Big Claims, Little Evidence, Lots of Money: The Reality Behind the Summit Learning Program and the Push to Adopt Digital Personalized Learning Programs

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Executive Summary

Virtual learning and personalized learning have been at the forefront of education reform discussions for over a decade. Backed by almost $200 million philanthropic dollars from the Chan-Zuckerberg Initiative, the Gates Foundation, and others, Summit Public Schools has aggressively marketed its Summit Learning Platform to schools across the United States since 2015. As a result, the Summit Learning Program is now one of the most prominent digital personalized learning programs in the United States.

Summit Public Schools, an 11-school charter network operating in California and Washington, promotes its proprietary Summit Learning Program to potential "partner" schools as a free, off-the-shelf, personalized learning program. Summit's marketing message trades on the alleged success of its schools. It claims to have developed a "science-based" personalized learning model of teaching and learning that results in all of its students being academically prepared for college. It further claims that its students succeed in college and are prepared to lead successful, fulfilled lives. These successes, it claims, are the result of its unique approach to personalized learning and the use of the digital platform at the heart of that approach.

None of the claims made by Summit Public Schools have been confirmed by independent evaluators. Other than scant bits of self-selected information provided by Summit Public Schools itself, we found no evidence in the public record that confirms its claims. Summit Public Schools has not provided the information related to its claims that we requested in a California public records request.

Despite the lack of evidence to support the claims made by Summit Public Schools, the Summit Learning Program has been adopted by nearly 400 schools across the country. While Summit has offered positive anecdotes and some selected data, there is no solid evidence that "partner" schools are experiencing the promised success. There are, however, a number of reports in the press that detail problems and dissatisfaction with the Summit Learning Program in partner schools and among students and parents. In addition, a Johns Hopkins University evaluation of partner school classrooms in Providence, RI, found students were left to teach themselves with minimal guidance from teachers and aides. Reviewers described students engaged in extensive off-task behavior and progressing slowly and ineffectively through their assigned work.

Our review of Summit partner school contracts suggests that student data collected by the Summit Learning Platform under the terms of those contracts presents a potentially significant risk to student privacy and opens the door to the exploitation of those data by the Chan Zuckerberg Initiative and possibly by unknown third parties—for purposes that have nothing to do with improving the quality of those students' educations.

Virtual education and personalized learning are at the top of the education reform agenda in large measure because of hundreds of millions of dollars in funding and advocacy by philanthropic organizations (e.g., the Gates Foundation), large digital platforms (e.g., Facebook and Google), and venture capitalists anxious to access the school market. The COVID-19 pandemic has turbo-charged these efforts, as schools across the country are struggling to find safe ways to educate their students.

The rapid spread of the Summit Learning Program—despite a lack of transparency and the absence of convincing evidence that it can deliver on its promises—provides a powerful example of how policymakers are challenged when faced with a well-financed and self-interested push for schools to adopt digital personalized learning programs. There is now an urgent need for policymakers to move quickly to protect the public interest by establishing oversight and accountability mechanisms related to digital platforms and personalized learning programs.

We recommend that state departments of education establish an independent governmental entity responsible for implementing and enforcing the following recommendations to ensure the quality of digital personalized learning in public schools and to adequately protect the privacy of student data. Specifically, such an entity should:

- Require that the digital personalized learning programs be externally reviewed and approved by independent third-party education experts. As part of these program evaluations, the evaluators should review and approve the program curricular materials, the pedagogical approaches as applied to the intended student populations, the validity of the assessment instruments, and the programmatic usefulness of data generated;
- Require that the assumptions and programming of all algorithms associated with personalized learning materials be audited for bias and other possible risks to students *before* the algorithms are implemented; and

- Develop a standard data security agreement that protects the privacy and limits the use of all data, including de-identified data, collected by schools through personalized learning materials and related software platforms.

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Introduction

For over a decade, schools across the United States have faced persistent pressure to adopt personalized learning programs. Nonprofit organizations,[1] state leaders,[2] the education and popular press,[3] government agencies, and foundations[4] have often promoted personalized learning and the adoption of digital technologies as complementary reforms. Advocates argue that tech-friendly personalized learning is a "student-centered" approach that will shift schools' focus away from expecting all children to learn the same way at the same pace toward addressing each child's individual needs and interests. In some instances the same reformers who have pushed for test-heavy, content-focused accountability systems are now, apparently without irony, promoting personalized learning as the cure for reforms they have spent the last two decades pushing on schools.[5]

The effort to install personalized learning in schools across the country has to a considerable degree been fueled by focused philanthropic funding (e.g., the Bill and Melinda Gates Foundation and the Chan Zuckerberg Initiative),[6] advocacy by tech industry trade associations [7] and large digital platforms (e.g., Facebook and Google), as well as investments by venture capitalists anxious to access the school market.[8, 9] At the same time, many states have adopted policies that encourage the use of digital platforms in personalized learning programs by exempting these platforms from restrictions on data collection designed to protect student privacy.[10] Although personalized learning proponents argue that it is much more than the use of digital platforms, the conception of competency-based pedagogy underlying the most prominent personalized learning approaches requires extensive data collection and performance feedback that only digital platforms can offer.[11]

Despite years of promotion and advocacy, an agreed-upon definition of personalized learn-

ing remains elusive.[12] Moreover, there is as yet little research support to buttress the claims being made.[13] The RAND Corporation research that proponents often cite, for example, actually failed to find results that support the widespread adoption of personalized learning programs.[14]

RAND's research examined the effectiveness of the practices the Gates Foundation promoted as integral to personal learning.[15] While they found some positive effects on academic achievement in schools that adopted personalized learning practices, RAND researchers could not confidently say that those practices were the cause of the effects.[16] RAND researchers also were unable to find evidence that personalized learning practices have a distinct impact on non-academic skills such as creativity, collaboration, and communication (i.e., the "21st-century skills" thought to be promoted by personalized learning).[17]

In this advocacy, policy, and research context, Summit Public Schools (SPS), a charter school network operating in California and Washington, began in 2015 to market its "Summit Learning Program" to schools around the country as a research-based model of whole school personalized learning reform. On its Summit Learning website and in supporting white papers, SPS promoted its program to potential "partner schools."[18] Supported by philanthropic funding, it offered them its proprietary competency-based digital platform, project-based learning approach, and mentoring approach at no charge.[19] SPS claimed that students in its schools learned to work independently, developed their cognitive and social-emotional skills, formed strong relationships with teachers, and succeeded academically both in its schools and subsequently in college.[20]

Since 2015, when it began marketing the Summit Learning Program (SPS refers to both the curriculum and instruction program that it uses in its schools and the program that it markets nationally to potential partner schools as "Summit Learning") to schools outside its charter school network, SPS has repeatedly claimed that student success in its schools made SPS a model for others. In 2020, nearly 400 schools across the United States are using the Summit Learning Program, promoted since 2019 by a new nonprofit organization created by SPS, T.L.P. Education (doing business as "Summit Learning").[21]

Given that research has not supported the claims of personalized learning advocates, it is important to understand whether and to what extent evidence supports SPS's claims that students at its schools—and by extension, at schools adopting the Summit Learning Program—will learn more and experience greater academic success. Its aggressive marketing and national footprint makes it important for policymakers to determine whether or not SPS, together with its long-term engineering partner, the Chan-Zuckerberg Initiative, and its philanthropic supporters (see Appendix A) have developed an approach to personalized learning that has delivered on its promises and will continue to do so.

Studying Summit

Policymakers, district and school administrators, and communities have had little information other than marketing materials to use in evaluating the validity of claims about either SPS or its Summit Learning Program. For our analysis, we collected and analyzed publicly

available information to determine what evidence supported the outcomes reported by SPS. The information we reviewed included SPS and its Summit Learning Program websites, SPS reports, and other materials. We also examined reports and other documents related to SPS released by other organizations, stories in the education and popular media, funding data, state performance data, and SPS contracts with partner schools (see Appendix B for detailed description of our research methods).[22] We conducted weekly internet searches and regular monitoring of the websites and social media accounts of organizations that might provide information about SPS, the Summit Learning Program, personalized learning, and commercialism in schools (see Appendix B). We also submitted a California Public Records request to SPS (see Appendix C).[23]

SPS's leadership maintains a careful public face, and assiduously avoids providing more or different information than it has chosen to share as part of that public face. Our own experience researching SPS and Summit Learning offers a case in point. It also mirrors that of district officials and parents who have tried, with limited if any success, to obtain information about their schools' use of the Summit Learning Program.[24]

When we requested information from SPS directly, organization staff were unfailingly polite, but nonresponsive. They declined our initial request for an interview.[25] When we submitted our questions via a California Public Records Act (PRA) request, they declined to answer any questions about the Summit Learning Program and the Summit Learning Platform, claiming that (1) activities relating to the Summit Learning Program and the Summit Learning Platform are not related to the operation of a SPS school and are therefore exempt from California's Public Records Act (PRA); and that (2) SPS can no longer access "certain records relating to the Summit Learning Program" (see Appendix C).

It is notable that SPS has been so reluctant and, in many instances, unwilling to provide basic information about its educational program and platform.

It is notable that SPS, a public charter management organization, has been so reluctant and, in many instances, unwilling to provide basic information about the educational program and platform that it created and has aggressively promoted to schools around the United States for several years. SPS provided information to us only as legally required and on the narrowest possible terms. It has even made the claim that the Summit Learning Program and Summit Learning Platform, created and used by SPS, have nothing to do with the operation of SPS (see Appendix C).[26]

In 2018-2019 SPS shifted the Summit Learning Program to T.L.P. Education.[27] T.L.P. is registered as a nonprofit organization and there is no legal mechanism by which the public can compel the organization to provide information, including about the intellectual property that SPS licenses (e.g., curriculum and brand). Nevertheless, both Diane Tavenner (the CEO of SPS) and Priscilla Chan (Co-Founder and CEO of the Chan Zuckerberg Initiative) are on T.L.P. Education's three-member board of directors. This suggests that these organizations are closely aligned. T.L.P. Education has not responded to any of our repeated written requests for information.[28, 29]

Summit Claims of Success

Since 2015, Summit Public Schools (SPS) has marketed the Summit Learning Program as a response to the requests of schools outside its charter school network to share its recipe for success. The image of SPS and its Summit Learning Program as successful is cultivated on the SPS website and in documents such as the 2017 "white paper," *The Science of Summit*.[30]

Despite its repeated claims of success and description of its curriculum and instruction program as "science-backed," "evidence-based," and "grounded in science," SPS has declined to allow an independent evaluation of its curriculum and instruction program, including its proprietary digital platform, the Summit Learning Platform.[31] Stanford University professor Larry Cuban observed several SPS classrooms. In a series of posts he described teachers who were readily available and engaged in meaningful, competent interactions with students.[32] He also noted what he called strong "connective tissue" between SPS teachers and students, and teacher-mentors who were much more engaged with students than typical homeroom teachers.[33] However, such anecdotal reports provide no independent research validation of SPS's claims related to the efficacy of the Summit Learning Program in general, or of the efficacy of the "Summit Learning Platform" in particular.

Academic Performance

It is concerning that SPS offers only self-selected evidence to support its claims of success. A 2016 Progressive Policy Institute publication lauding Summit, for example, was based only on selected test performance data provided by Summit Public Schools (SPS) itself. These test data showed impressive results on California's Academic Performance Index (API) and on a test of academic progress (MAP) produced by an organization called NWEA.[34] However, the API and NWEA MAP tests were only reported for one year for each set of tests (2012 for API and 2014-2015 for NWEA MAP).[35] SPS has also created case studies of selected partner schools to demonstrate their success with the Summit Learning Program.[36] While of interest, self-created case studies do not provide evidence of the systematic efficacy of the Summit Learning Program in the many partner schools that have adopted it.[37]

In 2017, as part of a larger study of charter school students' growth in state math and reading scores, the Center for Research on Education Outcomes (CREDO) included a snapshot of the performance of 398 SPS students for the 2012-2013 school year. CREDO found that attending SPS had a small but significant negative impact on math scores and no significant effect on reading scores.[38] SPS, however, claims that standardized tests are not a valid way of assessing the cognitive skills that it values.[39] At the same time, SPS has not provided independent research evidence to support its claims that its students excel in the development of cognitive skills.

Career and College Readiness

Summit Public Schools (SPS) has emphasized its graduates' readiness for 4-year college, claiming that 100% of its students are "eligible for 4-year college."[40] This claim does not

seem plausible, given the graduation rates published by the California Department of Education (CDE) and the Washington Office of Superintendent of Public Instruction, and the college readiness data published by the CDE and the Washington Charter School Commission.

According to California and Washington state records, no school in the SPS charter school network has ever graduated 100% of its senior class. Since its first graduating class in 2006-2007, SPS four-year graduation rates have ranged from a low of 75% (Summit Rainier in 2014-2015 and Summit Olympus in 2017-2018) to a high of 98.9% (Summit Prep in 2007-2008) (see Appendix D).[41]

CDE calculates the percentage of high school graduating students it determines to be ready for college and career.[42] It determines graduates to be "prepared" for college/career if they attain one of the following:[43]

1. Pass the Grade 11 Smarter Balanced Summative Assessments in English Language Arts (ELA)/literacy and mathematics with a score of 3 or higher;

2. Pass two Advanced Placement (AP) exams with a score of 3 or higher;

3. Pass two International Baccalaureate (IB) exams with a score of 4 or higher;

4. Receive a State Seal of Biliteracy and pass the Grade 11 Smarter Balanced Summative Assessment in ELA with a score of 3 or higher;

5. Pass the "a-g" courses required to apply to schools in the University of California or California State University systems with C minus or better and complete one of the following: pass Smarter Balanced Summative Assessments with a Level 3 or higher in ELA and at least a Level 2 in mathematics, or Level 3 or higher in mathematics and at least a Level 2 in ELA; complete one semester/two quarters/two trimesters of College Credit Courses with a grade of C- or better in academic/career and technical education (CTE) subjects where college credits are awarded for each course; score of 3 on one AP exam or score of 4 on one IB exam; or complete a CTE Pathway;

6. Complete a Career Technical Education (CTE) pathway and complete one of the following: pass Smarter Balanced Summative Assessments with a level 3 or higher in ELA and at least a level 2 in mathematics, or level 3 or higher in mathematics and at least a level 2 in ELA; or complete one semester/two quarters/two trimesters of College Credit Courses with a grade of C- or better in academic/CTE subjects where college credits are awarded for each course;

7. Complete two semesters, three quarters, or three trimesters of college coursework with a grade of C- or better in academic/Career Technical Education subjects where college credits are awarded;

8. Complete two years of Leadership/Military Science, score of Level 3 or higher in ELA and math, and Level 2 "Standard Nearly Met" or higher in other subject area.

This is a complicated system; any given student can potentially qualify in a number of dif-

ferent ways.

We examined the most recently released (2018-2019) college/career readiness percentages for the five SPS schools in California with a graduating class (Summit Everest, Summit Prep, Summit Rainier, Summit Shasta, and Summit Tahoma) to determine what might be said about the college/career readiness status of SPS students in general.

The percentages of SPS students the state of California recognized as "prepared" on its measures of college/career readiness fell well short of the 100% that SPS continues to claim,[44] ranging from from 56% (Summit Everest) to 74% (Summit Shasta)[45] (See Appendix E). In addition, by a wide margin, SPS students demonstrated readiness by completing the coursework making them eligible to apply for admission to CA state universities rather than by any of the other possible means.

In 2018-2019, between 92% (Summit Prep) and 98% (Summit Tahoma) of SPS students who qualified for the readiness designation did so by satisfying the high school coursework metric (see Appendix E). Across Summit Public Schools' (SPS) five California schools with a high school graduating class in 2018-2019, 329 of the 505 graduating students qualified as "prepared" according to California's college/career readiness calculations.[46] Of those 329 "prepared" students, 315 qualified as prepared by passing the coursework required to make them eligible to apply for admission to California's public universities; 181 passed Smarter Balanced Assessments with scores of 3 or higher in both ELA/literacy and mathematics; and 80 students scored 3 or higher on two Advanced Placement tests. In other words, SPS students are qualifying as "prepared" much more by completing high school coursework that SPS designs and grades than by performing at high levels on external measures of academic performance.[47]

The same is true for SPS's Washington schools. The Washington State Charter School Commission's Performance Framework Reports for 2018-2019 included data relevant to a college readiness goal that SPS set for itself and that the state of Washington does not report for all its schools[48]: "90% of students [will] finish the year college ready by scoring at least a 70% or higher in all classes," and "at least 50% of students [will] exceed basic college readiness by scoring 85% or higher in all classes."[49] In 2018-2019, all the SPS Washington schools achieved their goal (see Appendix E).[50] By including all students, not only those graduating, this measure of readiness indicates how many of each SPS school's students were on track to graduate college-ready. And, notably, it also allows SPS to define college readiness based not on any kind of commonly agreed-upon metric, but rather on the cognitive skills that SPS itself defines, assesses, and measures.[51]

There is nothing inherently invalid about SPS students being declared prepared based on their successful completion of their high school coursework. SPS determines students to have successfully completed their coursework based on teachers' evaluations of whether they demonstrate mastery of the cognitive skills that SPS has defined (See Appendix F). This being the case, it is essential that the rubric that SPS uses to assess its students' cognitive skills be both valid and reliably used by teachers.

We could find no publicly available documentation of the validity or reliability of the Sum-

mit Public Schools (SPS) Cognitive Skills Rubric.[52] The Stanford Center or Assessment, Learning, and Equity (SCALE), which ostensibly worked with SPS on both an earlier and updated version of the Cognitive Skills Rubric, referred us to SPS for information about it (See Appendix G). SPS has not provided records we requested that (1) explain the basis for and/or that document the psychometric validation of the Cognitive Skills Rubric, (2) describe the training of teachers to use the Cognitive Skills Rubric, and (3) demonstrate teacher training's effect on teacher consistency in assessing student mastery of cognitive skills (See Appendix C). As a consequence, although Summit Public Schools' (SPS) claim that its students are college ready is technically correct, the overwhelming majority of those students meet the standards by taking SPS's courses and being evaluated by SPS's rubric. Given that Summit Public Schools (SPS) has provided no evidence that its Cognitive Skills Rubric has either internal or external validity, and that there is no evidence that student mastery of the cognitive skills detailed in the rubric is reliably assessed, the claims made by SPS related to its success in preparing students for college are without support and cannot be taken at face value (See Appendix G).

Success in College

Summit Public Schools (SPS) claims on its website that, "From our inaugural graduating class until now, 98% of all Summit graduates have been accepted into at least one four-year college" and that its students graduate at "2X the national average for college graduation."[53] We could find no data to confirm or disconfirm these assertions. When we asked in an open records request, SPS claimed to have no records relevant to these claims (see Appendix C).[54] This is consistent with the pattern described above, of SPS making extreme claims about its students' success and then being unable or unwilling to provide documentation to support those claims (see Appendix G).

Marketing Summit Public Schools

Given the lack of supporting data in the public record for Summit Public Schools' (SPS) claims of effectiveness and its inability and/or unwillingness to provide evidence to support its claims, SPS's success in convincing others to adopt its program based on its alleged success is astounding. This suggests that its ability to successfully market its program to schools across the country rests not on the efficacy of the Summit Learning Program so much as on millions of philanthropic dollars, guidance, and other support of such backers as the Gates Foundation. These well-heeled backers have funded a comprehensive and aggressive marketing campaign that promises underfunded U.S. schools struggling to provide a high-quality education that they will be provided—without cost—a successful personalized learning program.[55]

Early on, SPS promoted itself[56] to potential funders, particularly funders associated with the technology industry who might support the charter school network as a "laboratory of innovation" that featured the use of digital technology and could spearhead further adoption of such technology.[57] Armed with philanthropic cash, SPS targeted parents, teachers, and

administrators of potential partner schools.[58]

A 2015 agreement between Summit and Facebook established the goals of developing and enhancing Summit's existing platform software and collaborating on marketing strategy for its nationwide adoption.[59] A June 2017 SPS final report to the Chan Zuckerberg Initiative (CZI) outlined public relations efforts to create social conditions amenable to widespread adoption of personalized learning.[60] The report described the marketing efforts as part of a strategy to create "one consistent narrative" promoting a positive answer to the question of "Does Summit Learning work?"

Part of this marketing strategy was the 2017 publication *The Science of Summit,* which purports to show that SPS's pedagogical approach is research-based.[61] In the earlier 2017 CZI grant report, SPS lists plans to promote *The Science of Summit* through an in-depth blog series, a podcast series, a Facebook live series, as well as brochures, presentation slides, infographics, and slideshows—all of which SPS planned to complement with efforts to "build trust and advocacy among our audiences by engaging with key influencers who they respect and turn to for insights and opinions."[62]

The Science of Summit, in fact, offers no research evidence of the positive effect of SPS's program on student performance.[63] Rather, it describes choices SPS made as it developed its approach—to focus on project-based learning and generalized "cognitive skills," noncognitive, social-emotional factors, and student-teacher relationships. It points to a historical context of research and theory that it interprets as consistent with these choices. These theories and research would, however, also support choices leading to very different programs of curriculum and instruction. For example, rather than having students independently learn the content knowledge necessary for a given project as part of a digital competency-based learning approach, as SPS does, a different approach might have a class start a project by determining as a group the kinds of knowledge or skills they would need in order to complete the project, and how they might acquire them. In such an approach, the discussion and choices related to gaining the necessary knowledge are central to the project, not separate.

"The Science of Summit" offers no research evidence of the positive effect of SPS's program on student performance.

Given that theory and research can lead to a variety of implementations and the fact that there has been no external research confirmation of the efficacy of Summit's practices, *The Science of Summit* cannot be regarded as providing research validation of the Summit Learning Program.

The Science of Summit resembles Summit's other marketing materials in emphasizing the non-digital aspects of the program. On their websites, both SPS and Summit Learning avoid the words "computer," "digital," and "platform." The words "self-directed" and "self-direction" take their place, next to "mentoring" and "projects" (and, in the case of SPS, but not Summit Learning, "expeditions").[64, 65] Although the Summit Learning Platform is the central organizer, delivery tool, and data hub for Summit's approach to personalized learning, Summit's marketing materials de-emphasize its role. When the platform is mentioned at all, it is characterized as a feature that supports both teachers and students in their efforts to create graduates who know how to learn independently, who will attend, succeed, and graduate from college, and who will develop the personal and academic skills they will need to to lead fulfilled lives.[66]

A Flood of Philanthropic Dollars

Since 2011, Summit Public Schools (SPS) has received philanthropic funding totaling at least $177.6 million.[67] Donors include the Bill and Melinda Gates Foundation, the Carnegie Corporation of New York, the Silicon Schools Fund, the Silicon Valley Community Fund, Meg Whitman, and the XQ Institute (see Appendix A). The *Hechinger Report* reports that the Chan Zuckerberg Initiative (CZI) alone committed $142.1 million to SPS since 2016.[68] CZI's website reports providing $48.8 million to SPS between 2016 and 2020 and $40 million to T.L.P. Education between 2018 and 2020 (see Appendix A).[69] These financial contributions do not include significant in-kind contributions made by Facebook (and possibly CZI as well) to develop the Summit Learning Platform and the marketing strategy for the Summit Learning Program.[70] They also do not include additional financial contributions made to Summit partners, such as the Lindsay Unified School District.[71]

Together, the influx of money, engineering skills, and business know-how from the digital technology sector and tech-friendly foundations supercharged the development of the Summit Learning Platform and made possible the widescale sophisticated marketing program of the Summit Learning Program.

By the 2019-2020 school year, the SPS charter school network had grown to 11 (from two in 2010-2011) and the number of Summit Learning partner schools had grown from zero in 2013-2014 (prior to its partnership with Facebook) to over 380.

The Enduring Lure of "Free" Whole-School Reform

Public schools have for years been flooded with marketing materials promoting personalized learning even as they have been cricitized, often unfairly, for using an outdated "factory model" of curriculum and instruction. They are guilty, critics assert, of failing to equip their students for success in 21st-century workplaces and lead satisfying fulfilled lives.[72] Personalized learning programs, including the Summit Learning Program, offer the promise that students at schools adopting them will be equipped with the skills that modern workplaces demand; that teachers will be freed from mundane tasks so they can mentor students; and, that student achievement and life competence will improve.

Marketed as a cost-free solution to the academic problems faced by cash-strapped districts,[73] the Summit Learning Program promises an off-the-shelf system of whole-school reform that will transform struggling schools into successful schools. Such a promise cannot help but appeal to school and district decision-makers. Unfortunately, the recent history of whole-school reform models suggests that the results are likely to be disappointing.

In the 1990s, the New American Schools Development Corporation (NASDC), a privately funded organization, supported the development and implementation of whole-school reform models as part of both President George H.W. Bush's ("America 2000") and President Clinton's ("Goals 2000") education reform efforts. In the 1990s NASDC funded a number of school reform models that would appear to meet the criteria that Summit deems essential (i.e., they were internally consistent and supported by sound research). The implementa-

tion of NASDC models foundered in part because schools adopting the models could not, by themselves, afford either the cost of implementing them or of sustaining them—or both. Unsurprisingly, then, another significant issue was that school staff were not provided with adequate training in implementing the models and/or with ongoing in-service support.[74]

Similar problems have cropped up among partner schools adopting the Summit Learning Program, detailed in several reports of schools failing to achieve anything like the promised success.[75] SPS tends to characterize these failures as a result of partner schools having improperly implemented its program, or as non-representative.[76] If this is indeed the case, it would not be surprising: even though the program itself is provided without charge, the model imposes costs on schools that most schools likely cannot afford, including costs associated with providing the required digital infrastructure and devices. Further, even if staff use the Summit Learnng Program "off the shelf," it is possible that schools may be unable to provide the level of staff training and ongoing in-service support to properly implement or maintain the model.

The SPS model developed in a particular context under a particular set of conditions in a small number of low-enrollment schools in California and Washington state. It is not clear that whatever successes SPS may have had in its own schools can be abstracted into a guiding set of principles for widespread school reform, particularly for schools serving low-income communities with diverse student populations. Between the Summit Learning Program's initial launch in 2015-2016 and 2018-2019, SPS reported that 393 schools contracted to use the Summit Learning Program.[77] A *Chalkbeat* analysis found that about 25% of the schools that adopted it before the 2018-2019 school year dropped out along the way.[78] Whether and to what extent the remaining schools have held true to the model—as well as what results they have experienced overall—is unknown.

It is not clear that whatever successes SPS may have had in its own schools can be abstracted into a guiding set of principles for widespread school reform.

When schools adopt the Summit Learning Program, they will predicably face a number of challenges. An outside source provides a completely new philosophy, curriculum, and digital platform, and along with them a vast set of unfamiliar tasks.[79] Given these many new and different demands on teacher time, it is not hard to imagine that the framework of the program, the digital Summit Learning Platform, is likely to be privileged over the other program features as partner school staff struggle to keep up. That is, more teacher time must be spent on tasks related to the plaform, crowding out the time that they theoretically would be spending on student-facing activities such as mentoring and supporting student projects.[80]

Schools that face the greatest financial challenges, that are understaffed, and that support large numbers of students with special needs are likely to find even the demands of learning and mastering an ever-changing platform beyond their capabilities. A Johns Hopkins University team found just such a situation when it reviewed Summit Learning Program classrooms in Providence, RI, in 2019.[81] The reviewers found students in Summit Learning Program classrooms proceeding slowly through the program's curriculum, trying to guess their way through material with minimal teacher supervision.[82] These students were more disengaged and off-task than students in traditional classrooms in the same district, and

they were limited to learning how to answer problems in the program's assessment format.[83] Students reported disliking the program and being "burned-out" by extensive screen time.[84]

In practice, it appears that in partner schools the Summit Learning Program can often leave children to teach themselves, which means that students in schools like those in the Providence district may not master the curriculum or have other meaningful learning experiences. As we have already noted, whereas SPS portrays its approach as scientific and generalizable, the culture created over time in SPS is the unique result of its history and development. It would be hard, if not impossible, to transfer this culture to disparate partner schools.[85] What *can* be used, no matter how imperfectly, however, is the digital Summit Learning Platform. And, in contrast to the images conjoured up by personalized learning advocates, the Summit Learning Platform operationalizes a data-hungry, hyper-rational, competency-based approach to learning.

Data Collection and Use

The Summit Learning Platform collects a lot of data about students from partner schools. It obtains some of these data—such as English Language Learner information, school attendance informaton, state assessment data, and bus pickup and drop-off locations—from school data systems as part of Summit Learning's role as a "school official."[86] It gets other data—such as project grades, student goals, and mentoring notes—when teachers and students voluntarily enter them. It collects still other data automatically as students work within the platform. Among these are such details as students' content assessment attempts and results, times and locations of activity, and IP addresses. Data are used as part of the educational program, to improve it, and to market it. It is not clear to what other purposes the data may be put.

The contracts signed with Summit Public Schools (SPS) (and, since 2019-2020, with T.L.P. Education) that we reviewed are careful to distinguish personally identifiable "student data" and "de-identified data." The contracts set limits on the use of "student data." For example, they prohibit the sale of "student data" and its use for purposes other than to provide the services specified in the contract. They also provide for SPS (and, since 2019-2020, T.L.P. Education) to "destroy" "student data" by de-identifying it. This means that when schools, as allowed by their contract, request that data collected from their students be destroyed, it may not actually be destroyed in the sense that most people understand the term. Rather, it may be transformed into de-identified data.

The contracts we examined permit SPS (and now T.L.P. Education) access to and use of de-identified student data in perpetuity. Contracts signed in 2018-2019 explicitly provide for SPS (and now T.L.P. Education) to use de-identified student data "for any lawful purpose" (the same language appears in the current Data Privacy Addendum on the Summit Learning website).[87] By extension, this means that the Chan Zuckerberg Initiative (CZI), its long-term technology partner,[88] may also access de-identified student data to use in any way it wishes in perpetuity. Uses may include analyzing it for insights about student learning and psychology using big data statistical methods, selling it to third parties, and creating

for-profit enterprises to exploit it—all without the knowledge and consent of either students or their parents.[89]

The privacy protections we reviewed in SPS's contracts with partner schools seem impressive on their surface; however, the provisions related to de-identified data are telling. SPS assures partner schools that it will not re-identify the data. However, this is far from the whole picture. Clause 4.6 of the Data Privacy Addendum to the 2018 contract(s) we reviewed provides for (personally identifiable) student data to be de-identified as a means of "destroying" it, and exempts de-identified data from the obligation to destroy data.[90] This is important because the data never have to actually be destroyed, and they can be reidentified. Computer scientists and data experts have known for years that complex de-identified datsets—such as the student datasets held by SPS—can easily be re-identified.[91] There can be little doubt that contract language related to the "destruction" of data was crafted with full knowledge that de-indentified data can be easily re-identified and thus are not in fact "destroyed." In effect, the contract gives CZI access to student data, and it may do whatever is legally permissible with those data, in perpetuity.

It is important to note that the Chan Zuckerberg Initiative (CZI) is not a charity or a philanthropic organization: it is a business.[92] As such, it can make political contributions. It can and does make charitable contributions. It can and has invested in several for-profit companies,[93] and it can and has engaged in political lobbying.[94]

Given this background, it would be reasonable to assume that CZI expects some gain from its collaboration with SPS and now T.L.P. Education. It also seems likely that what it stands to gain is access to significant amounts of student data that it can convert into a considerable amount of money.

Facebook has taught the world that data are fungible and can mean big money. They can also be very dangerous when controlled by an opaque organization immune to public oversight. Regardless of who is named the owner of student data in partner school contracts, as Summit Learning's technology partner CZI has full access to those data.

Given this context it is concerning and suggestive to note that compared to the 2017 contract we reviewed, the 2018 partner school contracts we analyzed expanded Summit Learning's (and thereby CZI's) right to access and use de-identified student data.[95] Any use to which SPS, T.L.P. Education, or CZI may make of data that the Summit Learning Platform collects about students is independent of any benefit the Summit Learning Program may provide to its students. As we have already noted, the student data can be easily re-identified and there is a significant financial incentive to do so.

Privacy Concerns Meet Pedagogical Concerns

It is important to understand that the algorithms governing the Summit Learning Platform's curriculum delivery, data collection and analysis, and other efforts have been created via subjective decisions on the part of Summit Public Schools (SPS) (or Facebook's or the Chan Zuckerberg Initiative's) staff—and perhaps unknown others.[96, 97] Although algorithms are

commonly thought of as purely mathematical and objective, they are in fact theories that reflect which pieces of information their authors consider valuable and how their authors believe those pieces of information should be fit together and used to draw conclusions.

Therefore, all algorithms, including those in the Summit Learning Platform, necessarily reflect the values, assumptions, social positions, and interests of their authors. For this reason, researchers and advocates have called for algorithms to be audited for possible bias.[98] To date, SPS has not provided any information about the entities involved in making decisions about the Summit Learning Program's curriculum and assessments or the qualifiations of decision-makers; neither has it provided access to algorithms for disinterested experts to evaluate (See Appendix C).[99]

The transparency of the algorithms included in the Summit Learning Platform is essential to determine whether the inferences those algorithms draw about students are valid and to evaluate how they influence members of the school community to act in relation to students. SPS offers no such transparency.

Further, Summit Public Schools has presented the Summit Learning Program as amenable to customization to meet different communities' varying values and needs. In reality, the Summit Learning Platform is centrally programmed with course content and with the algorithms that guide students' experience and that make many consequential decisions about them. The proprietary curtain that keeps the Summit Learning Platform's algorithms from review contrasts with the way in which, for instance, publishers commonly submit textbooks for review. It effectively turns school curriculum into a "black box" that operates with no oversight by or accountability to the public.

Marketing claims aside, there is little evidence that SPS's program of curriculum and pedagogy either improves outcomes for students or personalizes instruction in ways that meaningfully distinguish it from any number of other educational programs. It is important to note that there are other ways to personalize education that do not require reliance on digital delivery or data collection. Alfie Kohn's child-centered approach,[100] James Macdonald's person-oriented curriculum,[101] and Lorrie Shepard and colleagues' sociocultural approaches,[102] for example, focus on providing opportunities for children to create their own meaning from the curriculum.[103] As already noted, to a considerable degree the Summit Learning Program focuses on student development within a narrow pedagogical framework that emphasizes assessment and data collection. We know further that these data may be subsequently be transferred with virtually no transparency, oversight, or accountability to unknown, other parties.

Conclusion and Recommendations

Despite many red flags and general lack of research support, advocacy for the adoption of digital personalized learning in general continues unabated. The Summit Learning Program is a slickly marketed digital personalized learning program that is promoted as a "free" and off-the-shelf program to schools all over the country. Our analysis suggests that, rhetoric notwithstanding, the Summit Learning Program does not deliver on its promise to provide

a higher quality education, with superior student outcomes, in the schools that adopt it. Moreover, aside from any valid education purpose, the Summit Learning Platform approach to assessment, coupled with enabling contract language, opens the door to the transfer of large amounts of student data to third parties without oversight or accountability. These concerns are compounded by the overall lack of organizational transparency of Summit Public Schools (SPS) and T.L.P. Education.

The rapid spread of the Summit Learning Program—despite a lack of transparency and the absence of convincing evidence that it can deliver on its promises—provides a powerful example of how policymakers are challenged when faced with a well-financed and self-interested push for schools to adopt digital personalized learning programs. There is now an urgent need for policymakers to move quickly to protect the public interest by establishing oversight and accountability mechanisms related to digital platforms and personalized learning programs.

We recommend that state departments of education establish an independent governmental entity responsible for implementing and enforcing the following recommendations to ensure the quality of digital personalized learning in schools and to adequately protect the privacy of student data. Specifically, such an entity should:

- Require that the digital personalized learning programs be externally reviewed and approved by independent third-party education experts. As part of these program evaluations, the evaluators should review and approve the program curricular materials, the pedagogical approaches as applied to the intended student populations, the validity of the assessment instruments, and the programmatic usefulness of data generated;
- Require that the assumptions and programming of all algorithms associated with personalized learning materials be audited for bias and other possible risks to students *before* the algorithms are implemented; and
- Develop a standard data security agreement that protects the privacy and limits the use of all data, including de-identified data, collected by schools through personalized learning materials and related software platforms. This agreement should require that the school collecting data do the following:
    - Clearly explain what kinds of data it proposes to collect from students, how it proposes to store the data and for how long, who will be allowed access, and what educational purpose all data collected will serve;
    - Refrain from collecting any data not directly relevant to an agreed-upon specified educational purpose and from using any data, including de-identified data, collected for any purpose other than the agreed-upon specified educational purpose;
    - Vest the ownership of any and all student data collected with the student or the adult(s) legally responsible for him or her;
    - Prohibit any school from making participation in its curriculum and instruction, assessment, or any other part of its academic program contingent on students or

parents granting any third-party access to their data in any form whatsoever;

- Provide a standard, explicit, and easy-to-understand explanation of what kind of data use is incorporated in such activities as "improving" websites, apps, or services, or in "personalizing and improving" users' experience with educational software, and allow students to opt in to such activities;
- Prohibit schools from entering into any agreement with a third party that abridges any of the previously stated requirements.

Additionally, as a result of the problems we identified in our study of Summit Public Schools and its Summit Learning Program, we recommend that state, district, and school-level officials considering personalized learning be especially cautious about adopting commercially produced personalized learning programs. To avoid introducing significant pedagogical and privacy threats to their schools, we recoomend that their first steps be to:

- Define the pedagogical values, goals, and practices they hope to achieve via personalized learning before considering the adoption of a particular program;
- Clarify the ways in which an ideal personalized learning approach would advance their self-defined values, goals, and practices;
- Identify potential negative consequences that may be associated with personalized learning and devise strategies for avoiding them;
- Determine which of their defined values, goals, and practices can be best achieved by non-digital means and which require digital means;
- Use the steps enumerated above either as a framework for designing their own personalized learning program or for assessing the suitability of any commercially provided programs being considered.

List of Appendices

A. Timeline of Summit Public Schools Network Development and Philanthropic Funding

B. Research Methodology

C Communications with Summit Public Schools Regarding Public Records Act Request Submitted November 5, 2019

D. Summit Public Schools Graduation Rates

E. Summit Public Schools College/Career Readiness

F. Summit Public Schools Cognitive Skills Rubric

G. Summit Public Schools College Readiness Claim

Notes and References

1 For example:

Hammonds, V. & Moyer, J. (2018, April 5). *From vision to reality: Personalized, competency-based learning for all kids*. Cincinnati, OH: KnowledgeWorks Foundation. Retrieved June 3, 2020, from https://knowledgeworks.org/resources/vision-reality-personalized-cbe/

2 For example:

The Council of Chief State School Officers (CCSSO), for instance, "...is committed to working alongside states to develop education systems that encourage and inspire student-centered learning, including personalized learning, competency-based education, and social-emotional learning and academic development."

The Council of Chief State School Officers (n.d.). Student Centered Learning Collaborative [webpage]. Retrieved April 24, 2020, from https://ccsso.org/student-centered-learning-collaborative

3 For example:

Carter, D. (2016). Goodbye, linear factory model of schooling: Why learning is irregular. *EdSurge*. Retrieved June 3, 2020, from https://www.edsurge.com/news/2016-07-06-goodbye-linear-factory-model-of-schooling-why-learning-is-irregular

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Rose, J. (2012, May 9). How to break free of our 19th-century factory-model education system. *The Atlantic*. Retrieved June 3, 2020, from https://www.theatlantic.com/business/archive/2012/05/how-to-break-free-of-our-19th-century-factory-model-education-system/256881/

4 Herold, B. (2017, June 29). Chan Zuckerberg to push ambitious new vision for personalized learning. *Education Week*. Retrieved April 24, 2020, from https://www.edweek.org/ew/articles/2017/06/29/chan Zuckerberg-to-push-ambitious-new-vision-for.html

5 For example:

Bush, J. (2020, May 3). It's time to embrace distance learning — and not just because of the coronavirus. *The Washington Post*. Retrieved May 19, 2020, from https://www.washingtonpost.com/opinions/2020/05/03/jeb-bush-its-time-embrace-distance-learning-not-just-because-coronavirus/

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Barnum, M. & Darville, S. (2018, September 10). Lifting the veil on education's newest big donor: Inside Chan Zuckerberg's $300 million push to reshape schools. *Chalkbeat*. Retrieved May 19, 2020, from https://www.chalkbeat.org/2018/9/6/21105911/lifting-the-veil-on-education-s-newest-big-donor-inside-chan-zuckerberg-s-300-million-push-to-reshap

Barnum, M. & Zhou, A. (2018, September 6). Mark Zuckerberg's education giving so far has topped $300 million. Here's a list of where it's going. *Chalkbeat*. Retrieved May 19, 2020, from https://www.chalkbeat.org/2018/9/6/21105640/mark-zuckerberg-s-education-giving-so-far-has-topped-300-million-here-s-a-list-of-where-it-s-going

Bill and Melinda Gates Foundation (2015, November). Editorial Projects in Education, Inc. [webpage]. Retrieved May 20, 2020, from https://www.gatesfoundation.org/How-We-Work/Quick-Links/Grants-Database/Grants/2015/11/OPP1141577

7 Fox, C. & Jones, R. (2018). *Navigating the digital shift 2018: Broadening student learning opportunities*. Washington, DC: State Educational Technology Directors Association (SETDA). Retrieved June 3, 2020, from https://www.setda.org/master/wp-content/uploads/2018/05/Nav_ShiftIII_Accessible5.29.18-1.pdf

8 A report released by the Software and information Industry Association (SIIA) in 2014 valued the K-12 market for education software and digital content/resources at $8.38 billion. Audrey Watters, an independent journalist who compiles records of investments reported in public sources such as *Education Week*, *EdSurge*, and *TechCrunch*, reports investments in products for the K-12 education technology sector that totaled over $4.5 billion in 2015-2018. Her lists include nearly 600 products that are supported by over 1500 investors since 2015.

Watters, A. (2018). Ed-tech companies that have raised venture capital (since 2015) [webpage]. *Hack Education Data*. Retrieved August 21, 2018, from https://hack-education-data.github.io/investments/

Richards, J. & Stebbins, L. (2014). *2014 U.S. education technology market: PreK-12*. Software & Information Industry Association. Retrieved June 3, 2020, from https://www.siia.net/Portals/0/pdf/Education/SIIA2014Report_PreK12_FINAL%201%2031%202015_Exec%20Summ.pdf

For further discussion, see:

Boninger, F., Molnar, A., & Saldaña, C.M. (2019). *Personalized learning and the digital privatization of curriculum and teaching*. Boulder, CO: National Education Policy Center. Retrieved June 3, 2020, from https://nepc.colorado.edu/publication/personalized-learning

9 Conferences such as those held by Reimagine Education and SXSW EDU encourage matchmaking between investors and the many startups offering education technology products. See, for example:

Reimagine Education (2018). Reimagine Education conference and awards [webpage]. Retrieved June 3, 2020, from https://www.reimagine-education.com/

SXSW, LLC (2018). SXSW EDU schedule [webpage]. Retrieved June 3, 2020, from https://schedule.sxswedu.com/2018/events/PP78084

10 For discussion, see:

Boninger, F. & Molnar, A. (2016). *Learning to be watched: Surveillance culture at school—The eighteenth annual report on schoolhouse commercializing trends, 2014-2015* (p. 16). Boulder, CO: National Education Policy Center. Retrieved June 3, 2020, from http://nepc.colorado.edu/publication/schoolhouse-commercialism-2015

For examples of laws in which personalized or "adaptive" learning is exempted, see:

"Student Online Personal Information Protection Act," Cal Bus & Prof Code § 22584 (2015). Retrieved May 19, 2020, from https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=BPC&division=8.&title=&part=&chapter=22.2.&article=

"Student Data Transparency and Security Act," C.R.S. § 22-16-101 et seq. Retrieved May 19, 2020, from http://www.cde.state.co.us/dataprivacyandsecurity/crs22-16-101

11 See, for example:

Phillips, K. & Jenkins, A. (2018). *Communicating personalized learning to families and stakeholders: Terminology, tools and tips for success* (pp. 9-10). Excel*in*Ed and Education Elements. Retrieved June 3, 2020, from https://www.excelined.org/wp-content/uploads/2018/04/Communicating-Personalized-

Learning-to-Families-and-Stakeholders.pdf

For further discussion, see:

Boninger, F., Molnar, A., & Saldaña, C.M. (2019). *Personalized learning and the digital privatization of curriculum and teaching*. Boulder, CO: National Education Policy Center. Retrieved June 3, 2020, from https://nepc.colorado.edu/publication/personalized-learning

12 An *Education Week* survey found a variety of definitions. In particular, an influential "working definition" offered by the Bill and Melinda Gates Foundation and associated organizations in 2014 focuses on the goals to which personalized learning programs should aspire.

Herold, B. (2018, November 6). What does personalized learning mean? Whatever people want it to. *Education Week*. Retrieved April 24, 2020, from https://www.edweek.org/ew/articles/2018/11/07/what-does-personalized-learning-mean-whatever-people.html

Bill & Melinda Gates Foundation, Afton Partners, Eli & Edythe Broad Foundation, CEE Trust, Christensen Institute, Charter School Growth Fund, EDUCAUSE, iNACOL, The Learning Accelerator, Michael & Susan Dell Foundation, Silicon Schools (2014). *A working definition of personalized learning*. Retrieved June 3, 2020, from https://assets.documentcloud.org/documents/1311874/personalized-learning-working-definition-fall2014.pdf

13 Bulger, M. (2016, July 22). *Personalized learning: The conversations we're not having* (pp. 11, 14-15). Data & Society. Retrieved June 3, 2020, from https://www.datasociety.net/pubs/ecl/PersonalizedLearning_primer_2016.pdf

Enyedy, N. (2014). *Personalized instruction: New interest, old rhetoric, limited results, and the need for a new direction for computer-mediated learning*. Boulder, CO: National Education Policy Center. Retrieved June 3, 2020, from https://nepc.colorado.edu/publication/personalized-instruction

Network for Public Education (2018, March 23). *Online learning: What every parent should know*. Retrieved June 10, 2020, from https://networkforpubliceducation.org/10345/

Pane, J.F. (2018). *Strategies for implementing personalized learning while evidence and resources are underdeveloped*. Santa Monica, CA: RAND Corporation, 2018. Retrieved June 3, 2020, from https://www.rand.org/pubs/perspectives/PE314.html

Ready, D.D., Conn, K., Bretas, S.S., & Daruwala, I. (2019, January). *Final impact results from the i3 implementation of Teach to One: Math*. Consortium for Policy Research in Education. Retrieved June 3, 2020, from https://www.newclassrooms.org/wp-content/uploads/2019/02/Final-Impact-Results-i3-TtO.pdf

14 Network for Public Education (2018, March 23). *Online learning: What every parent should know* (pp. 9-10). Retrieved June 10, 2020, from https://networkforpubliceducation.org/10345/

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Penuel, W.R., & Johnson, R. (2016). *Review of "Continued progress: Promising evidence on personalized learning."* Boulder, CO: National Education Policy Center. Retrieved June 3, 2020, from https://nepc.colorado.edu/thinktank/review-personalized-learning

15 Pane, J.F., Steiner, E.D., Baird, M.D., & Hamilton, L.S. (2015). *Continued progress: Promising evidence on personalized learning*. Santa Monica, CA: RAND Corporation. Retrieved June 3, 2020, from https://www.rand.org/pubs/research_reports/RR1365.html

Pane, J.F., Steiner, E.D., Baird, M.D., Hamilton, L.S., & Pane, J.D. (2017). *Informing progress: Insights on personalized learning implementation and effects*. Santa Monica, CA: RAND Corporation. Retrieved June

3, 2020, from https://www.rand.org/content/dam/rand/pubs/research_reports/RR2000/RR2042/RAND_RR2042.pdf

16 Students in the schools defined as "personalized learning schools" showed greater growth in math and reading scores on the Northwest Evaluation Association's (NWEA) Measures of Academic Progress (MAP) assessment than the national average, and more than 50% of the students from these schools showed greater growth than "virtual students" created to serve as comparison standards.

NWEA (formerly the Northwest Evaluation Association) is a testing company based in Oregon. Its MAP Growth tests use "adaptive" algorithms to begin with a question appropriate for a student's grade level and then choose subsequent questions throughout the test in response to student responses. For more information on NWEA and MAP Growth, see:

NWEA (2018). MAP Growth [webpage]. Retrieved June 3, 2020, from https://www.nwea.org/map-growth/

RAND's research is reported in detail here:

Pane, J.F., Steiner, E.D., Baird, M.D., & Hamilton, L.S. (2015). *Continued progress: Promising evidence on personalized learning*. Santa Monica, CA: RAND Corporation. Retrieved June 3, 2020, from https://www.rand.org/pubs/research_reports/RR1365.html

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For a follow-up discussion, see:

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For a review of RAND's 2015 report, see:

Penuel, W.R., & Johnson, R. (2016). *Review of "Continued progress: Promising evidence on personalized learning."* Boulder, CO: National Education Policy Center. Retrieved June 3, 2020, from https://nepc.colorado.edu/thinktank/review-personalized-learning

17 RAND's study of personalized learning found that schools were unable to determine appropriate measures of the skills they considered "21st Century," such as critical thinking and collaboration.

Pane, J.F., Steiner, E.D., Baird, M.D., Hamilton, L.S, & Pane, J.D. (2017). *Informing progress: Insights on personalized learning implementation and effects* (p. 11). Santa Monica, CA: RAND Corporation. Retrieved June 3, 2020, from https://www.rand.org/content/dam/rand/pubs/research_reports/RR2000/RR2042/RAND_RR2042.pdf

18 Summit Learning (n.d.). Creating learners for life [webpage]. Retrieved April 24, 2020, from https://www.summitlearning.org/

Summit Public Schools (n.d.). *The science of Summit*. Retrieved June 2, 2020, from https://summitps.org/wp-content/uploads/2018/09/The-Science-of-Summit-by-Summit-Public-Schools_08072017-1.pdf [The document is not dated, but the filename appears to have a date of August 7, 2017]

19 Summit Public Schools reported to the Chan Zuckerberg Initiative (CZI) in 2019 that it had begun requiring partner schools to "adopt all three components of the instructional approach (i.e., Project-Based Learning, 1:1 Mentoring, and a Self-Directed Learning Cycle)." The self-directed learning cycle is the learning of content knowledge via the platform.

Summit Public Schools (2019, January 31). *Chan Zuckerberg Foundation final report* (p. 7). Retrieved June 3, 2020, from https://cdn.vox-cdn.com/uploads/chorus_asset/file/19931497/Grant_Reports_PRA_M._Barnum_2_2_1.pdf

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Summit Learning (n.d.). Creating learners for life [webpage]. Retrieved April 24, 2020, from https://www.summitlearning.org/

21 T.L.P. Education was formed in 2018 and took over administration of the Summit Learning Program for the 2019-2020 school year.

Summit Learning (n.d.). Who is T.L.P. Education (aka "Summit Learning")? [webpage]. Retrieved February 19, 2020, from https://help.summitlearning.org/hc/en-us/articles/360021179053-Who-is-T-L-P-Education-aka-Summit-Learning-

Summit Learning (2019, April 4). Andrew Goldin named executive director of T.L.P. Education [webpage]. *Cision PR Newswire*. Retrieved May 31, 2020, from https://www.prnewswire.com/news-releases/andrew-goldin-named-executive-director-of-tlp-education-300824991.html

For numbers of partner schools over time, see:

Barnum, M. (2019, May 23). Summit Learning, the Zuckerberg-backed platform, says 10% of schools quit using it each year. The real figure is higher. *Chalkbeat*. Retrieved February 9, 2020, from https://chalkbeat.org/posts/us/2019/05/23/summit-learning-the-zuckerberg-backed-platform-says-10-of-schools-quit-using-it-each-year-the-real-figure-is-higher/

22 We were able to obtain three fully executed contracts between Summit Public Schools and public school districts from parents who obtained them from their districts:

Summit Learning Program Agreement, Summit Public Schools and Fairview Park City School District, May 1, 2018

Summit Learning Program Participation Agreement, Summit Public Schools and New Egypt High School, May 11, 2017

Summit Learning Program Agreement, Summit Public Schools and Wellington Unified School District 353, March 30, 2018

23 As of June 8, 2020, Summit Public Schools has not provided any of the records we requested in our Public Records Act request submitted November 5, 2019.

24 Balot, T. (2019, September 6). Personal communication (telephone) with Faith Boninger.

Henning, T. (2020, January 5). Personal communication (email) with Faith Boninger.

Tabor, N. (2018, October 11). Mark Zuckerberg is trying to transform education. This town fought back. *New York Magazine* (nymag.com). Retrieved June 3, 2020, from http://nymag.com/intelligencer/2018/10/the-connecticut-resistance-to-zucks-summit-learning-program.html

25 Uong, C. (2019, October 18). Personal communication (email) with Faith Boninger.

26 In its response to our Public Records Act request for records pertaining to the Summit Learning Platform, Summit Public Schools claimed that "to the extent activities relating to the Summit Learning Program and the Summit Learning Platform are unrelated to the operation of a Summit Public Schools school, they are exempt from the Public Records Act" (See Appendix C).

27 Summit Learning (n.d.). Who is T.L.P. Education (aka "Summit Learning")? [webpage]. Retrieved February 19, 2020, from https://help.summitlearning.org/hc/en-us/articles/360021179053-Who-is-T-L-P-Education-aka-Summit-Learning-

It is worth noting that the address given for T.L.P. Education (doing business as "Summit Learning") is the address of the lawyer for Summit Public Schools.

The external law office used by Summit Public Schools is Procopio, Cory, Hargreaves & Savitch, LLP. The address for T.L.P. Education is c/o Procopio at 1117 California Ave #200, Palo Alto, CA 94304.

Public Employment Relations Board (2019, December 5). Communication to Procopio, Cory, Hargreaves & Savitch, LLP [mail] UNITE SUMMIT, CTA/NEA v. Summit Public Schools, Unfair Practice Charge No. SF-CE-3353-E. Retrieved February 21, 2020, from https://drive.google.com/file/d/11nDs1d3qj6l6nJgS4tWMnkWwia4vIbtY/view

Summit Learning (n.d.). How can I contact T.L.P. Education? [webpage]. Retrieved February 21, 2020, from https://help.summitlearning.org/hc/en-us/articles/360020980974

28 Christopher Saldaña wrote to info@summitlearning.org, the address provided by T.L.P. Education, and asked to speak to someone about the Summit Learning Program on October 18, October 23, November 4, November 16, November 22, December 5, December 11, December 30, January 9, and January 24, January 31, and February 7. He did not receive a reply. He sent the same request to the land address indicated on the Summit Learning website on January 27, 2020 and February 14, 2020.

The email address may be found at:

Summit Learning (n.d.). How can I contact T.L.P. Education? [webpage] Retrieved June 3, 2020, from https://help.summitlearning.org/hc/en-us/articles/360020980974

29 Interestingly, T.L.P. senior staff did provide interviews to the Hechinger Report.

30 Before it moved the Summit Learning Program, Summit Public Schools's "About Us" page on its website included a history of Summit Public Schools and the Summit Learning Program, a description of its Summit Learning Program, and statistics about its students' outcomes: "100% Eligible For 4-Year College; 98% Accepted to 4-Year College; 55% Graduate College Within 6 Years—that's": "2X The National Average." This page is no longer available, although those same statistics (except for "55% Graduate College Within 6 Years" – only the translation to "2X The National Average for College Graduation" currently appears) can be found on Summit Public Schools' "Our Results" webpage.

Summit Learning (n.d.). About us [webpage]. Retrieved August 21, 2019, from https://www.summitlearning.org/about-us [no longer accessible]

Summit Public Schools (n.d.). *The science of Summit* (p. 18). Retrieved June 2, 2020, from https://summitps.org/wp-content/uploads/2018/09/The-Science-of-Summit-by-Summit-Public-Schools_08072017-1.pdf [The document is not dated, but the filename appears to have a date of August 7, 2017]

Summit Public Schools (n.d.). Our results [webpage]. Retrieved May 11, 2020, from https://summitps.org/the-summit-model/our-results/

See also:

Tavenner, D. (2019). *Prepared: What kids need for a fulfilled life*. New York, NY: Currency.

31 For claims about the scientific basis of Summit Public Schools' curriculum and instruction program, see:

Summit Learning (n.d.). About us [webpage]. Retrieved August 21, 2019, from https://www.summitlearning.org/about-us [no longer accessible]

Summit Public Schools (n.d.). *The science of Summit*. Retrieved June 2, 2020, from https://summitps.org/

wp-content/uploads/2018/09/The-Science-of-Summit-by-Summit-Public-Schools_08072017-1.pdf [The document is not dated, but the filename appears to have a date of August 7, 2017]

For discussion of Summit Public Schools' reluctance to submit its curriculum and instruction program to independent evaluation, see:

Barnum, M. (2019, January 17). Summit Learning declined to be studied, then cited collaboration with Harvard researchers anyway. *Chalkbeat*. Retrieved June 3, 2020, from https://www.chalkbeat.org/posts/us/2019/01/17/summit-learning-research-harvard/

32 For example:

Cuban. L. (2016, March 13). Summit charter school teachers integrating technology, part 1–Biology [blog post]. *Larry Cuban on School Reform and Classroom Practice*. Retrieved May 13, 2020, from https://larrycuban.wordpress.com/2016/03/13/summit-charter-school-teachers-integrating-technology-part-1-biology/

Cuban, L. (2016, March 16). Summit charter teachers integrating technology, part 2: History. *Larry Cuban on School Reform and Classroom Practice*. Retrieved May 20, 2020, from https://larrycuban.wordpress.com/2016/03/16/summit-charter-teachers-integrating-technology-part-2-history/

33 Cuban, L. (2019, August 21). Personal communication (telephone) with Alex Molnar.

34 "NWEA is a research-based, not-for-profit organization that supports students and educators worldwide by creating assessment solutions that precisely measure growth and proficiency—and provide insights to help tailor instruction."

NWEA (2020). About NWEA [webpage]. Retrieved February 25, 2020, from https://www.nwea.org/about/

35 The publication does not indicate whether the API scores are 2011-2012 or 2012-2013.

Osborne, D. (2016,). *Schools of the future: California's Summit Public Schools*. Progressive Policy Institute. Retrieved February 26, 2020, from https://www.progressivepolicy.org/wp-content/uploads/2016/01/2016.01-Osborne_Schools-of-the-Future_Californias-Summit-Public-Schools.pdf

36 Summit Learning (n.d.). Case studies [webpage]. Retrieved May 17, 2020, from https://blog.summitlearning.org/tag/case-studies/

Summit Public Schools (2019, January 31). *Chan Zuckerberg Foundation final report*. Retrieved June 3, 2020, from https://cdn.vox-cdn.com/uploads/chorus_asset/file/19931497/Grant_Reports_PRA_M._Barnum_2_2_1.pdf

37 Summit Public Schools (SPS) funded two Harvard University researchers in 2016-2017 to develop a proposal for a comprehensive evaluation study, but ultimately rejected their proposal, citing the possibility that doing an evaluation study might burden teachers or preclude changes to the platform. It has not provided records we requested about the decisions to solicit and then not go forward with the proposed research, nor has it provided records we requested of any research reports in its possession that evaluates SPS outcomes. This information was requested from SPS in a California Public Records Act (PRA) request submitted on November 5, 2019. See Appendix C for all correspondence releated to this PRA request.

For discussion of the proposed Harvard evaluation, see:

Barnum, M. (2019, January 17). Summit Learning declined to be studied, then cited collaboration with Harvard researchers anyway. *Chalkbeat*. Retrieved June 3, 2020, from https://www.chalkbeat.org/posts/us/2019/01/17/summit-learning-research-harvard/

38 Woodworth, J., Raymond, M., Han, C., Negassi, Y., Richardson, P., & Snow, W. (2017). *Charter management organizations 2017* (p. 91). Palo Alto, CA: Center for Research on Education Outcomes. Retrieved February 11,

2020, from https://credo.stanford.edu/sites/g/files/sbiybj6481/f/cmo_final.pdf

39 Barnum, M. (2019, January 17). Summit Learning declined to be studied, then cited collaboration with Harvard researchers anyway. *Chalkbeat*. Retrieved June 3, 2020, from https://www.chalkbeat.org/posts/us/2019/01/17/summit-learning-research-harvard/

40 Summit Public Schools (n.d.). Our results [webpage]. Retrieved May 18, 2020, from https://summitps.org/the-summit-model/our-results/

41 Beginning in 2017-2018, the California Department of Education began reporting a five-year graduation rate for the preceding year's graduating class. Five-year graduation rates have been reported for Summit Prep (95.7% in 2017-2018 and 99% in 2018-2019), Summit Everest (92.8% in 2017-2018 and 92.2% in 2018-2019), Summit Rainier (92.4% in 2017-2018 and 93.9% in 2018-2019), Summit Tahoma (87.9% in 2017-2018 and 92.5% in 2018-2019), and Summit Shasta (98.0% in 2017-2018 and 98.1% in 2018-2019)

California Department of Education (2019, December 12). *Information about five-year cohort graduation rate*. Retrieved June 11, 2020, from https://www.cde.ca.gov/ds/sd/sd/fycgrinfo.asp

DataQuest (n.d.) *Five-year cohort graduation rates*. California Department of Education. Retrieved June 11, 2020, from https://data1.cde.ca.gov/dataquest/

California Department of Education (2020, January 8). *Five-year cohort graduation rate and outcome data*. Retrieved June 11, 2020, from https://www.cde.ca.gov/ds/sd/sd/filesfycgr.asp

42 The California Department of Education (CDE) reports a measure of "College/Career Readiness." CDE reports the measure as an indicator of "the number of high school graduates who are prepared for college or a career" and it defines readiness as "completing rigorous coursework, passing challenging exams, or receiving a state seal." CDE uses the college/career indicator to assign graduating high schools' students to one of the following three categories: "Prepared," "Approaching Prepared," or "Not Prepared."

California Department of Education (2019, November 4). College/career readiness calculation [webpage]. Retrieved March 17, 2020, from https://www.cde.ca.gov/ta/ac/cm/ccical.asp

California Department of Education (2019, December). *2019 California school dashboard technical guide: Final version 2019–20 school year*. Retrieved April 14, 2020, from https://www.cde.ca.gov/ta/ac/cm/documents/dashboardguide19.pdf

California Department of Education (2020, May 15). California school dashboard and system of support [webpage]. Retrieved May 20, 2020, from https://www.cde.ca.gov/ta/ac/cm/index.asp

43 California Department of Education (2019, December). *2019 California school dashboard technical guide: Final version 2019–20 school year* (pp. 80-83, 87, 257-258). Retrieved April 14, 2020, from https://www.cde.ca.gov/ta/ac/cm/documents/dashboardguide19.pdf

44 Summit Public Schools (n.d.). Our results [webpage]. Retrieved May 18, 2020, from https://summitps.org/the-summit-model/our-results/

45 California Department of Education (2020, May 15). 2019 dashboard: Data files and record layouts - College/career indicator - Data file (XLSX) [webpage]. Retrieved June 9, 2020, from https://www.cde.ca.gov/ta/ac/cm/datafiles2019.asp

46 California Department of Education (2020, April 9). 2019 dashboard: Data files and record layouts - College/career indicator - Data file (XLSX) [webpage]. Retrieved June 9, 2020, from https://www.cde.ca.gov/ta/ac/cm/datafiles2019.asp

California Department of Education (2019, December). *2019 California school dashboard technical guide: Final version 2019–20 school year*. Retrieved April 14, 2020, from https://www.cde.ca.gov/ta/ac/cm/documents/dashboardguide19.pdf

California Department of Education (2020, May 15). California school dashboard and system of support [webpage]. Retrieved May 20, 2020, from https://www.cde.ca.gov/ta/ac/cm/index.asp

47 The California Department of Education (CDE) also recognizes two categories of graduating students who are not deemed prepared for college/career: those who are "approaching prepared " and those who are "not prepared." Of Summit Public Schools 2018-2019 graduates who were determined to be "approaching prepared," the overwhelming number did so by completing Summit's a-g coursework.

California Department of Education (2019, December). *2019 California school dashboard technical guide: Final version 2019–20 school year* (pp. 80-83, 88, 257-258). Retrieved April 14, 2020, from https://www.cde.ca.gov/ta/ac/cm/documents/dashboardguide19.pdf

California Department of Education (2020, May 15). 2019 dashboard: Data files and record layouts - College/career indicator - Data file (XLSX) [webpage]. Retrieved June 9, 2020, from https://www.cde.ca.gov/ta/ac/cm/datafiles2019.asp

48 This school-specific goal is not generally reported for public schools in the state of Washington. Summit Public Schools defines its own goal and how it will measure the goal, and provides the relevant data to the Washington State Charter School Commission.

Halsey, J. (2020, April 28). Personal communication (telephone) with Christopher M. Saldaña.

49 See for example:

Washington State Charter School Commission (n.d.). *Summit Public Schools: Atlas – 2018-2019 annual student academic performance report* (p. 21). Retrieved June 3, 2020, from https://charterschool.wa.gov/documents/Summit-Atlas-2018-19-Academic-Report.Final_.pdf

50 Washington State Charter School Commission (n.d.). *Summit Public Schools: Atlas – 2018-2019 annual student academic performance report* (p. 21). Retrieved June 3, 2020, from https://charterschool.wa.gov/documents/Summit-Atlas-2018-19-Academic-Report.Final_.pdf

Washington State Charter School Commission (n.d.). *Summit Public Schools: Olympus – 2018-2019 annual student academic performance report* (p. 19). Retrieved June 3, 2020, from https://charterschool.wa.gov/documents/Summit-Olympus-2018-19-Academic-Report.Final_.pdf

Washington State Charter School Commission (n.d.). *Summit Public Schools: Sierra – 2018-2019 annual student academic performance report* (p. 19). Retrieved June 3, 2020, from https://charterschool.wa.gov/documents/Summit-Sierra-18-19-Annual-Academic-Report.pdf

51 The Cognitive Skills Rubric may be found at:

Summit Learning (2019, April). C*ognitive skills rubric*. Retrieved June 3, 2020, from https://cdn.summitlearning.org/assets/marketing/Cognitive-Skills-Document-Suite.pdf

52 Stanford University's Center for Assessment, Learning, and Equity (SCALE) worked with Summit Public Schools (SPS) on its Cognitive Skills Rubric. The SCALE website lists June 2014 as the "anticipated"completion date of that project. According to SPS's *Research Roundup September 2017*, SCALE also worked with Summit on additional research that led to changes to the Cognitive Skills Rubric made in 2017. And according to the Cognitive Skills Rubric document we retrieved in June 2020, SCALE worked with SPS to create the most recent version of the rubric. When we contacted SCALE in August 2019, Research & Design Associate Laura Gutman told us that its staff wrote the rubrics and "benchmarked the levels to grade level standards." When we asked for documentation that explains how the rubrics were created and benchmarked to grade level standards, she referred us to SPS, explaining that the project had been done several years prior, that the lead staff who had consulted on it were no longer at SCALE, and that she could not find any additional information to share with us at that time. Two versions of the rubric that we found (one dated May 2017 and the other dated April 2019) contain almost exactly the same categories, but there are

some differences in the skills detailed.

Gutmann, L. (2019, August 26). Personal communication (email) with Faith Boninger.

Gutmann, L. (2019, August 30). Personal communication (email) with Faith Boninger.

Summit Learning (2017, September). *Research roundup September 2017* (p. 12). Retrieved June 7, 2020, from https://core-docs.s3.amazonaws.com/documents/asset/uploaded_file/210681/research_roundup_september_2017_.pdf

Summit Learning (2017, May). *Cognitive skills rubric*. Retrieved June 20, 2019, from https://cdn.summitlearning.org/assets/marketing/Cognitive-Skills-Document-Suite.pdf

Summit Learning (2019, April). *Cognitive skills rubric*. Retrieved February 4, 2020, from https://cdn.summitlearning.org/assets/marketing/Cognitive-Skills-Document-Suite.pdf

53 Summit Public Schools (n.d.). Our results [webpage]. Retrieved May 18, 2020, from https://summitps.org/the-summit-model/our-results/

54 Summit's original claim that 55% of its graduates graduate college within 6 years, equivalent to twice the national average, appeared on the Summit Learning "About us" page. This webpage has since been revised to remove claims about Summit Public Schools. A revised claim, that graduates graduate college at twice the national average, appears on the Summit Public Schools website (we have retained screenshots of the cited webpages). SPS claims to have no responsive records to our Public Records Act request regardng these claims. See Appendix C for all correspondence related to this PRA request.

Summit Learning (n.d.). About us [webpage]. Retrieved August 21, 2019, from https://www.summitlearning.org/about-us [no longer accessible]

Summit Public Schools (n.d.). Our results [webpage]. Retrieved May 18, 2020, from https://summitps.org/the-summit-model/our-results/

55 Primary among Summit Public Schools' supporters have been the Bill and Melinda Gates Foundation and Mark Zuckerberg (via Facebook and then the Chan Zuckerberg Initiative). The Gates Foundation has funded Summit Public Schools every year from 2011-2012 through 2019-2020, for a total of $40,378,573 (see Appendix A). At the same time the Foundation aggressively promoted personalized learning more generally. Facebook's initial agreement with Summit Public Schools included joint marketing.

For the Gates Foundation's role in promoting personalized learning, see:

Boninger, F., Molnar, A., & Saldaña, C.M. (2019). *Personalized learning and the digital privatization of curriculum and teaching*. Boulder, CO: National Education Policy Center. Retrieved June 3, 2020, from https://nepc.colorado.edu/publication/personalized-learning

For Facebook's work with Summit Public Schools, see:

Summit and Facebook Collaboration, Facebook, Inc. and Summit Public Schools, August 18, 2015. Retrieved February 20, 2020, from http://blogs.edweek.org/edweek/DigitalEducation/Summit_Facebook_Signed_Agreement_2015.pdf

56 Tavenner, D. (2012, September 6). Moving beyond blended learning to optimized schools [blog post]. Michael and Susan Dell Foundation. Retrieved June 3, 2020, from https://www.msdf.org/blog/2012/09/dianne-tavenner-moving-beyond-blended-learning/

Tavenner, D. (2012, December 7). Embarking on year two: Moving beyond blended learning. *Getting Smarter*. Retrieved February 12, 2020, from https://www.gettingsmart.com/2012/12/embarking-on-year-two-moving-beyond-blended-learning/

Wilka, M. & Cohen, J. (n.d). *It's not just about the model: Blended learning, innovation, and year 2 at Summit Public Schools*. Summit Public Schools and FSG. Retrieved January 28, 2020, from https://www.fsg.org/publications/its-not-just-about-model

[Although the report is undated, its filename (Summit Y2_Blended Learning and Innovation_Content Final_2_9 24 13.pdf) suggests that it was released in September, 2013]

57 Summit Public Schools (2012, August 13). *Summit Public Schools: Changing education, changing lives* [video]. Retrieved February 5, 2020, from https://vimeo.com/47429811

58 Summit Public Schools' 2017 final report to the Chan Zuckerberg Initiative detailed the goal of convincing school community members of the Summit Learning Program's efficacy.

Summit Public Schools (2017, June). *Summit Public Schools final report*. Retrieved May 14, 2020, from https://cdn.vox-cdn.com/uploads/chorus_asset/file/19931497/Grant_Reports_PRA_M._Barnum_2_2_1.pdf

59 In 2015, Summit's digital platform was called the "Personalized Learning Plan" (PLP).

Summit and Facebook Collaboration, Facebook, Inc. and Summit Public Schools, August 18, 2015. Retrieved February 20, 2020, from http://blogs.edweek.org/edweek/DigitalEducation/Summit_Facebook_Signed_Agreement_2015.pdf

60 Chalkbeat obtained Summit Public Schools' final report to the Chan Zuckerberg Initiative.

Summit Public Schools (2019, January 31). *Chan Zuckerberg Foundation final report*. Retrieved June 3, 2020, from https://cdn.vox-cdn.com/uploads/chorus_asset/file/19931497/Grant_Reports_PRA_M._Barnum_2_2_1.pdf

See also:

Barnum (2019, August 22). Summit Learning reports highlight big ambitions for personalized learning, struggles to prove academic success. *Chalkbeat*. Retrieved February 11, 2020, from https://chalkbeat.org/posts/us/2019/08/22/summit-learning-reports-ambitions/

61 Summit Public Schools (n.d.). *The science of Summit*. Retrieved February 5, 2020, from https://summitps.org/wp-content/uploads/2018/09/The-Science-of-Summit-by-Summit-Public-Schools_08072017-1.pdf [The document is not dated, but the filename appears to have a date of August 7, 2017]

62 Summit Public Schools (2019, January 31). *Chan Zuckerberg Foundation final report*. Retrieved June 3, 2020, from https://cdn.vox-cdn.com/uploads/chorus_asset/file/19931497/Grant_Reports_PRA_M._Barnum_2_2_1.pdf

63 Summit Public Schools (n.d.). *The science of Summit* (p. 18). Retrieved February 5, 2020, from https://summitps.org/wp-content/uploads/2018/09/The-Science-of-Summit-by-Summit-Public-Schools_08072017-1.pdf [The document is not dated, but the filename appears to have a date of August 7, 2017]

See also:

Barnum, M. (2019, January 17). Summit Learning declined to be studied, then cited collaboration with Harvard researchers anyway. *Chalkbeat*. Retrieved September 3, 2019, from https://www.chalkbeat.org/posts/us/2019/01/17/summit-learning-research-harvard/

64 See, for example, the following Summit Learning and Summit Public Schools websites:

Summit Learning (n.d.). Summit Learning [webpage]. Retrieved February 13, 2020, from https://www.summitlearning.org/

Summit Learning (n.d.). Lifelong learning habits [webpage]. Retrieved February 13, 2020, from https://www.

summitlearning.org/approach/learning-experience/self-direction#

Summit Public Schools (n.d.). College. Career. Life. Equipping every student to lead a fulfilled life [webpage]. Retrieved February 13, 2020, from https://summitps.org/

Summit Public Schools (n.d.). The Summit model [webpage]. Retrieved February 13, 2020, from https://summitps.org/the-summit-model/

Summit Public Schools (n.d.). The Summit experience [webpage]. Retrieved February 13, 2020, from https://summitps.org/the-summit-model/the-summit-experience/

65 This terminology follows the strategy modeled by the Bill and Melinda Gates Foundation and recommended by advocacy groups ExcelinEd and Education Elements regarding the marketing of personalized learning more generally: Avoid mention of digital technology by focusing on the goals of its use rather than the details of how it is done.

For analysis of the marketing of personalized learning, see:

Boninger, F., Molnar, A., & Saldaña, C.M. (2019). *Personalized learning and the digital privatization of curriculum and teaching*. Boulder, CO: National Education Policy Center. Retrieved February 13, 2020, from https://nepc.colorado.edu/publication/personalized-learning

For original documents, see:

Bill & Melinda Gates Foundation, Afton Partners, Eli & Edythe Broad Foundation, CEE Trust, Christensen Institute, Charter School Growth Fund, EDUCAUSE, iNACOL, The Learning Accelerator, Michael & Susan Dell Foundation, Silicon Schools (2014). *A working definition of personalized learning*. Retrieved February 13, 2020, from https://assets.documentcloud.org/documents/1311874/personalized-learning-working-definition-fall2014.pdf

Phillips, K. & Jenkins, A. (2018). *Communicating personalized learning to families and stakeholders: Terminology, tools and tips for success* (pp. 9-10). Excel*in*Ed and Education Elements. Retrieved February 13, 2020, from https://www.excelined.org/wp-content/uploads/2018/04/Communicating-Personalized-Learning-to-Families-and-Stakeholders.pdf

See also:

Barnum, M. (2019, October 28). Online learning group iNACOL rebrands, says focus is less on tech, more on transformation. *Chalkbeat*. Retrieved February 13, 2020, from https://chalkbeat.org/posts/us/2019/10/28/inacol-rebrands-aurora-institute/

66 See, for example:

Summit Learning (n.d.) Bring Summit Learning to your school [webpage]. Retrieved February 16, 2020, from https://www.summitlearning.org/join-us/program

67 We found $177,698,848 in grants in public sources, which is likely to be an underestimate (for details, see Appendix A). We requested records of funding from Summit Public Schools in a California Public Records Act (PRA) request submitted on November 5, 2019. Although Summit Public Schools responded that it would provide those records, as of June 8, 2020, it had not yet provided them. See Appendix C for all correspondence related to this PRA request.

68 Tara Mathewson told Christopher Saldaña that CZI provided her with this number. The term “committed” is unclear. It may be that CZI provided some funds before 2018 (its website reports grants beginning in 2018). It is also possible that the use of “committed” implies that they have planned to provide up to this amount in the future.

Mathewson, T.G. (2020, May 2). Is online school program backed by Facebook’s Mark Zuckerberg the

answer for coronavirus closures? *USA Today*. Retrieved June 4, 2020, from https://www.usatoday.com/story/news/education/2020/05/02/coronavirus-facebook-mark-zuckerberg-online-school-summit-learning/3046823001/

Mathewson, T.G. (2020, May 11). Personal communication (email) with Christopher M. Saldaña.

See also:

Bowles, N. (2019, April 21). Silicon Valley came to Kansas schools. That started a rebellion. *New York Times*. Retrieved February 25, 2020, from https://www.nytimes.com/2019/04/21/technology/silicon-valley-kansas-schools.html

69 Chan Zuckerberg Initiative (2020). Grants [webpage]. Retrieved February 26, 2020, from https://chanzuckerberg.com/grants-ventures/grants/

Summit Public Schools' 2017 final grant report to CZI reports numbers consistent with those reported by CZI:

Summit Public Schools (2019, January 31). *Chan Zuckerberg Foundation final report*. Retrieved June 3, 2020, from https://cdn.vox-cdn.com/uploads/chorus_asset/file/19931497/Grant_Reports_PRA_M._Barnum_2_2_1.pdf

70 *EdSurge* reported In 2018, when the transition to T.L.P. Education was announced, that CZI was to "spearhead" a team of approximately 50 engineers who were working on the Summit Learning Platform.

Corcoran, B. (2018, October 12). Summit schools to spin out learning program. *EdSurge*. Retrieved May 7, 2020, from https://www.edsurge.com/news/2018-10-12-summit-schools-to-spin-out-learning-program

71 For example, the Bill and Melinda Gates Foundation provided $499,860 in 2015 to the Lindsay Unified School District to support the creation of a partnership (the California Consortium for Development and Dissemination of Personalized Education [C2D2]) between Lindsay USD, Transcend, and Summit Public Schools. Both the Gates Foundation and the Chan Zuckerberg Initiative have since provided additional grant funds to both Lindsay USD and Transcend, at least in part to promote their work with personalized learning.

Examples include:

Bill and Melinda Gates Foundation (2015, October). Lindsay Unified School District [webpage]. Retrieved May 20, 2020, from https://www.gatesfoundation.org/How-We-Work/Quick-Links/Grants-Database/Grants/2015/10/OPP1138346

Bill and Melinda Gates Foundation (2016, November). Lindsay Unified School District [webpage]. Retrieved May 20, 2020, from https://www.gatesfoundation.org/How-We-Work/Quick-Links/Grants-Database/Grants/2016/11/OPP1157295

Chan Zuckerberg Initiative (n.d.). Grants [webpage]. Retrieved May 20, 2020, from https://chanzuckerberg.com/grants-ventures/grants/

For description of C2D2, see:

Transcend (n.d.). Our partnership [webpage]. Retrieved May 20, 2020, from https://www.transcendeducation.org/our-partnership#our-partnership-introduction

72 For example:

Carter, D. (2016). Goodbye, linear factory model of schooling: Why learning is irregular. *EdSurge*. Retrieved May 20, 2020, from https://www.edsurge.com/news/2016-07-06-goodbye-linear-factory-model-of-schooling-why-learning-is-irregular

Rose, J. (2012, May 9). How to break free of our 19th-century factory-model education system. *Atlantic*. Retrieved May 20, 2020, from https://www.theatlantic.com/business/archive/2012/05/how-to-break-free-of-

our-19th-century-factory-model-education-system/256881/

Excel*in*Ed and Education Elements note that the "factory model" language does not resonate with parents, and promote, instead, language that calls schools "inadequate" and emphasize that personalized learning will provide their children with the "knowledge and skills" necessary to navigate an uncertain future.

Phillips, K. & Jenkins, A. (2018). *Communicating personalized learning to families and stakeholders: Terminology, tools and tips for success* (pp. 5-8). Excel*in*Ed and Education Elements. Retrieved May 20, 2020, from https://www.excelined.org/wp-content/uploads/2018/04/Communicating-Personalized-Learning-to-Families-and-Stakeholders.pdf

For alternative perspectives, see:

Doxtdator, B. (2017, July 8). A field guide to 'jobs that don't exist yet.' *Longview Education*. Retrieved February 20, 2020, from https://longviewoneducation.org/field-guide-jobs-dont-exist-yet/

Watters, A. (2015, April 25). The invented history of 'the factory model of education.' *Hacked Education*. Retrieved February 20, 2020, from http://hackeducation.com/2015/04/25/factory-model

73 Summit Learning (n.d.). Summit Learning [webpage]. Retrieved February 12, 2020, from https://www.summitlearning.org/

74 Bodilly, S., Purnell, S., Ramsey, K., Keith, S.J. (1996). *Lessons from new American Schools Development Corporation's demonstration phase*. Santa Monica, CA: RAND Corporation. Retrieved February 21, 2020, from https://eric.ed.gov/?id=ED396377

75 See, for example:

Johns Hopkins University School of Education Institute for Education Policy (2019, June). *Providence public school district: A review* (pp. 31-32). Retrieved June 4, 2020, from https://edpolicy.education.jhu.edu/wp-content/uploads/2019/11/PPSD-REVISED-FINAL.pdf

Tabor, N. (2018, October 11). Mark Zuckerberg is trying to transform education. This town fought back. *New York Magazine*. Retrieved June 4, 2020, from http://nymag.com/intelligencer/2018/10/the-connecticut-resistance-to-zucks-summit-learning-program.html

76 See, for example:

Barnum, M. (2018, December 19). Could the forces that fought the Common Core bring down personalized learning?. *Chalkbeat*. Retrieved February 11, 2020, from https://chalkbeat.org/posts/us/2018/12/19/common-core-personalized-learning-backlash/

Barnum, M. (2019, May 23). Summit Learning, the Zuckerberg-backed platform, says 10% of schools quit using it each year. The real figure is higher. *Chalkbeat*. Retrieved February 9, 2020, from https://chalkbeat.org/posts/us/2019/05/23/summit-learning-the-zuckerberg-backed-platform-says-10-of-schools-quit-using-it-each-year-the-real-figure-is-higher/

Summit Learning (2019, June 25). Summit Learning response to PPSD review [blog post]. Summit Learning Blog. Retrieved June 4, 2020, from https://summitblog.wpengine.com/2019/06/summit-learning-response-to-ppsd-review/

77 Summit Public Schools has refused to provide us with a list of the schools that either were rejected for partnership or withdrew from a partnership, claiming that it had no such records. This information was requested in a California Public Records Act (PRA) request submitted on November 5, 2019. See Appendix C for all correspondence releated to this PRA request.

78 Barnum, M. (2019, May 23). Summit Learning, the Zuckerberg-backed platform, says 10% of schools quit using it each year. The real figure is higher. *Chalkbeat*. Retrieved February 9, 2020, from https://chalkbeat.

org/posts/us/2019/05/23/summit-learning-the-zuckerberg-backed-platform-says-10-of-schools-quit-using-it-each-year-the-real-figure-is-higher/

79 Although *Designing Aligned School Models* maintains that partner schools may customize the program to their own community's values and goals, Summit Public Schools reported to the Chan Zuckerberg Initiative (CZI) in 2019 that it had begun requiring "partner" schools to "adopt all three components of the instructional approach (i.e., Project-Based Learning, 1:1 Mentoring, and a Self-Directed Learning Cycle)."

Summit Public Schools (2018, June 4). *Designing aligned school models: A framework for school improvement* (p.19). Retrieved February 21, 2020, from https://blog.summitlearning.org/wp-content/uploads/2018/06/Designing-Aligned-School-Models-060418.pdf

Summit Public Schools (2019, January 31). *Chan Zuckerberg Foundation final report* (pp. 7). Retrieved June 3, 2020, from https://cdn.vox-cdn.com/uploads/chorus_asset/file/19931497/Grant_Reports_PRA_M._Barnum_2_2_1.pdf

80 Johns Hopkins University School of Education Institute for Education Policy (2019, June). *Providence public school district: A review* (pp. 31-32). Retrieved June 4, 2020, from https://edpolicy.education.jhu.edu/wp-content/uploads/2019/11/PPSD-REVISED-FINAL.pdf

Tabor, N. (2018, October 11). Mark Zuckerberg is trying to transform education. This town fought back. *New York Magazine* (nymag.com). Retrieved October 30, 2018, from http://nymag.com/intelligencer/2018/10/the-connecticut-resistance-to-zucks-summit-learning-program.html

81 Johns Hopkins University School of Education Institute for Education Policy (2019, June). *Providence public school district: A review* (pp. 31-32). Retrieved June 4, 2020, from https://edpolicy.education.jhu.edu/wp-content/uploads/2019/11/PPSD-REVISED-FINAL.pdf

82 Johns Hopkins University School of Education Institute for Education Policy (2019, June). *Providence public school district: A review* (pp. 31-32). Retrieved June 4, 2020, from https://edpolicy.education.jhu.edu/wp-content/uploads/2019/11/PPSD-REVISED-FINAL.pdf

83 Johns Hopkins University School of Education Institute for Education Policy (2019, June). *Providence public school district: A review*. Retrieved June 4, 2020, from https://edpolicy.education.jhu.edu/wp-content/uploads/2019/11/PPSD-REVISED-FINAL.pdf

84 Johns Hopkins University School of Education Institute for Education Policy (2019, June). *Providence public school district: A review*. Retrieved June 4, 2020, from https://edpolicy.education.jhu.edu/wp-content/uploads/2019/11/PPSD-REVISED-FINAL.pdf

85 Stanford University professor Larry Cuban reported observing a strong "connective tissue" between Summit Public Schools (SPS) teachers and students, with teachers who were readily available and engaged in meaningful, competent interactions with students about both academic and personal matters, and mentors who were much more than typical homeroom teachers. He also expressed concerns about SPS's ability to "scale" its culture to partner schools.

Cuban, L. (2019, April 30). Making schools business-like: The case of Summit charters (Part 3) [blog post]. *Larry Cuban on School Reform and Classroom Practice*. Retrieved May 18, 2020, from https://larrycuban.wordpress.com/2019/04/30/making-schools-business-like-the-case-of-summit-charters-part-3/

Cuban, L. (2019, August 21). Personal communication (telephone) with Alex Molnar.

86 Changes to FERPA in 2008 and 2011 expanded the definitions of both school officials and authorized representatives. The Department of Education now considers "school officials" to include "contractors, consultants, volunteers, and other parties to whom an educational agency or institution has outsourced institutional services or functions it would otherwise use employees to perform."

Molnar, A. & Boninger, F. (2015). *On the block: Student data and privacy in the digital age—The seventeenth annual report on schoolhouse commercializing trends, 2013-2014* (pp. 9-10). Boulder, CO: National Education Policy Center. Retrieved May 19, 2020, from http://nepc.colorado.edu/publication/schoolhouse-commercialism-2014

Rotenberg, M. & Barnes, K (2013, January 28). Amassing student data and dissipating privacy rights. *Educause Review Online*. Retrieved May 19, 2020, from http://www.educause.edu/ero/article/amassing-student-data-and-dissipating-privacy-rights

87 Like the 2018 contracts signed with Summit Public Schools, the data privacy addendum applicable to new contracts with T.L.P. Education includes, in clause 4.5, "De-Identified Data may be used for any lawful purpose including, but not limited to, operating and improving the Services. Summit Learning's use of such De-Identified Data shall survive termination of this Data Privacy Addendum or any request by Partner School to return or destroy Student Data. Summit Learning agrees not to attempt or have any third party attempt to re-identify De-Identified Data except for the sole purpose of validating Summit Learning's de-identification processes." Clause 4.6 provides for (personally identifiable) student data to be de-identified as a means of "destroying" it, and exempts de-identified data from the obligation to destroy data.

Summit Learning Program Agreement, Summit Public Schools and Fairview Park City School District, May 1, 2018 (Data Privacy Addendum, clauses 4.5, 4.6, 5.1b).

Summit Learning Program Agreement, Summit Public Schools and Wellington Unified School District 353, March 30, 2018 (Data Privacy Addendum, clauses 4.5, 4.6, 5.1b).

Summit Learning (n.d.). Data privacy addendum, clauses 4.5, 4.6 [webpage]. Retrieved May 7, 2020, from https://www.summitlearning.org/privacy-center/data-privacy-addendum

88 Summit Learning (n.d.). How do Summit Learning and the Chan Zuckerberg Initiative partner together? [webpage]. Retrieved February 26, 2020, from https://help.summitlearning.org/hc/en-us/articles/360000818828

89 According to the Data Privacy Addendum to the Summit Learning Program Agreement, "De-Identified Data may be used for any lawful purpose including, but not limited to, operating and improving the Service."

Summit Learning Program Agreement, Summit Public Schools and Fairview Park City School District, May 1, 2018 (Data Privacy Addendum, clause 4.5).

Summit Learning Program Agreement, Summit Public Schools and Wellington Unified School District 353, March 30, 2018 (Data Privacy Addendum, clause 4.5).

90 According to clause 4.6 of the Data Privacy Addendum, one way Summit Public Schools may "dispose" of student data is to de-identify it. Further, "the duty to dispose of Student Data shall not extend to data that has been De-Identified."

Summit Learning Program Agreement, Summit Public Schools and Fairview Park City School District, May 1, 2018 (Data Privacy Addendum, clause 4.6).

Summit Learning Program Agreement, Summit Public Schools and Wellington Unified School District 353, March 30, 2018 (Data Privacy Addendum, clause 4.6).

91 Narayanan, A. & Shmatikov, V. (2008). Robust de-anonymization of large sparse datasets. *SP '08 Proceedings of the 2008 IEEE Symposium on Security and Privacy,* pp. 111-125. Retrieved December 20, 2015, from https://www.cs.utexas.edu/~shmat/shmat_oak08netflix.pdf

Narayanan, A. and Shmatikov, V. (2019, May 21). *Robust de-anonymization of large sparse datasets: a decade later*. Unpublished manuscript. Retrieved June 4, 2020, from https://www.cs.princeton.edu/~arvindn/publications/de-anonymization-retrospective.pdf

We consulted with Frauke Kreuter (Professor in the Joint Program in Survey Methodology at the University of Maryland; Professor of Statistics and Methodology at the University of Mannheim; and head of the Statistical Methods Research Department at the Institute for Employment Research (IAB) in Nürnberg, Germany). She explained that, "de-identification is an outdated concept in the modern data world" because "it's not enough to talk about removal of PII [personally identifiable information] without having a clear idea of the data being in a safe place with safe people and a safe project" (because of the ease with which data can be re-identified by combining datasets). Contracts with Summit Public Schools (and now T.L.P. Education) allow de-identified data to be used, in perpetuity, "for any lawful purpose," with no requirement to establish these features that would make the data environment safe from possible re-identification.

Kreuter, F. (2019, September 4). Personal communication (telephone) with Faith Boninger.

For discussion of the "5 Safes" approach to protecting the privacy of data, see:

Stokes, P. (2017, January 27). The 'five safes' – Data privacy at ONS [blog post]. *National Statistical*. Retrieved June 10, 2020, from https://blog.ons.gov.uk/2017/01/27/the-five-safes-data-privacy-at-ons/

92 Clark, J., & McGoey, L. (2016). The black box warning on philanthrocapitalism. *The Lancet, 388*(10059), 2457–2459. Retrieved June 4, 2020, from https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)32184-5/fulltext

Dolan, K.A. (2015, December 4). Mark Zuckerberg explains why the Chan Zuckerberg Initiative isn't a charitable foundation. *Forbes*. Retrieved August 8, 2018, from https://www.forbes.com/sites/kerryadolan/2015/12/04/mark-zuckerberg-explains-why-the-chan-zuckerberg-initiative-isnt-a-charitable-foundation/#616840c770c5

Saltman, K.J. (2018). *The swindle of innovative educational finance*. Minneapolis, MN: University of Minnesota Press.

93 CZI's investments include BYJU's (an Indian platform which provides digital learning content); Panorama Education (which provides surveys and data analytics for schools, particularly to implement social and emotional learning programs); MasteryConnect (which provides a competency-based learning platform); and Ellevation (which provides software providing data management for English language learners.

Chan Zuckerberg Initiative (2020). Ventures [webpage]. Retrieved February 20, 2020, from https://chanzuckerberg.com/grants-ventures/ventures/

Crunchbase, Inc. (2018). Panorama Education [webpage]. Retrieved June 4, 2020, from https://www.crunchbase.com/organization/panorama-education#section-investors

Crunchbase, Inc. (2018). BYJU's [webpage]. Retrieved October 11, 2018, from https://www.crunchbase.com/organization/byju-s#section-overview

Herold, B. (2016, March 7). Tangled web: Zuckerberg & Chan's education grants, investments. *Education Week*. Retrieved June 4, 2020, from https://www.edweek.org/ew/section/multimedia/Zuckerberg-chan-education-grants-investments.html

Watters, A. (n.d.). CZI's investments [webpage]. Retrieved June 4, 2020, from https://hack-education-data.github.io/chan Zuckerberg-initiative/investments.html

94 Clark, J. & McGoey, L. (2016, November 19). The black box warning on philanthrocapitalism. *The Lancet, 388*(10059), 2457-2459.

Dolan, K.A. (2015, December 4). Mark Zuckerberg explains why the Chan Zuckerberg Initiative isn't a charitable foundation. *Forbes*. Retrieved June 4, 2020, from https://www.forbes.com/sites/kerryadolan/2015/12/04/mark-zuckerberg-explains-why-the-chan-zuckerberg-initiative-isnt-a-charitable-foundation/#616840c770c5

Thompson, A., & Kulwin, N. (2017, October 24). Exclusive: Zuckerberg group to spend $45 million on political causes. *Vice*. Retrieved June 8, 2020, from https://www.vice.com/en_us/article/8xmvvg/mark-zuckerberg-political-spending

95 The 2017 contract signed with New Egypt High School limits Summit Public Schools' use of "de-identified" student data to "product development, research, or other purposes related to developing or improving the Program" and to demonstrations of "the effectiveness of Summit's products or services, including in its marketing" (clause 6k). The clause entitled "Destruction of Student Data" provided that "Summit will ensure that all Student Data in its possession…are destroyed at the direction of Partner School when Student Data is no longer needed for its specified purpose…" (clause 6j). In contrast, the Data Privacy Addendum to the 2018 contracts signed with the Fairview Park City School District and with the Wellington Unified School District 353 provides that "De-Identified Data may be used for any lawful purpose including, but not limited to, operating and improving the Service" (Data Privacy Addendum clause 4.5). The clause entitled "Destruction of Student Data"(Data Privacy Addendum clause 5.1b) refers to another clause entitled "Disposition of Student Data,"(Data Privacy Addendum clause 4.6) which explains that one way Summit Public Schools may "dispose" of student data is to de-identify it. Further, "the duty to dispose of Student Data shall not extend to data that has been De-Identified" (Data Privacy Addendum clause 4.6). In other words,"destroy" in 2017 became "dispose" in 2018, and "dispose" does not require Summit Public Schools to give up the data—ever. Both the 2017 and 2018 contracts allow Summit Public Schools to continue to use de-identified data, for the purposes specified in each contract, into perpetuity (clause 6k in the 2017 contract; clause 4.5 of the Data Privacy Addendum to the 2018 contracts). The data privacy addendum we accessed from the Summit Learning website's "Privacy Center" on February 26, 2020 (i.e., that is ostensibly being used in contracts signed in 2020) contains the same wording as the 2018 contracts.

Summit Learning Program Agreement, Summit Public Schools and Fairview Park City School District, May 1, 2018 (Data Privacy Addendum, clauses 4.5, 4.6, 5.1b).

Summit Learning Program Participation Agreement, Summit Public Schools and New Egypt High School, May 11, 2017 (clauses 6j and 6k).

Summit Learning Program Agreement, Summit Public Schools and Wellington Unified School District 353, March 30, 2018 (Data Privacy Addendum, clauses 4.5, 4.6, 5.1b).

Summit Learning (n.d.). Exhibit B: Data privacy addendum [webpage]. Retrieved February 26, 2020, from https://cdn.summitlearning.org/marketing/privacy_center/data_privacy_addendum.pdf

96 An example of a subjective decision made by unknown decision-makers is the decision to change the grading structure and add flexibility such that schools can vary the grading structure by course. Before 2019-2020, "cognitive skills" in non-math courses were weighted at 70% of the grade and "content knowledge" was weighted at 30% of the grade. For 2019-2020, Summit awarded schools the option to vary the weights in order to reduce the weight on content knowledge. It also changed the default weights for non-math classes to 80% Projects and and 20% Content (with Power Focus Areas counting for 14% of the 20% and Additional Focus Areas counting for 6%), In math courses, the 2019-2020 default weights are 70% for Concept Units, 10% for Portfolio Problems, and 20% for "content knowledge" (14% for Power Focus Areas and 6% for Additional Focus Areas). These decisions were written into the algorithms that calculate grades and govern what school administrators are allowed to change.

Summit Learning (n.d.). Grade configuration FAQs for admins [webpage]. Retrieved June 4, 2020 from https://help.summitlearning.org/hc/en-us/articles/360019055674

97 The Chan Zuckerberg Initiative's *Education Initiative Privacy Principles* explains that, "[a]s part of our partnership with SLP, CZI works as a service provider…to improve the technology that enables schools and districts to participate in the program."

Chan Zuckerberg Initiative (2019). Education initiative privacy principles [webpage]. Retrieved June 4, 2020, from https://chanzuckerberg.com/privacy/education-privacy-principles/

98 Current efforts include the following: The American Civil Liberties Union, together with researchers from business and academia, founded the AI Now Initiative, a project to "identify and highlight" algorithmic bias. The German advocacy organization AlgorithmWatch analyzes the effects of algorithmic decision-making processes on human behavior and identifies ethical conflicts. Cathy O'Neil, who detailed the problems with algorithms in *Weapons of Mass Destruction*, founded a company to audit algorithms for companies concerned about the possibility of bias. She has not attracted many clients, and told *Technology Review* that "even those who know their algorithms are at a risk of bias are more interested in the bottom line than in rooting out bias."

Knight, W. (2017, July 12). Biased algorithms are everywhere, and no one seems to care. *Technology Review*. Retrieved February 24, 2020, from https://www.technologyreview.com/s/608248/biased-algorithms-are-everywhere-and-no-one-seems-to-care/

O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. New York, NY: Crown.

Spielkamp, M. (2017, June 12). Inspecting algorithms for bias. *Technology Review*. Retrieved February 24, 2020, from https://www.technologyreview.com/s/607955/inspecting-algorithms-for-bias/

99 This information was requested from Summit Public Schools in a California Public Records Act (PRA) request submitted on November 5, 2019. See Appendix C for all correspondence related to this PRA request.

100 Kohn, A. (2011, November). The case against grades. *Education Leadership*. Retrieved June 4, 2020, from https://www.alfiekohn.org/article/case-grades/

101 Macdonald, J.B. (1966). The person in the curriculum. In H.F. Robison (Ed.), *Precedents and promise in the curriculum field*. New York, NY: Teachers College Press. Reprinted in Urban Review, 8(3), 191–201 (1975, September).

102 Shepard, L.A., Penuel, W.R., & Pelegrino, J.W. (2018). Using learning and motivation theories to coherently link formative assessment, grading practices, and large-scale assessment. *Educational Measurement, 37*(1), 21-34.

103 See also:

Boninger, F., Molnar, A., & Saldaña, C.M. (2019). *Personalized learning and the digital privatization of curriculum and teaching*. Boulder, CO: National Education Policy Center. Retrieved February 13, 2020, from https://nepc.colorado.edu/publication/personalized-learning

Saltman, K.J. (2018). *The swindle of innovative educational finance* (pp. 1-23). Minneapolis, MN: University of Minnesota Press.