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MATC Final Report 2010

Firsts

Sprint has recently been airing a commercial advertising the new HTC Evo 4G cell phone. The commercial begins with a primitive, stone wheel rolling across a desert wasteland until it collides with a bicycle. The bicycle cumbersomely wobbles into a steam powered locomotive standing on end which land lands with a thunderous boom. The giant locomotive's landing begins a sequence of inventions falling over like dominos. The first to tumble after the locomotive is the phonograph; then the microscope, followed by the typewriter, light bulb, telephone, camera, car, television, airplane, and then the Saturn V rocket. The monstrous Saturn V leisurely tips sending a wave of computer chips, calculators, cassette tapes, and cell phones into motion until the new HTC Evo 4G is finally reached. The Sprint commercial illustrates how technology is always changing and improving, but at the same time new technology is always built on past technology.

Developing a career in civil engineering is similar to the Sprint commercial in many aspects. Upon graduation from high school young adults are urged to pursue their dreams and seek a career. Like the stone wheel in the beginning of Sprint commercial, most young college students have a very primitive and basic idea of what kind of work they would want to do as a career. Their career selection is made from interests, hobbies, talking with family and friends, and limited experiences.

The steam locomotive from the Sprint commercial symbolizes the first year of college. This is a critical year in terms of career selection, and many finalize their

career paths here. In addition to interests, hobbies, and continued conversations with friends and family, students now have assistance in career selection from the university in the forms of introductory courses and advice from professors. The following flood of inventions (phonograph through airplane) from the commercial represent the ensuing years of college. The course workload increases and becomes more technical. Students are introduced to labs and the experience of group projects and the importance of working as a team to complete tasks. The airplane in the Sprint commercial represents the state of mind of a junior in college. At this time students are looking towards graduation and are ready to fly into the workforce. Many students do successfully take off and begin reputable, civil engineering careers, but many students ground their civil engineering plans and begin careers in other fields. For those who do begin civil engineering careers this way, the process can be a laboriously, slow process of building up contacts, emails, phone calls and interviews.

The alert reader will notice that the Sprint commercial did not end with the invention of the airplane. Just as the invention of the airplane was a significant step for travel, graduation from college is a significant step in developing a career, but achieving a diploma does represent the extent of what a student can do to begin a career. MATC parallels the Saturn V rocket in the Sprint commercial. MATC creates a path by which students can experience career exploration otherwise difficult to attain prior to graduation. The internship this summer with MATC at Iteris was more than just 40 hours a week for 13 weeks, just like the Saturn V is more than just a rocket. It is a vessel to exploration. This summer I explored the realm of a private consulting in the traffic engineering field. The adventure began with a voyage to Kansas City, MO. This

trip gave me insight into how video cameras and sensors are applied in the field to provide real time information to public agencies monitoring traffic flow. Iteris assists public agencies (such as Missouri Department of Transportation, Nebraska Department of Roads, and City of Lincoln Planning) in improving the safety and efficiency of roadways. The primary role of interns at Iteris is to assist the Professional Engineers with tasks. Much of the summer was spent out in the field collecting data in the form of counting cars (conducting traffic counts). Once collected, the data must be sorted and molded in a form that is useful. This usually involved the creation of diagrams and spreadsheets that display the busiest hour of traffic (Peak Hour) and the flow of traffic (through an intersection or around an area of interest). These tasks relied heavily upon Microsoft Excel, Word, Visio (drawing program), Microstation (Computer Aided Drafting Program), and Petra Pro (traffic counting software). The growing role of technology in traffic engineering is very evident. Civil Engineers today must not confine their studies to the civil engineering degree alone to succeed in the consulting workplace. They must develop their technical and communication skills.

The principles of traffic engineering are relatively the same as they were 50 years ago and this is the material that is taught in the universities. However, traffic engineering practices (for example: use of computers, cameras, sensors) have changed drastically and the majority of these are only taught in the workplace. Civil engineers must realize that college will not fully prepare them for the workplace much like flying an airplane cannot fully prepare you to land on the moon. Job experience/career related internship is rapidly becoming a resume necessity to even be eligible for employment in

many fields including civil engineering. MATC provides students the opportunity to gain this experience.

Communication skills are as equally important as technical skills in the consulting workforce. Communication is the tool by which knowledge is transferred. The importance of good communication is emphasized every day (of my internship). For example, clients (of engineering firms) must be able to understand the services provided in a report, such as a Traffic Impact Study report (a report that details how traffic is affected by a development such as building a shopping center). Good communication is required to get the most out of work experience. You cannot maximize your learning of a trade/skill/task if you do not ask questions. Good communication is also required when explaining to the Police Officer why you have parked illegally on the curb to count cars (true story).

The technical and communication skills learned through work experience parallel the computer chips, calculators and cell phones in the Sprint commercial. These represent small, but frequent experiences that gradually improve and sharpen a civil engineer's technical and communication skills. The final product after much refinement and experience is a well-balanced civil engineer who is ready for the workforce. It doesn't happen overnight. The civil engineering career is dreamed of at the end of high school; is solidified in the early years of college through education; is refined through work experience/internships; and is achieved upon graduation and enrollment in the workforce. It may seem absurd to suggest that the stone wheel, steam locomotive, airplane, Saturn V rocket, computer chips, and calculators all had a role in the development of the HTC Evo 4G cell phone, but technology builds on itself. It starts

small then grows. Initial growth is small, but subsequent growth is larger. It is, however, not absurd to suggest that MATC has played a role in developing me as better civil engineer. Participating in MATC has been an invaluable experience, and I would like to thank the staff at MATC and Iteris for giving me this amazing opportunity.

To View the Commercial Referenced, copy this weblink into address bar:

http://www.youtube.com/watch?v=HdLtWVy1DQI&feature=player_embedded[/url

Or on the YouTube website type in: Sprint – HTC Evo 4G Firsts