstrated that technology corporations hold power over underfunded districts with their low priced programs and lock students into their platform (2020, p. 238). Google, as a technology corporation, has the same power with its educational products. Furthermore, Moeller noted how technology companies have extensive lobbying power since previously they have worked to develop legislation and policies regarding computer science education (2020, p. 237). As a result, Google and similar technology giants can collectively battle courts against federal legislation that is unfavorable. The power of Google and legislative bodies significantly influence how products end in the hands of end users.

Meanwhile privacy advocacy groups, Google advocacy groups, school administrators, while less centralized, act as gatekeepers in how Google education products are implemented.

School Administrators make contracts with Google to integrate education products into schools. Google advocacy groups influence school administrators and teachers through communication and documents which simplify using Google products (Wojcicki, 2007). Privacy advocacy groups/individuals influence Google by filing lawsuits toward Google. However, lawsuits are not immediate to enact as courts cases can last for years. Furthermore, while some school administrators may be concerned about the privacy issues of Google education products, their positive view of technology and utility of those services may override their concerns.

Nonetheless, it is clear that Google has several centralized social groups which influence the development of the educational products. However, in most of these groups privacy is not often considered due to technological fervor, utility, and financial interest. As a result, Google is enabled to implement it's educational products close to the bounds of legality. However, the end users of Google education products, while not a uniformed group, have significant sway on Google's product development.

Students, parents, and teachers in totality have sway with how Google education products are developed but as individuals have orders of magnitude less influence than School administrators, Google executives, and government officials. Despite that, individuals voicing feedback did result in functional changes to the products as engineers were willing to adapt the platform to teacher needs (Singer, 2017). Meanwhile, students and parents can pressure their local government to take a stance on Google education products. However, teachers, students, and parents have a complex relationship toward Google's products.

Powerful, Yet Conflicted

In 2011, in a blog called *Teacher Tech,* Alice Keeler, a Google advocate teacher, selected some tweets over an event called ISTE 2011. In the selection, Keeler identified comments which asked for more technology from the classroom. Additionally, one of Keeler's tweets read "what teachers want most from admins. — support for taking risks" (Keeler, 2011, n.p). Clearly, instructors desired more technological integration and support from school administrators in their decision. Similarly to the school administrators, teachers have technological ferver.

Regarding students, a study in 2011, which analyzed how effective Google Docs was at collaborating, found that 79% of students had a positive experience (Zhou & Simpson & Domizi, 2012, p. 364). Similarly, anecdotally, I and many colleagues enjoy Google Docs and the other Google education tools. Their perceived utility is present in the minds of many students. It is difficult to envision not using Google educational products as it has become a part of the modern school experience. Thus, as students, we are conflicted on the privacy aspects of Google educational products.

Meanwhile, parents desire the best opportunity for their children. As such, a child with educational technology is viewed as having more educational benefits than a child without educational technology. Parents, like students, administrators, and teachers are conflicted with Google educational products.

RESOLUTION

To resolve the privacy underfocus on page 11, Figure 2 displays an ideal SCOT model. In the model, every dominant social group is constrained by the students, parents, teachers, and

privacy advocacy groups. This is the ideal model as too much power was given to all other social groups. While lawsuits are a method to enact change, it would be slower than using the end users feedback to change Google's policies.

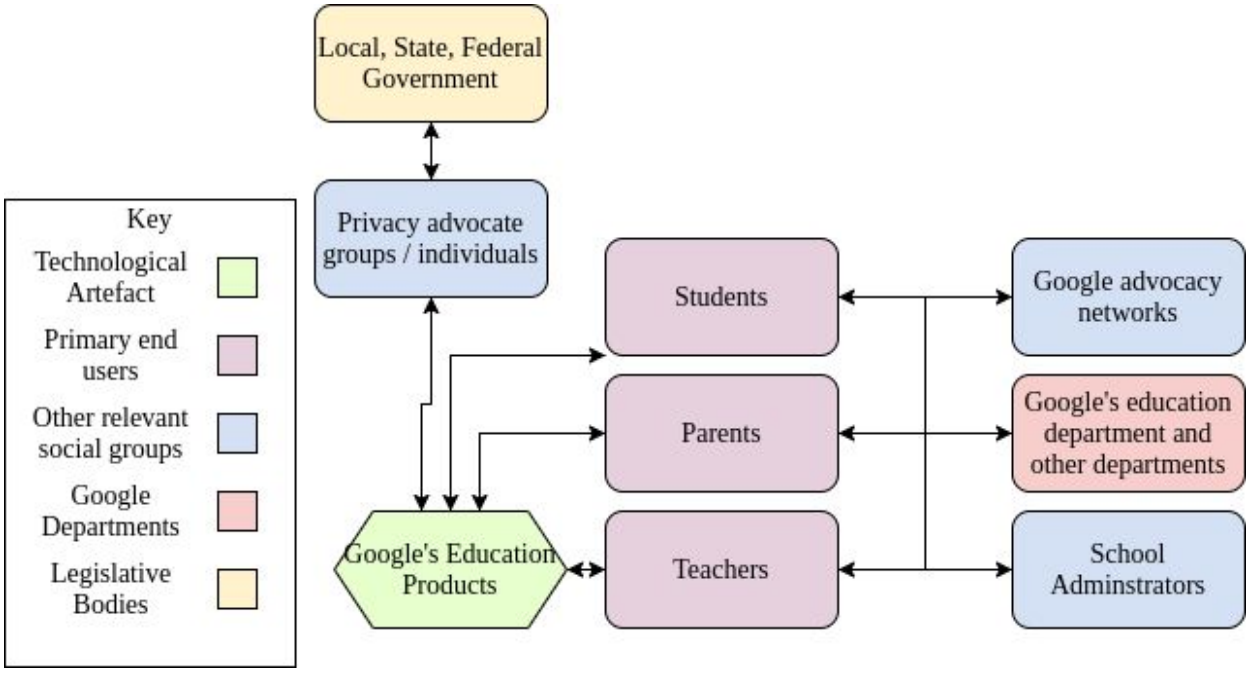

Figure 2: Improved SCOT Model: A new organization of the social groups for Google's EdTech products (Created by Ramos, 2020).

While Google's privacy machinations are of concern, through the model, change can be enacted. In order to prevent Google's various interests from abusing school children's privacy, it is necessary that students, parents, and teachers voice their opinions and attempt to change Google's policy to public backlash. Through the power of individuals, Google's privacy policy towards educational products can change.

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