Cumulative TTU GK-12 Journal Entries

Installment 1: June 2010

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Contents

My cumulative GK-12 Journal Entries for June are included herein. All entries are grouped into PDF files, one file each month. Any additional materials (audio, images, video, etc) are accessible from my GK-12 homepage. Access the webpage at:

http://netra.math.ttu.edu/staff_pages/ron_anderson/anderson_course_home.html

You may need login credentials to access some content.

Organization

All entries are organized chronologically with the most recent entry first. The cumulative PDF will contain all entries for a particular month. When a month is in progress, each new entry is concatenated to the main PDF until all entries are included. Once the PDF is complete, it will be titled “Cumulative” and remain on the website for download.

Each entry has a title below the date. This title will describe the contents of the entry. If the entry addresses a weekly question or prompt, it will begin with “Week X:”.

June 29, 2010

Progress Report: Pre-Institute

There is not much to report today. The class I am taking this summer has a final on the 2nd, so I am very busy preparing for that. However, a few things of note:

1) I have spent some time this week studying "Hot Potatoes". This is a Java program that allows the development of quizzes that work on-line. The program is free, provided the developed quizzes are public. Mr. Ryan pointed out the program's existence last year while we were discussing development of an iPad application. If we decide to implement Hot Potatoes, it will save me a LOT of Java coding. I am a big fan of that savings, to say the least. While I like the program, I have a few reservations. I will discuss those later once I have a chance to work with it some more. I also need to know if I will be working at Coronado this year. That is still up in the air.
2) It is my intention to get everyone together for a meeting sometime in late July or early August to discuss plans for the year. Graduate students in my cohort, teachers in the group, and a few GK-12 staff will be invited. The basic idea will be to discuss ideas for the first few weeks of class and go over curricula and goals. It should also be a good chance to get to know each other as well, particularly if I am not at Coronado.
3) I have been thinking about CScope, the new curriculum that will be used this year at LISD. From what I hear, it is going to be a really fast-paced and inflexible year. While I do not have all of the details about it – Mr. Baldwin is going to bring a copy of it to me during the institute – it seems organization will be paramount this year in GK-12. This goes for me as well as all others involved.

Once the institute in underway and I have a better idea of my assignment, I will be able to do more in regards to planning my year. The ideas are flowing now though, and that is very good. After being in the program for one year, I feel I can accomplish much more this year than last. We will see how things work out.

June 25, 2010

Week 3: Dr. Baker's Comments

I feel that Dr. Baker's comments deserve a few paragraphs of reflection from me. They really are good ones.

Drilling was not a major task in my younger days. I know we did some, but it was not as rigorous as my parents experienced during their school years. To be honest, I have a horrible time remembering anything from my K-8 years. I wonder why… Anyway, I can attest that doing math in your head is much easier if you know the tables by heart. This was a problem for me until later in school. To this day, I don't understand why many schools do not make students drill this material. It is so important to know the tables if you want to be "faster" and have more "intuition" into math problems. Of course, it extends well beyond the classroom. Daily life often involves computations.

Definitely, drilling needs to be more prominent in classrooms. Without it, students are at a disadvantage when they leave school. Few go back to memorize the tables later in life, even though they can. We need to instill it in their minds earlier in life so it is at their disposal. Aside from drilling, science and math really need to be brought to a level comparable to reading and writing. As Dr. Baker pointed out, if the subjects are pushed aside, students get the impression that science and math are secondary in life.

When I was in K-6, we studied science subjects in depth, so I am not the product of a system that barely touches science until late middle school. However, seeing that Texas is going this way scares me given its influence on textbook companies. Science and math need to be taught to students starting in the early grades. I'll bet we would have more scientists and mathematicians if this were done since younger students are very impressionable. I remember presentations at my elementary school by meteorologists and a few other "scientists" that really caught my interest. It is a shame that many students don't get this exposure to science.

The last note is about standardized tests and "teaching to the test." I have a real hatred for this. It ranks as one of my biggest "pet peeves" in education. To me, it is the worst aspect of our public education system in this country. I will no doubt complain about it in greater detail later (perhaps right before TAKS), but for now I will only say this: "Teaching an exam does not teach creativity." Problem-solving goes far beyond a standardized test. While it is OK to "test" students to see if they are learning material, we have taken assessments to a ridiculous extreme in this country. We wonder why our students consistently underperform in comparison to other nations and then decide, "we need to push harder and test more to make sure they know it!" When so much of your academic time is spent taking tests and listening to strategies on how to pass them, that leaves much less time to focus on what really matters, APPLYING WHAT YOU KNOW TO NEW PROBLEMS THAT DO NOT HAVE COOKIE-CUTTER ANSWERS. This is indeed a topic for a future rant.

June 24, 2010

Some Plans and Considerations

Distance or Traditonal?

This year, I have some big plans. As usual, they will need trimming to size over the course of this year. What I do will obviously depend on how things go during the institute. At this point, I don't know if I will be assigned to the distance group or one of the "traditional" quartets. I am hoping for assignment to distance, but as long as I am at least returned to Coronado in lieu of distance, I will be content.

There are benefits to both assignments. If I join distance, I will be able to exercise some of my ideas in that venue. (I will elaborate on my ideas for distance later, assuming I am placed in that cohort.) My interest in technology is deeply tied to that way of communicating with students. I think I would much prefer it to working with students in person. Distance is also something entirely new to me, so I am interested in trying it.

On the other hand, returning to Coronado is the "old feeling." I know the teachers who will be in the group this year and feel that I can easily work with them. Mr. Ryan is very technology in education oriented – a perfect fit for me. The only drawback is he is more "Apple and profit" than yours truly. While it bugs me a little, I still feel I can work well with him again this year. Differences always exist, after all. Mrs. Schunke is very interested in engineering, which will be my new home department this year. So, I feel I can pitch some useful ideas to her for the classes and "Robotics Team" she is planning. As for Mr. Baldwin, I enjoyed working with him very much last year. He is very busy, but highly flexible and tries to work with fellows in a manner that fits their schedules.

Some Tidbits

Over the course of the year, I will write my ideas for how to pass knowledge on to students and improve integration in STEM fields. While there are many things I can mention now, I will only include a few. There will be plenty of time later for the others.

1) I will be posting modules and activities I develop this year online. This will make them easily accessible to others in and out of the GK-12 program at TTU. It will also be valuable if I am assigned to the distance group. Except for a select few, there will be no protection… the information will be freely accessible to all. Hopefully they will find their way to the TTU GK-12 website as well.
2) At the very beginning of the year, our cohort will need to have students sign forms allowing photos to be taken of our activities (distance or otherwise.) This was a major problem at Coronado last year. I don't intend this mistake to be repeated this year. These photos and videos will be posted on the website as well, again accessible only via login. This should make reports, presentations, etc that are done by me and other members in the GK-12 program easier to build.

3) My journal entries will also be on the same website. These, however, will require a passcode and credentials to access. Some of that information is not meant for public consumption, after all.
4) IF I AM NOT IN DISTANCE: I expect to use LearnStar extensively this year. Assuming I am returned to Coronado, Academic Decathlon will really benefit from steady use of the system in preparation for competition. These LearnStar lessons (for Algebra, Decathlon, Chemistry, etc) will also be posted to the web for public consumption.
5) DISTANCE OR CORONADO: Geometer's Sketchpad has been one of my major focuses last year, and should continue so this year. It is a great way to visualize mathematics concepts in geometry, algebra, calculus, etc. It is also useful for science, as I plan to demonstrate this year. Sketches and any activities will also be placed online for public consumption.
6) IF I AM ASSIGNED TO DISTANCE: I will integrate Twitter, YouTube, (Facebook?) and other web technologies to better reach students. Now that I am into constructing an LGC network, I have much more to share with students in the classroom. I have been thinking a lot about how to do this, and will write it up should I find myself in the distance cohort.
7) In order to better document what I am doing in journal form (and save myself a ton of time by avoiding typing) I will begin making journal entries in audio form. It is much faster, honest, and easier than what I am doing right now. Quoting me will be harder for the consumer, but my time this year will again be at a premium. This will be easier for me in the long run. I will start this sometime in August.

I will share more later on, as well as begin throwing ideas around regarding modules and projects. There is still time before the Summer Institute to plan, and even more before classes start at K-12 institutions.

June 23, 2010

Week 3: 10,000 Hours

Simply put, I am very suspicious about applying a number to such an item as expertise, at least in a creative, scientific field. Perhaps it is safe in situations like strategy (military, games), tasks like piloting an aircraft and driving a car, and careers such as dentistry, surgery, etc. Indeed, the more training and experience, the better (to an extent, anyway. There are exceptions to everything.)

In science, I know experience is important, but it can also be a drawback. Some people become more set in their ways and steadfast to what they learned/found earlier in life. This can make them less receptive to new ideas as well as less innovative. Notice, I am not saying this is only brought on by age, nor am I saying that all "older" scientists and researchers are thus handicapped. Indeed, some are and others are not. It is much an individual thing.

I will agree that it takes many years of experience and trial to become an "expert" in a field, barring the occasional "genius". The case of genius is probably describable by means of "aptitude," referred to in the book. I have only met one person that I feel fits into that category. Considering this, I am not convinced that the "10,000 hour rule" is a prerequisite for stellar success in a field. For many it takes that or longer, but for a select few time is not much an issue.

In closing, I need to buy a copy of "Outliers" soon. I have yet to purchase it, but from the questions this week, the book appears to be a great read. When I get a copy of it, I will comment further on the items I find most intriguing.

June 20, 2010

Observation: Apathy

I touched on apathy in my last entry. However, I feel it necessary to revisit it briefly.

I am currently enrolled in an undergraduate Electrical Engineering course (for leveling purposes). It is not a very hard course. However, it seems to me that many students in the class are having trouble with the material since they do not study to the extent needed. I understand that everyone has things that are very hard for them. I am no exception, however for engineering students, it is surprising that the basic concepts in ECE 3302 are such a burden for some of them. I have overheard several of them stating that they don't really understand it and they don't study.

My questions: 1) Does not understanding yield not studying for some of them? Probably. 2) Does their lack of understanding have more to do with not fighting with the concepts and procedures until they "get it?" This is probably the case for some. I am by no means a genius. Like many students, I have difficulties with concepts. However, I usually fight tenaciously until I understand what is going on. This seems to be a lacking quality in some students.

Many times, we wonder how to engage students in the class. It is a challenge. For some students, not understanding what is going on is a turnoff. They do not want to undergo the challenges needed in order to succeed. It either comes to them immediately, or they don't care (or lose hope and desire.) I have seen this during my first year at Coronado in the GK-12 program. Several algebra I students demonstrated this behavior. For other students, the challenge is received and taken on. They fight their way through the material and spend the time needed to master it. The latter group teachers seldom need to worry about. So, how do we address this "challenge" issue? Better yet, how do we address apathy in general?

Connections are one way. The GK-12 program seeks to provide those for students and teachers alike. However, what else can be done? I feel parents are a major tool that is needed (and all too often missing) from the box. Many children do not receive encouragement and discipline from their parents throughout their younger years. This undoubtedly leads to these issues in at least a small percentage of our students. While it is frustrating to not understand what is going on, students need to be encouraged to charge on and fight. Seldom in life do the rewards come easily. Teachers can encourage students, but parents have the biggest part to play in this aspect of the game.

Undoubtedly, complete apathy is much harder to deal with, but again I feel the biggest problems there have to do with parents not being involved enough with their children in the education and growth process. In short, while teachers are often put to the fire about their students not succeeding, parents need to be burned even more. It is not the teacher's job to be a parent. Teachers provide the opportunities to learn and provide some encouragement. Parents need to discipline their children so they take the opportunities seriously.

June 18, 2010

Week 2: Four day school week

About the Avalanche-Journal article about the four-day school week: what are they thinking?! To put my opinion into one sentence: "This is a horrible idea." Of course, I would like to just leave it at that and move on, but some discussion is at least needed.

I remember the discussions a while back about scuttling the "summer vacation" tradition in favor of year-round school. In that model, students would have essentially the same vacation time (perhaps shortened by 50 days or so) but would take the time in smaller increments throughout the year. In essence, shorter but more frequent vacations. I like that idea FAR MORE.

If the four day week were instituted as a way to extend vacation time, and summer vacation were scrapped, then I could possibly support this idea. Otherwise, I fail to see how it would do anything but make the United States less-competitive in the global arena.

If I were forced with threat to suggest an organization, this would be it:

1) Scrapping Summer Vacation I support this idea whole-heartedly because people learn far more in spaced intervals than they learn by turning off their brains for several months each year. I see this as being a real boon to student learning, but I doubt it would fly with teachers very much. Teachers love to have summers off… it is one of the perks of the job. Some parents would also dislike it since it interferes with family vacations. A compromise would be to shorten it to a month.
2) About 240 instructional days yearly Right now, we have about 180 instructional days in an academic year here in the US. Material could (and needs to be) covered in a more thorough manner than it is now. Part of the solution is to have more days to cover material. Covering less or moving faster at the expense of a large percentage of students is simply unacceptable. Again, teachers probably would not like this idea since it adds to their already strenuous workload. I am aware that it asks more of them, and remuneration needs to be appropriate.
3) Stiffer Penalties for Truancy No explanation needed here. Students need to be in school…
4) Parental involvement Unfortunately, I can't suggest forcing parents to be involved in their child's education. No one can "force" such compliance. However, the support for home schooling and tutoring needs to be increased substantially. I feel that one of the reasons for our education dilemma in this country has to do with apathy among students, parents, and even some teachers. If the value of education and understanding were a cultural artifact in the United States, then our students would perform far better than they do now. I argue that in certain countries, like Japan, this "cultural" aspect is much stronger than in the USA.
5) Unified Curriculum Every school in the United States should be operating on the same basic curriculum. While I understand the desire to be "unique", I feel that lack of organization hurts students, especially when they move from one region to another. This is NOT an uncommon thing in this society. Also, a unified curriculum helps soothe the issues with weak education and opportunities in certain areas of the country.

Of course, these suggestions suffer from the same problems that plague other comments in this area. How do we do it? It is really the best idea? I have no answers to either of these. However, I feel that making smoke about these issues is useless and counter-productive so long as no one acts on ideas.

June 15, 2010

Week 2: Research and Integration of Math/Technology/Science

The major question posed this week involved integration of STEM in my research. Since my work is in the field of Neuroscience, STEM is all over. Neuroscience is often said to be one of the most interdisciplinary fields in science, and rightly so. In my research work I use concepts from computer science, math, physics, biology, and physiology to study the behavior of large networks of neurons in the brain. There are few other subjects that can bring seemingly disparate fields together for a common purpose like neuroscience.

This is my second year in the GK-12 program. I can attest to the grant's ability to expand the horizons of graduate researchers (and teachers) involved in the program. I saw it and experienced it first-hand last year. I expect the same will continue this year as well. Prior to being in this program, I would have to admit that I did not seek out views and suggestions from other graduate students when it came to my work. After being in GK-12 for a year, that attitude has changed significantly. Part of the reason for this has been the grant's ability to bring graduate students from various STEM areas together. While K-12 education is a major focus of the group, we can't help but be interested in what research is being conducted and providing our "two cents worth" regarding applications, procedures, etc. Hence, as participants, we come out of the program seeing the very connections among our disciplines that we are "hired" to point out to our high school classes.

Despite the value of the grant, I do have some suggestions on how things may be streamlined and improved. I will touch on these over the course of the year. As things progress, there should be plenty of opportunities to draw connections between my experiences and furtherance of the GK-12 mission at TTU.