

# Cumulative TTU GK-12 Journal Entries

## Installment 2: July 2010

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Coronado Cohort

## 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](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:".

July 30, 2010

Progress Report: Starbucks Meeting (Coronado)

It was fortunate that we were able to meet a while back to discuss ideas for modules and activities surrounding the latest technology, including the iPad. Nearly everyone on the invite list came, and we had a spirited discussion. I will briefly mention some things here, but I sent an email a while back with more information so elaboration is not really needed.

Some of the key things we need to do over the next month or two are: 1) come up with a list of activities and/or methods for deployment on the iPad, assuming we can hire a programmer to do the dirty Objective C work; 2) further our ideas on modules for Coronado (not necessarily requiring the iPad); and 3) get our schedules together for Fall.

Over the next few weeks, everyone will need to visit the school to get a feel for the classrooms, what technology and tools are available, and be sure the background checks are completed. I did my background check a while back, so unless the district does something silly, all should be well on my end.

For posterity, here is the summary email I sent at the conclusion of the meeting:

Hi all:

I wanted to point out a few things in writing that happened at our meeting.

Kathy and Haley: 1) Contact Dr. Casadonte and see if you can "borrow" an iPad for a week or so. This will let you get a feel for them. Of course, you don't have to, but it probably would be a good idea. 2) Let Dr. Casadonte know if your background checks do not go through. I can't remember if you said they went over well or not. 3) Also, if you want a CD with the Academic Decathlon stuff, let me know. I can copy the files and deliver them to you.

Nancy, Darrell, and Matt: Did Haley and Kathy get a tour of Coronado yet? If not, we may want to get that done so everything goes smoothly during the first few days.

Dr. Casadonte: After you left, I fielded an idea that I had regarding merging my GENESIS work with neurons, math, and science. My idea is to look at "synaptic weights", how they are modeled, and tie them into addiction. So, in short, the topic is Addiction and the Brain. I will not be very specific here, since I have yet to write up the idea in any form that is deliverable to students. However, the math is manageable (algebra I stuff), the topic extremely relevant to students, and the merger with science is great. Most in the group seemed to think it was a decent idea, so I will investigate further. Stay tuned for more details.

All: It was decided that we should each consider possible iPad application ideas, just in case we succeed in having one coded. We will need a firm idea of what our goals are and what features should be

available. Please think about potential ideas that integrate science, engineering, and math and forward them to everyone so we can brainstorm. I will keep a record of any ideas that come through. Don't be shy with ideas. Vague or specific, they all could help.

Let me know if you have any comments or feedback. I feel our meeting was very productive, with many ideas put on the table. It seems this year will be great for our cohort as a whole. Have a wonderful rest of the summer!

Best,

July 29, 2010

Week 8: Template

In looking at the template, I feel that it provides a good service in terms of preparing modules for use in the classroom as well as on the web. I look at it kind of like a grading rubric; it will be very helpful in designing the modules and activities and solidifying what the goals are prior to entering the classroom to deploy. Although we made the best of efforts for this last year, John and I occasionally were not sure how to best use our resources and what to focus on in our activities. He was less challenged in this area, however, seeing he was a second-year fellow at the time. I am in his shoes now.

Honestly, I don't see much of anything to add or remove from the template. I feel that it serves its purpose well for the development and utilization of modules and activities. If everyone follows the rubric, then I feel our work will be much more accessible to those outside of the program. Without the benefit of contact with the designers, teachers would probably find it difficult to focus some of our ideas and may even fail to see what the goals and valuables are for the projects.

As for any "eureka" moments in STEM, I can't say any have hit me this week, or last week for that matter. I am still working on the usual issues in the CBCIS and trying to get ready for the semester ahead. It has been one of those "mundane" weeks. Hopefully things turn more interesting as the school year approaches.

July 24, 2010

Progress Report: Furthering Ideas (GK-12 Site)

Well, I can honestly say now that the code for the GK-12 site is done. I will only need to add things to it as time goes on. Right now, there is no "Student" page, but I may add one later on as the year progresses. Should I do so, there will be no requirement for them to "log in." I am trying to save myself time by cutting down on coding as much as possible. I will, I suspect, push the site to the CBCIS server in the next week. I also need to iron out a few things in terms of passcodes and usernames, but that should not be a problem for me. It just involves a few minor configuration modifications to the server.

There is an RSS feed on the home page, but I will probably keep it off until the academic year starts. Basically, the reason for including an RSS feed is so people know when I post new content to the site. For those who use an RSS news aggregator, adding my feed to their system will allow them to see and, in most cases, access downloads without visiting the site directly or searching for new content. It may be a waste of time, but it will be there nonetheless.

Over the next few weeks, I will be adding some of the older activities that I developed last year since I will undoubtedly use them again with students this year. LearnStar and Geometer's SketchPad activities and demonstrations are the most likely candidates for addition. I am debating whether to post our previous module from last year. I really don't have a lot of information about "how" to deploy it other than taking some iPads and using a graph-sketching tool to answer the posed questions about linear and quadratic equations. Regardless, I may post it eventually.

July 18, 2010

Progress Report: Furthering Ideas (Twitter)

I am further considering the integration of Twitter, Facebook, YouTube, and my GK-12 site to see how I might come up with something useful for the program this year. I will take this space to briefly describe some ideas for Twitter. I wrote this earlier, but not with as much detail as to implementation. Later on during the

Like John Como did last year, I would like to use Twitter to deliver content to the students. This “content” will be posts on research progress, activities at the university that I am involved with, and prompts for them to consider. These will, I hope, serve as an avenue for discussion in class as well as give the students a window into life as a graduate researcher. Since Twitter only allows short posts, these will be simple and to the point. This is good for your truly and the students, as time is usually of the essence.

There is very little to describe about this other than how I plan to implement it. Facebook and Twitter are both “social networking” sites, and as such I am somewhat concerned about students being permitted to access the sites and the school district giving their blessing with regard to our plans. Anyway, there are a few ways to share my “tweets”. There are even ways to do so without using Twitter, although I really wish to use Twitter for this purpose.

In all cases, teachers will have the option of telling their students about my account and grading as they see fit. If grading is involved, I would suspect nothing more than an occasional quiz over what was posted recently. This is largely for student enlightenment and giving teachers some things to consider in the GK-12 arena.

Possibility 1: TWITTER ONLY WITH DIRECT STUDENT INVOLVEMENT

Students will need to set up a Twitter account if they wish to follow me. I will “protect” my tweets, meaning that only people with Twitter accounts that I authorize will be permitted to read my posts. This is as much for my benefit (I don’t want to clean up all of the bot “friends” that follow people to advertise). It benefits the students from the standpoint that only authorized people will be on the page, and as such there is far less concern in terms of privacy.

If this route is taken, I will request that each student in participating classes sign up for a Twitter account and then provide their name and account name to me. I will write those down and check them off one by one as students request to follow me. Once they are online, they will be able to access my posts and see what life is like for a graduate researcher at Texas Tech.

Possibility 2: TWITTER ONLY WITH INDIRECT STUDENT INVOLVEMENT

This would be implemented almost the same as possibility 1 above except the teachers of involved classes would need to obtain a Twitter account and follow me. Then, they can use my posts for class

discussions and observations as they see fit. This is not as good as possibility 1, in my honest opinion. However, it will work very well in terms of getting students involved even if they can't obtain a Twitter account for one reason or another.

#### Possibility 3: LIVEJOURNAL AND RSS

If obtaining an account on Twitter is too much of an issue for students, then an alternative approach is to use LiveJournal, which is a blog/journaling site that permits users to post content for access by anyone on the internet or just "friends". Using this service, I could post my "Tweets" as a blog and then have the students read the posts either on LiveJournal or via RSS. Students would not need a LiveJournal account to be involved with this, however the method is somewhat more cumbersome than methods 1 and 2 above. The other drawback is I would not know who was paying attention to my posts.

Clearly, there are several blogging sites out there, and I could use a different one in place of LiveJournal.

#### Possibility 4: RSS ON MY GK-12 SITE

I could set up an RSS feed on the GK-12 site and post my comments there. Again, students would not need an account to access the posts, but as a result I would not know who was following me. This also defeats my goal of integrating social networking into my work this year, so I am not too keen on this approach. It also is more time-consuming for me since I have to spend more time developing. With LiveJournal or Twitter, I just need to post my comments.



**July 16, 2010**

**Week 5: Hoped GK-12 Outcomes**

Like last year, my hopes for this year are pretty much the same. My goals are to develop activities for students that demonstrate how they can use science and math together to address real world problems. I have a better set of ideas on how to do that this year. Last year was more of a “learn the ropes” time. Now I have the chance to put that experience to work.

I am looking forward to working with everyone in the Coronado Cohort this year. I already know the teachers, so I am sure all will go well on that end. It remains to be seen how I will work with the new fellows, but I don't anticipate any problems. My feelings are that this year will be highly productive for Coronado. I am looking forward to getting in the classroom again.

By the end of this year, I hope to have developed some lessons (including video) on neuroscience and the brain. My focus, I think, will be on addiction and how chemistry and math come into play. I feel that this will be a worthwhile subject for students, however I will need to bring it up to the teachers at our first meeting that I am in the process of scheduling. It looks like the meeting will either be on the 19<sup>th</sup>, 20<sup>th</sup>, or the 21<sup>st</sup>.

Networking and development of resources is another big thing this year. Of course, I did some of that last year, but it never hurts to continue the process. The GK-12 program has given me a wonderful opportunity thus far to work with fellow graduate students, interact with high school students and teachers, as well as expand my research interests. I have every expectation that the same will be true this year.

July 13, 2010

Week 6: Institute Post-Review

This is a not-so-short rehash of my observations on the institute. All of the comments are offered in good faith. Please take them as constructive, not destructive. They are also opinions, obviously. I tried to back them up as best I could without writing a novel.

WHAT I LIKED:

I feel that the amount of breaks was sufficient. At no time did I feel bored or distracted during the discussions. There was ample time to move about and recoup. I also felt that the group assignments this year went smoothly. Hopefully the groups will work well together in the coming months.

The discussions on learning and memory were very good, just like last year. It is important to have some awareness of different learning styles before venturing into a classroom – at least it is if you want to be as effective with students as possible.

In my view, “What is a Module?” was covered much more clearly this time around. Of course, I can’t be too sure on that since I have the benefit of prior experience. Others just entering the program can probably comment more respectfully on that.

I was very glad to see that LISD macho-resource binder gone this time around. Although it was well intended last year, I feel it was more a waste of paper than anything. I only used it a couple of times last year. About all it did in the interim was bow my bookshelf. If there is a strong desire to include it next year, perhaps an electronic version would be more suitable?

WHAT I DISLIKED:

In several instances, I felt that the institute being only 4 days hurt more than it helped. While it did save everyone from sitting for longer periods, it made some sections seem much too rushed. It also lead, in my view, to a few situations where objectives and goals were less than clear. I am aware that scheduling was a major issue this year (and always is with so many people involved), I would suggest a minimum of 5 days for the institute. Otherwise, material should be trimmed from the proceedings to make room.

Before I make the next statement, let me clarify something. If an activity lacks equations or does not involve integrated circuits, I tend to lose interest very rapidly. I am a strange cookie. In any case, I found “doing” a module during the institutes (both years) to be more drudgery than enlightening. Sure, it can illustrate how a module works, but it is only one example. It also costs considerable time during the institute. I suspect a “let me show you what the students do” approach would be more cost-effective during the institute than a “let us do what the students do” approach. Maybe I am wrong and most everyone else feels it is worth the time and effort. I am not alone in this view, however. I will not name the accomplices, but the do exist. I talked with them about it.

Please note that the above is not supposed to be taken as an attack on the presented modules. On the contrary, I liked both very much and feel they are great examples of how to engage students. I just

found the amount of time necessary in executing them during the institute to be large in proportion to the returns. I think examples are better than an example. Can we not provide new participants with the previous modules so they can look them over (the TTU GK-12 website would be great for this)? This would probably answer more questions for the fellows than acting out the best module from the previous year.

#### SUGGESTIONS:

1. Obviously, one of my suggestions is to increase the number of days for the institute or refine content to make things seem smoother. I concede that part of the problem is from my prior experience with the institute. Others may not have perceived the material as rushed. I had more to compare to than they did.

2. During the institute it was mentioned about “resentment” by newcomers in the program when it comes to returning fellows. I agree that this is an issue for some. I never felt intimidated by John; I tried to learn from him. However, if it seems to be an issue for many new fellows, a “mentor” approach may be an option. If accepting returning fellows, one could try pairing them together and populate the other groups with newcomers. The experienced group could serve partly as a traditional GK-12 Cohort, but also as a contact for the other groups. This could lead to bickering amongst the veterans, but there is only one way to find out.

I don't necessarily feel that experienced fellows need to be in each group. The teachers have experience and can assist with the fellows' transitions. Another option would be to ask some of the fellows from prior years to offer their ear occasionally for the new fellows. They could be a source of encouragement and guidance, answering emails occasionally and, perhaps, coming to meetings when asked. It would be very good if one former fellow from each school could be called on. Then each cohort could have one contact with intimate knowledge of the school environment. While some former fellows may be stingy since they are not being paid, I know I would have no problem with it, partly because I doubt such services would be needed frequently.

3. Have some of the materials ready for the fellows and teachers a week or two prior to the institute so they can look over the activities and do some of them prior. This will save time during the institute.

4. Get more sample activities and modules up on the GK-12 site so the work being done in our program is available to prospective participants as well as the K-12 community. At the time of this writing, the website is quite sparse. The design is fine, it just lacks some of the fruits of the last couple years. We don't want visitors to our site thinking we are not productive!

July 10, 2010

Week 4: Rice Patties and Math Tests

These are good points. I have been doing some independent study of the Japanese writing system for a while now and noticed this difference in terms of numbering. I am not 100% sure that it helps Asian students master computations in their heads, but I would be willing to bet it does. This is something that has never made sense to me. Why is English so irregular? While I understand that languages develop over time, it would seem to me that the idiocy inherent in various aspects of our native tongue would have subsided to an extent. I guess English is one of those "Reverse Darwinism" examples. This issue is not inherent only to English, of course.

Anyway, I would not be surprised if the author is correct in his assertions. A more logical naming and processing structure for numbers undoubtedly makes the task easier for the brain. Also, adding 25 and 32 in the head is, to me harder than adding 5, 20 and 2, 30 as pairs. The carry in the higher positions is easier in this case than starting in the 1's position.

What interests me more is what the brain is doing when it processes and learns language. Languages are one of my favorite subjects because of the underlying complexity and subtle variations found in them. The similarities among languages the globe over are another fascination. How does the brain develop and use language? What are the reasons for certain quirks in the various languages? Of course, some of it is just chance. But I doubt it is all just random. There is probably some internal grammar that the human brain uses during learning and formulation of language. (Speaking of fMRI and EEG, I wonder if anyone has done a long-term study of students as they acquire a second language? Probably, but I am not sure. That was just a transient thought.)

To make a long story short, I am sure that there are some associations between performance in math and local structure of language. The English language is far from logical in this area. The units system we still use in the US is another one of those "Reverse Darwinism" items. It is totally illogical in comparison to SI. Perhaps our system was logical when we were using our feet to measure distances, but times have changed. Miles, inches, yards, feet, etc need to be nuked. They are, in my view, part of the problem.

July 9, 2010

Progress Report and a Critical Analysis

I seriously want to beat myself for that presentation I gave today. That was full of so many issues that I could take ten pages attacking it. Despite my anger about it, I have no one to blame for it but yours truly. I will no doubt send an email to everyone apologizing for the lack-luster performance, but let me make a few brief pointers about it and then move on with life. Complaining will get me nowhere. I just need to avoid these things in the future.

1. While avoiding the equations is desirable when presenting to general audience, continued reference to their complications is ill advised. No doubt I sounded disrespectful to the audience. The talk did not need the equations. I should have left it at that and moved on.
2. I developed a PowerPoint talk initially. In hindsight (20/20 as always) I should have stuck with the plan as opposed to winging the talk.
3. Stating from the get-go that I was to “wing” the talk was a massive failure on my part. Saying things of that nature only reinforces a notion among the audience that I was unprepared. That was not the case, but once a presenter damages her/his credibility, the talk is ruined.

I am aware of these pitfalls already. It is hard for me to fathom that I allowed all of them to slip into the talk today. Anyway, let me stop the self-flagellation and turn on the “I feel good” music.

Well, the CD player is broken and I lost my iPod, so I guess the feel good music will have to wait. I really don't feel that wonderful anyway. The GK-12 website is still under development and the CBCIS Lab's website is being a royal pain. I have known for a long time that Internet Explorer deserves relegation to bit heaven, but who could have thought Microsoft was THAT bad at following standards. (For those still wondering, they ARE that bad.) Anyway, I am making progress on both. My research is another matter right now. I have the code for individual LGC cells working, but the network code still needs to be developed. My next big move in research is to get the cellular densities coded so I can set up a real LGC network. That will take some time, but hopefully not a boatload. As soon as I get the CBCIS site posted, life should be much easier for me. At least I won't have to debug HTML/CSS on Internet Explorer anymore.

Network security at TTU has been scanning servers for security compliance and reported issues to me back in late May. I have been trying to fix the Apache server problems, but thus far they do not seem happy with the results. I want to pull my hair out. My job here at TTU is to do research, not make the IT people happy. They have professionals who are familiar with Apache – why don't they send someone else down here to fix the darned thing instead of having me read up on the issues? To say it is a nightmare is an understatement. No one else seems to know how much aggravation I have gone through over the last six months or so dealing with our web server. They probably think it is a walk in the park and I sit on my duff all day eating cotton candy. Work faster Ron! I am going to start charging for this! I love what I do, but I get so frustrated sometimes.

July 5, 2010

Progress Report: Pre-Institute

With Summer I over, I can now turn attention toward developing the tools needed for GK-12 in the fall. I hope to get back to research as well, although my advisor wants the CBCIS website done, so I suspect the next few weeks will be largely web coding. I am currently working on the CBCIS site as well as a simple GK-12 course site for posting content I develop throughout the coming months. It will take a while to complete everything, but I hope to have the basic GK-12 site up and running prior to the institute's end this week. Like usual, something unforeseen will probably hamper my plans. That's life.

Aside from coding the GK-12 site, I am also considering presentation ideas for Friday. I am more nervous of this talk than I was for last year's. Neuroscience is harder for me to bring down several levels when compared to robotics. I still have a few days before the talk on the 9<sup>th</sup>, but can't get too comfortable with the cushion. It will be gone in a flash. I also need to complete writing questions for that talk. Hopefully I get them done tomorrow. It is difficult to develop a talk without them. I am considering many things right now, but noting that is worth formulating in writing now. It seems this week will largely be comments on web coding and the institute. This year, the institute is only four days. While I understand the hostility some people have toward spending a week or more in an institute, I feel that four days will be way too little for what needs to be covered. I look forward to seeing how things turn out. No doubt, I will draw comparisons between last year's experience and this year's. Needless to say, I think things will be a little too crammed this time around.