**Google: Creating Great Tools for Education**

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Have you ever thought of Googling Google? Google is not just a search engine, Google is online advertising, cloud computing, software, and hardware, (Wikipedia, 2020). Google has expanded immensely since its initial founding in 1998 by Stanford graduates, Page and Brin. Google turned into offering more than just a search by offering services designed for work and productivity ([Google Docs](https://en.wikipedia.org/wiki/Google_Docs), [Google Sheets](https://en.wikipedia.org/wiki/Google_Sheets), and [Google Slides](https://en.wikipedia.org/wiki/Google_Slides)), email ([Gmail](https://en.wikipedia.org/wiki/Gmail)), scheduling and time management ([Google Calendar](https://en.wikipedia.org/wiki/Google_Calendar)), cloud storage ([Google Drive](https://en.wikipedia.org/wiki/Google_Drive)), instant messaging and video chat ([Duo](https://en.wikipedia.org/wiki/Google_Duo), [Hangouts](https://en.wikipedia.org/wiki/Hangouts), and [Meet](https://en.wikipedia.org/wiki/Google_Meet)), language translation ([Google Translate](https://en.wikipedia.org/wiki/Google_Translate)), mapping and navigation ([Google Maps](https://en.wikipedia.org/wiki/Google_Maps), [Waze](https://en.wikipedia.org/wiki/Waze), [Google Earth](https://en.wikipedia.org/wiki/Google_Earth), and [Street View](https://en.wikipedia.org/wiki/Street_View)), podcast hosting ([Google Podcasts](https://en.wikipedia.org/wiki/Google_Podcasts)), video sharing ([YouTube](https://en.wikipedia.org/wiki/YouTube)), blog publishing ([Blogger](https://en.wikipedia.org/wiki/Blogger_(service))), note-taking ([Google Keep](https://en.wikipedia.org/wiki/Google_Keep), and [Google Jamboard](https://en.wikipedia.org/wiki/Jamboard)), and photo organizing and editing ([Google Photos](https://en.wikipedia.org/wiki/Google_Photos)). The company leads the development of the [Android](https://en.wikipedia.org/wiki/Android_(operating_system)) mobile operating system, the [Google Chrome](https://en.wikipedia.org/wiki/Google_Chrome) web browser, and [Chrome OS](https://en.wikipedia.org/wiki/Chrome_OS), a lightweight operating system based on the Chrome browser, (Wikipedia, 2020). And of course, the biggest rage being that it’s 2020 and everyone is doing distance learning, the Learning Management System, [Google Classroom](https://classroom.google.com/).

When thinking about using Google in Education, a million thoughts go through my mind. How could I get my students to use this properly? How would my students do using something like this? Would other teachers be able to show their students how to use it? Can our teachers operate it effectively? I could go on and on, but ultimately there will always be questions. The best part about Google is that it is there to help you with questions. Students are always looking to find the answer, which is why Google keeps coming up with answers. With the way the world is shifting today, I believe Google will continue to be an answer for all of us, especially in Education.

The conclusions I drew after reading numerous peer-reviewed articles and scholarly journals regarding teaching Google Tools include prodigious research showing improved academic achievement after using (their) technology, (Oppenheimer, 1997). This article from Week 4 helped us understand the value of technology in education. The article also notes that the research has again come under occasional attack, but this time quite several teachers seem to be backing classroom technology. In a poll taken early last year U.S. teachers ranked computer skills and media technology as more "essential" than the study of European history, biology, chemistry, and physics; than dealing with social problems such as drugs and family breakdown; than learning practical job skills; and than reading modern American writers such as Steinbeck and Hemingway or classic ones such as Plato and Shakespeare, (Oppenheimer, 1997). To me, this is fascinating, that over 20 years ago they understood the value of computers in the classroom. In today’s classroom, well computers are the classroom.

Specifically, in looking at Google products, Google Drive is one of the most powerful tools we could use as educators. Google Drive is not simply limited to sharing files. It provides users with other tools they need to complete their daily tasks. One of these tools is Google Forms, which allows instructors to develop quick assessments for students (e.g., quizzes or surveys), collect information from students, or create rubrics for assignments. Forms support many types of questions, including a linear scale and multiple-choice grid. The responses that students input into Forms are stored in a spreadsheet that can make instructors’ grading of quizzes quicker and more convenient (Pappas 2014). In my opinion, this is just the tip of the iceberg when it comes to Google Suite. Many teachers and students use Gmail accounts along with Google Drive which makes it extremely easy to share files as well as give more access to students from wherever they are. Furthermore, a significant amount of add-ons and apps are available to create better experiences and provide additional features to Google Drive. For example, with an addon called BTranslate,^ students can quickly translate documents from within their Google Drive easily (Solomon 2015), (Sadik, 2016). This feature is incredible to use with our ELL students who might be struggling with the English Language. It gives them access and opportunities to succeed. It helps create equity among the students which is what we all want.

Compared to other systems, Google Drive, in particular, is a powerful Web-based application for sharing files that have already transformed the way millions of students communicate and handle files in their courses. The application allows users not only to store files securely but also to share and edit documents in a variety of formats, including documents, spreadsheets, presentations, forms, drawings, and photos. This feature provides a real-time working experience on a document and saves the changes made on the document instantly, (Sadik, 2016). When it comes to our current situation and distance learning, this feature is so important for not only students but staff and parents alike.

As far as instruction goes with using Google Tools, I think if anything, teachers will need more instruction on how to use it effectively. Because on the other hand, some technology isn’t necessarily beneficial for the students learning. What I mean by this is there are ways the teachers use technology that doesn’t help students understand the information on a deeper level. Some examples of technology that (are) taken for granted, and ultimately help to perpetuate, traditional teacher-centered instruction that consists mostly of memorizing facts and practicing skills. Tarting up a lecture with a SmartBoard, loading a textbook on an iPad, looking up facts online, rehearsing skills with an “adaptive learning system,” writing answers to the teacher’s (or workbook’s) questions and uploading them to Google Docs — these are examples of how technology may make the process a bit more efficient or less dreary but does nothing to challenge the outdated pedagogy. On the contrary: These are shiny things that distract us from rethinking our approach to learning and reassure us that we’re already being innovative, (Kohn, 2016). This resonated with me because it made me think about Bloom’s Taxonomy and Universal Design for Learning. Specifically, when trying to understand how people develop cognitive skills to learn in different ways. There are also levels of understanding. In ADL 630 we discussed how Bloom’s different levels of cognitive thinking all play a different role in how we learn new information. Remembering, understanding, applying, analyzing, evaluating, and creating are levels of Bloom’s Taxonomy. They each have many verbs that can be substituted out to help teachers create lesson plans and enhance their ELOs.

Universal Design for Learning also helps me purposefully use technology to help my students learn on a deeper level. As I understand UDL, our purpose is to create lessons, activities, projects, assessments, and assignments that connect with students’ affective, recognition, and strategic networks. From CAST, this means we as educators need to understand the “why, what, and how” of learning before we can teach it. We need to understand that different parts of the brain are interconnected with different areas of understanding. Unlike Bloom’s Taxonomy, the UDL isn’t about levels, but more about the pedagogical and differentiation of teaching and learning. Students will learn more if they connect with the material being taught. If the students don’t connect with the concept, they most like will memorize what they need to for the assessment, but won’t learn anything.

When it comes to training students, parents, and teachers on Google Tools I believe it is much easier than we think. I think this because many students are getting exposed to technology at a much younger age and learn how to operate it at a much faster pace than teachers. For example, children use mobile devices to watch videos, to play games, to read, to communicate with others, and increasingly, to learn. Educational applications abound in the touchscreen app marketplace and the majority are marketed toward children and teenagers ([Shuler, 2012](https://www.frontiersin.org/articles/10.3389/fpsyg.2016.01431/full#B36)). This seems like a great opportunity to embed more technology because our children are already a step ahead. They are also going to school for jobs that don’t yet exist. That concept in itself is mindblowing. However, this same article states that children don’t associate all technology with learning. As recent reviews have highlighted, a severe lack of regulation hinders the ability of parents to choose educational apps wisely ([Guernsey et al., 2012](https://www.frontiersin.org/articles/10.3389/fpsyg.2016.01431/full#B19); [Hirsh-Pasek et al., 2015](https://www.frontiersin.org/articles/10.3389/fpsyg.2016.01431/full#B20)). Parents hold varying attitudes about the educational benefits of media use, (Eisen & Lillard, 2016). This stigma would have to change. We would need to educate our children to be digitally responsible and create digital citizenship. I believe this would eliminate the concept of them just playing video games on their digital devices “for fun.”

When it comes to thinking about differentiation and pedagogy, available resources and tools range from technology-driven solutions to strategies for creating more interactive and engaging learning opportunities. With the digital divide diminishing and a new era of technical literacy well underway, learners can be brought together in new and exciting ways, (Day, 2000). Many new tools focus on learning outside the confines of a traditional classroom, making them excellent resources for adult learners in professional settings (Issenberg, 2005). Increasingly, we find that technology-based solutions for learning allow individuals to determine their own educational path and achievement of competencies through innovative new platforms (Vozenilek, 2004). Discussion boards, blogs, interactive exercises, simulations, visualization software, and multimedia software all encourage learners to manage their own learning, (Woods & Rosenberg, 2017). Especially in the situation, we are in, we need students to experience as much as they since they can’t physically be at school. We need students to learn as much as they can from behind a computer screen. Educators will need to be creative and innovative with their teachers and try to create experiences for students to learn on a deeper level.

The implications for learning Google Tools are invaluable. Most secondary schools, universities, and colleges use some sort of cloud-based learning management system like Blackboard, Moodle, Canvas, etc. However, studies exploring the use of technology in higher education showed that the students find LMSs limited in manipulating or handling course materials (Meishar-Tal et al. 2012). In a comparison among the functionalities of Moodle and modern web applications used in e-learning at the University of Zagreb, Link et al. (2013) indicated that students showed a high interest in file-sharing systems. They concluded that these applications have a lot of potential for allowing instructors and students to share study materials and help broaden the knowledge pool of any particular subject. Furthermore, file-sharing services could complement many limitations of LMSs (Stantchev et al. 2014). Therefore, many students often tend to use cloud file-sharing services to store and share course resources with instructors and classmates (Dodd and Antonenko 2012), (Sadik, 2016). This file-sharing concept, such as Google Drive, is wildly popular, and more and more people are beginning to understand its value once they use it. In my opinion, I use Google Drive to share files almost daily. I use it for educational purposes, for my business, and my personal use. It’s not just to share documents -- it can share photos, videos, pdf, zip files, audio clips, and so much more. This is what students today want access to -- their materials, their assignments, their resources, and of course, their videos and photos. Google Drive has all of these capabilities.

Another note I wanted to mention is the benefits of Google Tools for our English Language Learners. As I said before, it has an option for Google Translate. However, English Language Learners make up a considerable portion of elementary and secondary public school students, as language and ethnic diversity has become the norm in the United States, (Woodrich & Fan, 2017). Still, the research literature finds that ELLs are statistically behind their monolingual peers on such key language and academic development indicators as writing (Aud et al., 2013) and in-class participation (N. Li, 2013), which in turn hinders their language growth (Cohen, Lotan, Abram, Scarloss, & Schultz, 2002). In this specific journal research entry by Woodrich and Fan which is focused on the research of online collaborative writing tools and suggests that using such tools (Google Docs in particular) is beneficial, especially for students who are building their language abilities. The study further reveals a varied degree of success and student comfort level in participating writing tasks in three modalities. We ascertain that students of varying language fluencies participated more equally when they were able to remain anonymous. Face-to-face writing exhibited the highest overall scores, and students enjoyed working on Google Docs, (Woodrich and Fan, 2017). Hearing this research made my heart so happy. I believe that it always comes back to confidence in language for those students to allow themselves the opportunity to learn. How can they learn about a subject when they can barely understand the language the subject is being taught in? I couldn’t imagine the daily struggle which is why this Google Tool advocate for them. Giving ELL students more opportunities to speak up or remain anonymous, just gives them another step in the right direction.

The learning theory that supports Google Tools is Constructivism because constructivist learning is the learning making sense of the world by connecting what they already know to what they are learning. New ideas learned come from prior knowledge or experiences. Constructivism theory makes it unique to the student and individualizes their understanding, (Harasim, 2017). Google Tools has so many different features that most students are already familiar with in some way. So learning about or using these tools in the classroom and or for an educational purpose would help them connect with the concept being taught based on previous knowledge of the technology or Google platform. This learning theory also focuses on the process of learning rather than the end product. This theory is a learner-centered approach while the teacher is more of the facilitator. I believe that people learn more by doing rather than watching. Students gain a better understanding when they are experiencing something rather than reading or listening to something. Google Tools make it easy to just dive in and figure it out. This, in my opinion, is such a positive for students in the classroom. Let them figure it out. It will make for a much more impactful educational experience.

The instructional model that supports this project is Community of Practice (CoP) because this model is all about learning occurring in social contexts that emerge and evolve when people who have common goals interact as they strive towards those goals, (Shin & Brick, 2008). Referring ADL 630 in Week 2 when we created an ID Matrix about all these different learning and instructional design theories, this model’s condition assumptions state that there needs to be a domain or shared interest, community or engage in shared activity teach/ learn from each other, and practice or practitioner who possesses relevant resources. Google Tools is capable of helping students and teachers achieve all of these goals.

When looking deeper into Universal Design for Learning with Google Tools I wanted to make a note about a way that I understood UDL. UDL is a way to make something easier for someone and it’s around us all the time. Closed captions, automatic doors, and accessibility features on smartphones are all examples of universal design. These design elements help people with disabilities. But people who don’t have disabilities may also want to use them, (Understood, 2020). This has helped me understand UDL being used in our everyday lives and a great example of how we can use it in education. Multiple means of representation, action, and expression, and engagement are the 3 main principles. Google Tools can help teachers design a variety of ways students learn. Maybe it’s reading an article, watching a video, or listening to a podcast. Google Tools can also help teachers create different ways to express their learning. For example, students can write a paper, make a video, or draw a comic to show their understanding. Lastly, Google Tools can help teachers motivate students through developing options to give students a choice. When students are given a choice they are more likely to become more engaged with the material or content.

When it comes to Technological Pedagogical Content Knowledge (TPACK) and Google Tools it is evident they connect in their goals. TPACK attempts to identify the nature of knowledge required by teachers for technology integration in their teaching while addressing the complex, multifaceted, and situated nature of teacher knowledge, (Koehler & Mishra, 2009). Effective technology integration for pedagogy around specific subject matter requires developing sensitivity to the dynamic, transactional relationship between these components of knowledge situated in unique contexts. Individual teachers, grade-level, school-specific factors, demographics, culture, and other factors ensure that every situation is unique, and no single combination of content, technology, and pedagogy will apply for every teacher, every course, or every view of teaching, (Koehler & Mishra, 2009). This is why Google Tools is extremely important and valuable to integrate into the classroom. We need our educators and our future generations to understand and help our world enhance technology. We are doing a disservice to future learners by not integrating technology into our educational systems. The sooner we can expose children to technology, the sooner they will become proficient. But not having our students use technology in an education setting, we are only hindering their potential.

Google has an answer for everything and Google isn’t going away anytime soon. Google Tools are so beneficial for all students and educators. It encourages students to learn and empowers educators to teach. The world we are living in today was something no one could have predicted, but at the same time, we are living through a time of change. Schools, businesses, and laws are all evolving into something completely different. We will all be better for it but it will be different. Change is uncomfortable for most people but with change comes growth. We need to set our children up for success by embracing technology and being the change-making movement that did.

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