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Google IT Support Professional Certification Program Completion

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Sabbatical leave project Spring 2022 - Judith Guzzy
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In January 2018 Google launched its first Google career certificate program - the Google IT Support Professional Certificate. Google's certification announcement was quickly noticed in both technology and higher education industries. According to *Inside Higher Ed* (2018), within the first five months of the IT Support Certificate being rolled out, over 40,000 individuals had enrolled and already 1,200 had completed the program. An Associate Chancellor at the University of Illinois, Springfield campus stated at the time "'It's a whole new marketplace, and it's driven by the employers and the students…These companies for the most part don't want to get into education. They're going to do it because it needs to be done.'"

Google announced that more programs would follow and launched three additional certifications in the first quarter of 2021: Data Analytics, UX Design, and Project Management. As recently as July 2020, these certificates were proclaimed to be equivalent to a Bachelor's degree for their employer partners. As an article written for *Inc.* noted: "Rember: Nowadays, it's all about skills. Not degrees. Because if there's anything this pandemic has taught us, it's the importance of maximizing ROI on both time and money. And that's an area where universities have been failing for a very long time."

As a two-year college faculty member, Google's announcement and the news articles that followed piqued my interest. An important element of a community college's mission is one of preparing students to serve communities by providing industry-ready employees through technical programs and associate's degrees. Even if not explicitly stated, JCCC honors this focus and commitment through both its mission:

   "to transform lives and strengthen communities"

and values:

 "Community Engagement — We value our role as the community's college and commit ourselves to partnerships that respond to the changing needs of those we serve

Innovation - We foster an environment of excellence by intentionally seeking new and creative ways to meet the needs of our students, colleagues, and community."

JCCC's technical programs also include boards composed of community and industry members who help ensure students are receiving the training needed in the industries being served.

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Google certificate programs were designed to bypass traditional college structure in order to address the lack of readily trained employees for the IT industry. Other industries are joining the technology industry in bypassing traditional college programs. Alaska airlines announced recently it was starting its own academy to train pilots. Fred's Appliance has their own "academy" https://academy.fredsappliance.com/) for appliance repair and Faith Technologies (https://www.faithtechnologies.com/careers/faith-technologies-university/) runs their own "university" to train electricians.

Prior to applying for my sabbatical leave, I spoke with two women in their early twenties who worked in different industries, and who indicated that the traditional college path had not worked for them. One currently worked in the solar industry as a sales representative for solar panel installation and the other had recently entered the Faith Technologies electricians' university three-year program. Within the electricians' program, this individual was offered an immediate paid position while learning the industry from the bottom-up. As a two-year faculty member who has faithfully followed a traditional college pathway and still believes in the high value of a college education, I found these conversations fascinating. I could not argue with their justifications, their feelings of not being successful in a traditional college environment, nor could I argue with the fact that they were both making a living wage in their early twenties while so many young people struggle to find jobs that allow them to live independently.

Many two-year colleges have worked to address the issue of moving workers out into industries more quickly by moving to certificate type programs.   Within this model, focused technical coursework is offered early in the program and students earn levels of completion via certificates as the program progresses. Those eager to get into the job market can move into employment more quickly. The Associates degree can be earned by adding the required non-technical coursework at the end of the program rather than scattered throughout the program found in more traditional settings. Most programs still require at least two semesters to earn a technical certificate, while also following the institution's academic calendar.

Since my career interest and experience has been focused in a heavily technology-dependent field of information and knowledge management, participating in the Google certificate program offered an unique opportunity to focus on an alternative educational program that offered a career certificate in six months or less while allowing for a 24/7 online learning format. Previously I had participated in two IT courses for credit at JCCC and enjoyed them, but realized that it would take me far longer than six

months to pursue a career-ready credential in IT via a traditional college path. Due to test anxiety, I found myself dropping a third IT class when I learned about the requirement of taking tests within the college testing center rather than working in an applied learning environment. As a non-traditional older student, I was interested in how I would fare working within Google's classroom platform of choice, Coursera, and I was interested in how success would be evaluated within the platform. With concentrated effort and time available during a sabbatical leave, I was able to complete the entire certificate program in approximately four months.

Program Structure:

Coursera is a large online educational platform that first gained prominence as a platform for MOOCs (Massive Open Online Courses). MOOCs initially touted free substantive classes offered through colleges and universities and taught by college faculty. While courses may have been free initially (and are often still free as audited courses), Coursera began charging for access to its platform in January 2016 if individuals wanted college or program credit offered through the platform. Individuals can pay $39 - $79 monthly for a single course, or choose Coursera Plus to take multiple courses for $59 monthly or an annual fee of $399. Since I was paying for the program myself, I felt a strong incentive to move forward quickly in order to minimize my cost. In retrospect, thoroughness of learning may have been sacrificed somewhat for rapid completion.

The Google IT Support Professional Certificate Program that I completed consisted of five "Courses" required for certificate achievement:

1) Technical Support Fundamentals
2) The Bits and Bytes of Computer Networking
3) Operating Systems and You: Becoming a Power User
4) System Administration and IT Infrastructure Services
5) IT Security: Defense against the Digital Dark Arts

Each course included six weeks of specific topics within the Course umbrella. For example, Course 2 (The Bits and Bytes of Computer Networking) included:

Week 1: Introduction to Computer Networking
Week 2: The Network Layer
Week 3: Introduction to the Transport and Application Layers
Week 4: Network Services

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Week 5: Connecting to the Internet
Week 6: Troubleshooting and the Future of Networking

Each week included multiple parts with videos, readings, optional discussion forums, practice quizzes, and occasionally hands-on lab exercises working with certain programs or software within a virtual environment. At the end of each week, there was a final graded quiz, sometimes a longer hands-on lab or writing assignment, and occasionally a "final project" that included addressing specific scenarios. All of the assignments, labs, quizzes, and writing assignments were graded automatically.

Videos were used as the main vehicles for teaching within the multiple weekly sections. Each of the five umbrella courses introduced a different main instructor who was currently working in a related position within Google.   All of the instructors were individuals within the mid-twenty or thirty-year old age range. Google provided both gender and racial variety in the instructors chosen which created an interesting, refreshing, and engaging experience. It was apparent through the age of the instructors, their casual dress, and the scripts they followed in the videos, that Google's market focus was a younger student age-group.   I found the instructors knowledgeable and interesting which helped me to focus on the subject matter. The instructors introduced and explained various concepts through multiple video segments within the six weeks of topics. During each video segment, the instructor would introduce a topic and teach new material using visual aids as well as active demonstration with software.

During the instructional videos, I found myself reading along with the text while the video played. This helped to focus my attention and allowed me to highlight important concepts rather than trying to learn solely via auditory processing. It became apparent that Google used an automatic speech to text software as there were numerous minor incorrect interpretations in the text such as: "Will focus on…" instead of "We'll focus on…" The courses would have benefited from proofreading and editing the text as these inconsistencies were noticeable and sometimes distracting. The videos also suffered somewhat from script writing that attempted to focus on a younger audience through certain speech mannerisms. An often and incorrectly used phrase throughout course videos was "spoiler alert". For example, one instructor stated: "In this lesson, we're going to cover PKI, or Public Key Infrastructure. Spoiler alert, this is a critical piece to securing communications on the Internet today." The use of this phrase by all of the instructors became tedious fairly quickly.

Initially video segments were relatively short - three to five minutes, and this helped maintain my interest while keeping concepts clear and focused. However, during the

last two courses, the videos began to be longer, seven to eight minutes and then ten to eleven minutes. Longer videos made it much more difficult to maintain concentration on the topic even while even reading along with the text.

Within each course, Google also provided short video segments of other Google employees who shared their stories about becoming interested in the IT industry. There were also a few videos of students who had completed the IT certificate speaking about their experience. Also interspersed throughout the courses, were interview segments between the same two people who acted out interview scenarios on different topics. These interview segments were included to help learners, especially younger students who may have never been through an interview process before, understand what might be expected during an interview situation regarding an IT support position.

While working on the Courses, it became apparent that, after the video segments had been taped with the corresponding instructor, someone realized the certificate program lacked any information on mobile devices. Google dealt with that by adding short videos interspersed throughout the five courses about IT support of mobile devices. All of these videos and instruction on mobile IT support were supplied by the same instructor who was different from all of the other course instructors.

Course readings mostly consisted of Wikipedia articles on various IT topics such as networking concepts, software, viruses, etc. Occasionally, readings were directly linked to articles in magazines, software companies, or vendors. After reading the information, the learner clicked on a "Completed" box. Nearly all of the readings were simply additional information or a more thorough or technical evaluation of a topic and were not required to be studied thoroughly for course evaluation tools, nor used in testing. There were several links to readings that were no longer functioning. This was one of several issues I found indicating a need for updating content within the certificate program. Additionally, when I started the course, Windows had just released Windows 11 operating system but all of the course segments that addressed Windows topics focused on Windows 10 as the operating system. Apple products were not discussed much due to their proprietary nature so the program focused on Linux, Windows and Google products. There were also discussion forum questions, and, while these were optional, I tried to participate in these forums by addressing the questions and topics thoughtfully.

The hands-on Labs (called "QwikLabs") were some of the most interesting and effective learning tools. Step-by-step instructions were provided, and being able to log into a virtual environment like Active Directory and use its various features and formats was

exceptionally valuable. Labs had time limits, which initially felt stressful, however plenty of time was provided to complete these assignments. During labs, there were different checkpoints set in order to verify that items had been completed successfully. Sometimes the virtual environment did not coordinate exactly with the instructions and there were a few times where I needed to choose or type something slightly different in order to get the correct result. These instances also indicated the need to update lab environments and instruction content. Overall, I found the labs to be the most effective learning tool and felt that the program would benefit from replacing technical readings with additional lab opportunities.

Each of the weekly topics included practice quizzes and a final "graded" quiz or hands-on lab at the end of each week. Answers to assessment questions were not just one correct answer, but often included two or three selections. If all of the correct answers were not chosen, credit would sometimes (but not always) be given on a partial basis. While the passing rate was 80% for all practice and graded quizzes, I set a personal goal of not moving on to the next section until I received 100%. Practice quizzes consisted of only a few questions and always maintained the same questions with each try while also offering unlimited attempts. Final graded quizzes, consisting of seven to thirteen questions, only allowed three attempts within 24 hours. Questions would vary with each attempt. For the most part (with the exception of weeks in Course 2 and 4), I was able to move on with only one or two tries per quiz. All quizzes were open book and learners were encouraged to go back to examine the videos and additional readings for refreshers.

Course Experience

I found the open format of the program to be user friendly. I enjoyed the flexibility of the program as well as the variety of topics and instructors. Since I experience test anxiety, I found the quizzes to be geared to learner success through the ability to retake multiple times even though I did not need to retake tests often. Just having that option helped to reduce my anxiety on final quizzes. Overall, the program appeared designed for the learner to succeed while still requiring effort on the learner's part to understand material and concepts.

The first course on IT Fundamentals was very basic as expected. It emphasized course and certificate flexibility and also emphasized the entry-level nature of the program overall. It also emphasized that the purpose of the curriculum was designed to get learners "job-ready". The information provided in this course felt like a refresher of other

IT courses I had experienced, but I enjoyed feeling like I had a good grasp on the material and information provided.

The second course on Networking proved difficult for me, and I found myself struggling in both interest and understanding of the subject matter. This course focused on the five-layer networking model, and the subject information provided became much more technical. This course was also where I became aware of a minor issue that plagued me throughout the program. Video segments displayed the length in whole minutes - unless the segment was under one minute (a rare occurrence) in which it would display in seconds. However, when a video displayed a length of five minutes, the video might actually be five minutes and 49 seconds. This, in my mind, was a six-minute video. I felt the videos should be rounded up to the next minute if they run past the 30 second mark, or the actual time should be displayed in the course correctly. For many people, this may not be an issue. However, as a very literal person, I found it distracting and irritating.

One short video in the Networking course featured a learner who completed the Google IT Support certificate and was hired by a Nebraska community college for its IT department. I found that somewhat ironic given that community colleges generally have their own IT programs. Overall, I felt that essential knowledge of networking ultimately lies deep within complex mathematical concepts that I will never grasp. However, it helped me to understand just how complex working within network structures can be and how much I respect those who do. The final test in Week Four of this course on Network Services was one of the few times that I was simply unable to move on with a 100% grade. It also became apparent in this second course that the videos and information had been created around 2016. This was one of the first and major indications I had where I realized the material was in need of updating and that Network Technology - particularly cloud based computing - had changed rapidly over the last five or six years.

The third course focused on operating systems which I found much more interesting. Subsequently, I found the material easier to comprehend with more foundational material offered. In the first two weeks, the instructor taught and demonstrated numerous commands within the Microsoft and Linux OS environments. This was a little overwhelming and also somewhat unnecessary since they did not ask for recall or test on environment specifics. It would have been helpful to have additional practice quizzes on commands although the "Qwiklabs" (hands on exercises in a virtual environment) were helpful in working with commands. This course included a large amount of supplemental reading and I felt this type of information would be accessed at

point of need rather than an important part of the course material. The readings felt like filler, and additional labs would have been much more helpful. A final thought about Course 3 was that it might have fit better as Course 2 with the Network course following. Some of the final assessments in this course required you to apply knowledge of the Linux and Microsoft OSs which was very different from the other kinds of questions I had become familiar with. It was a little stressful but ultimately valuable.

Once again, the course felt out of date because of the focus on Microsoft 10.   Google needs to review and update these courses and programs at a minimum three year cycle given the rapid pace of change in technology and software. While this involves expense and commitment, Google will need to update their programs more frequently if their goal is to continue to train industry ready employees. I often found myself comparing the Coursera learning environment and Google curriculum and instruction to what I might gain in a classroom. I felt that a classroom environment would have many more chances to practice commands and perform hands on exercises. I also became aware during this course that taking a course that focused specifically on Microsoft or Linux would ultimately be more valuable than simply touching on issues as this program does. The overall sense was that I needed specific training in certain software and operating systems rather than this program.

For the most part, Google's program was very helpful in giving multiple chances to succeed and in providing virtual environments where participants can apply commands and features within software and programs. Instead of final quizzes, the Week 6 graded assessments for Course 3 were Labs that were different from the step-by-step labs throughout the courses. These labs required you to recall how to conduct certain exercises from all of the weeks and they were probably the most rigorous labs throughout the entire certificate program. These (one for Windows and one for Linux) required you to go back to all of the different modules within the course and remember how work with the commands, and it felt fairly stressful.

By Course 4, I began to dread the graded assessments as my test anxiety ramped up. Having multiple opportunities to take these tests help to provide assurance of success rather than a dread of failure.   Since I also had the personal goal of getting 100% before moving, I was unhappy because I was unsuccessful on Week one of Course 4 (What is System Administration) where, once again, I moved on without achieving my goal of getting 100% on the final quiz. During some of the testing for week one, I simply disagreed with what the correct answers were. For instance, one of the questions had to do with troubleshooting and methodology. Here, trial and error was considered a legitimate method of troubleshooting. When I did not choose that response, the answer

was marked as incorrect. I disagree that trial and error is an effective method of troubleshooting system problems and, in a classroom situation, I would have had access to a professional to discuss why or why not I was incorrect. At least I would have been able to make a case for my opinion. With automatic grading, there was no discussion available.

The fifth and last course (Course 5) on IT Security was second only to Networking in difficulty for me. I thought I would enjoy the subjects associated with this course, however, the videos became very long (often ten minutes at a time) which made it difficult for me to maintain attention. The fourth week in Course 5 revisited the subject of networks and all that is involved in securing networks. Since networks are, in general, not intuitive to me, this was a difficult and long week. The final assessment involved scenarios where I had to write out what I would do with some security issues within a particular environment. I am not sure how these were automatically graded but I did my best in working through the material to answer the problems thoroughly.

After I completed all five courses, I experienced some difficulty in actually seeing all five completed in my profile but was finally able to see my progress. I also had difficulty printing the certificate of completion. I continued to receive a "Coursera Down for Maintenance" message. I had to contact Coursera to get them to give me instructions on printing my certificate. This involved supplying a form of identification which was not clearly stated in the initial sign-up.

After completing the certificate program, and as I began to write this report I discovered that on October 29, 2021, Google announced that all of the Google career certificates would be freely available to all two-year colleges and technical high schools. However, Google noted that Coursera still charged the $39 per month which could be covered by the institution. While I am not sure how a college participates in using these programs, Google also announced that the certificates were "recommended by the American Council on Education to be recognized as college credit for up to 12 credits, which is the equivalent of four college courses at the bachelor's degree level" While this is a far cry from Google's original claim of their certificates being equivalent to a bachelor's degree, it indicates that Google has begun to work within the traditional education industry to be a more of a partner rather than simply a competitor. The announcement also stated that Google also provided individual scholarships although there were no specifics given.

In conclusion, I found the program to be flexible and geared toward success which I value as a student who experiences test anxiety and who values the ability to log in at my convenience. The program was not overly expensive, especially since I pushed to

complete it as quickly and as cost efficient as I could.   I saved a considerable amount of money in this program compared to enrolling in a traditional program, and the program was all online so I could access it anywhere, any time. I found the videos to be provided by a refreshingly diverse set of instructors with lessons interspersed with personal experience videos. However, there were moments where I felt the absence of a professional or iin-person instructor acutely. Those times when I questioned the legitimacy of a quiz answer, more hands-on activities with software, additional clarification of technical terms or software are all examples of how in-person instructors can enhance a learning environment. It took focus and determination to keep working steadily on the Google program, and it requires a discipline that not all students may find. Many students will still benefit more from a classroom environment or at least having direct access to an instructor rather than the Google Coursera environment. But I also felt this type of environment may be helpful for those learners who do not feel they work well in a more traditional environment. This kind of program has a place - the trick will be working as partners and not competitors.

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