

To Podcast
or not to Podcast,
That is the
Question!

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How It Came to Be:

I was at the Network of Michigan Educator's annual meeting speaking with the president of that organization when the director of technology for the state of Michigan came up to talk to him. He mentioned meeting with Apple and the possibility of having classrooms create podcasts to be included on the Apple page iTunes University. Without thinking too much about it I volunteered my classroom if he needed a class and offered my card. After mentioning that I taught Chemistry and Physics, I went my way not thinking too much about the chance meeting. Shortly thereafter I was informed that there was grant money available to do a study on using podcasts in the classroom and I immediately applied. The question that needed to be addressed was simply "did podcasts increase student learning in the classroom?"

I first approached answering this question just like I would create a lab. My hypothesis was very straight forward: "Podcasting would improve student scores". Then came the fun part, would this hypothesis prove true? I decided to design a real life experiment using my three chemistry classes. I was able to secure enough grant money to purchase enough iPod Touches to supply for one entire class. So the journey began...

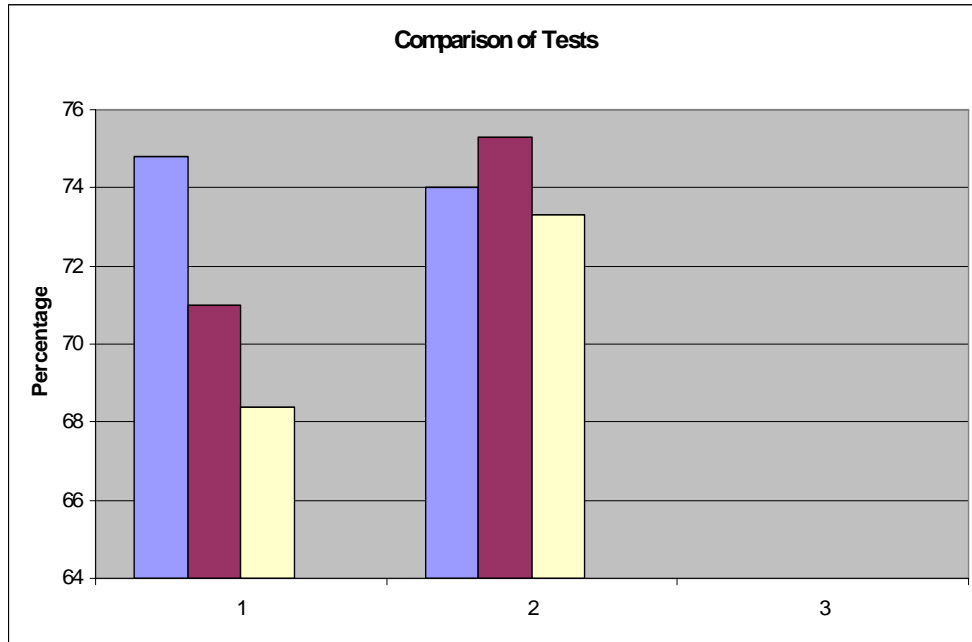
Objective: Create podcasts that will enhance student learning and thus improve student success in the classroom.

Materials: iPod Touch
25 podcasts
A lot of good intentions

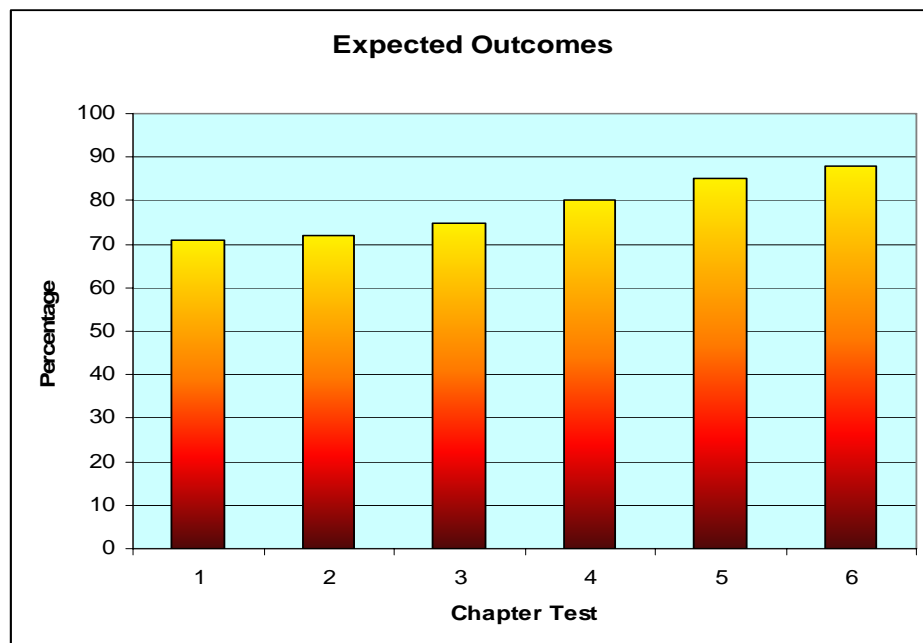
Discussion:

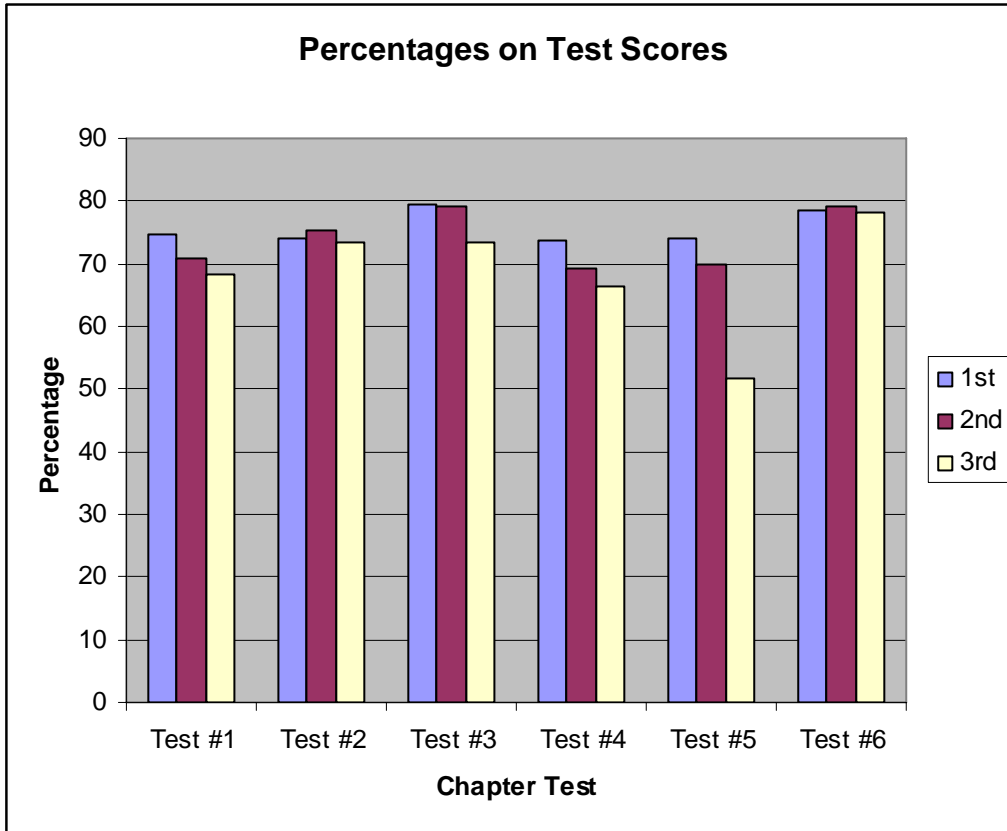
The first thing that I needed to do was to establish a base line for all three classes. I presented the first two chapters of material in the same manner that I have always done without using the iPod touches. The assumption was that with no extra help or changes in delivery, any improvements should correspond with the use of the technology being offered. If the other classes improved because of the difficulty/ease of materials covered the iPod class would/should/I hope post a higher level of achievement.

The following graphs showed me how students performed on their first two chapter tests. No one had received the iPod touches and this was used to establish baseline data for the project. The purple column would eventually receive the iPods.



Anticipatory Expectations for Project:





Here's the dilemma, looking at the graphs, can you tell which class was given the iPod touches.

So To Work:

What should be put in the podcast? How long should a podcast be? Should it be video only? PowerPoints? Audio? All of the Above?

As the touch is a minicomputer I had to make sure that all school policies for technology use were followed. Also the touches don't come cheap, so a policy needed to be put in place to cover lost or damaged equipment. A parental permission slip was created to let the parents know what we were doing, why only one class had the iPod's, and how the information was going to be used. I informed students that at various times I would be inspecting their iPod's to make sure there wasn't inappropriate material being downloaded (this kept the administration happy).

I also allowed students to use up to 3 MB of memory space for their own personal use. After all, these also store music, can download movies, and can download a bunch of fun games. All work and no play not only makes Johnny a dull boy, but really wouldn't be reasonable. I wanted them to use the touches, so I let them have personal space.

The next dilemma, Apple is the one hosting the iTunes U site and all the material entered into the site, and here at the school we are PC. So I searched for software that would help me in this project and I purchased: Record for All for the audio work, and Wondershare PPT to iPod software.

The first podcast was created, converting a video into a MPEG 4 format so it can be played on the iPod touch. The podcast is sent to MACUL to be placed in the MI Learning Section of iTunes U. I announce the first podcast is ready to be downloaded and to please do so and let me see that you have been successful acquiring the podcast. I am excited, I'm off and running and the project will be all downhill from this point on. All was great until the next day.



One in four of the student's in the class who received the touches did not have internet access at home, so they weren't able to download the podcast. One in three of the remaining students who did have internet access only have dialup. I was informed that it takes a "forever" to download these files and many were kicked off the internet before completing the download. I immediately thought just e-mailing the podcast as an attachment, but with no internet access, they couldn't do this at home.



The other dilemma was the first generation iPod's could only download by syncing with a computer. I had students bring up their touches and connect to a computer I had dedicated for this project's use. When student's brought their touches home and recharged them by connecting to their home computer, the podcast wasn't on that computer so they lost it. And if I synced with my computer at school, they were losing all their music and videos from home. A few students willingly gave up their personal storage space so they could podcasts. I was

impressed (until I found out that they had purchased a touch of their own, so they didn't lose their personal downloads.

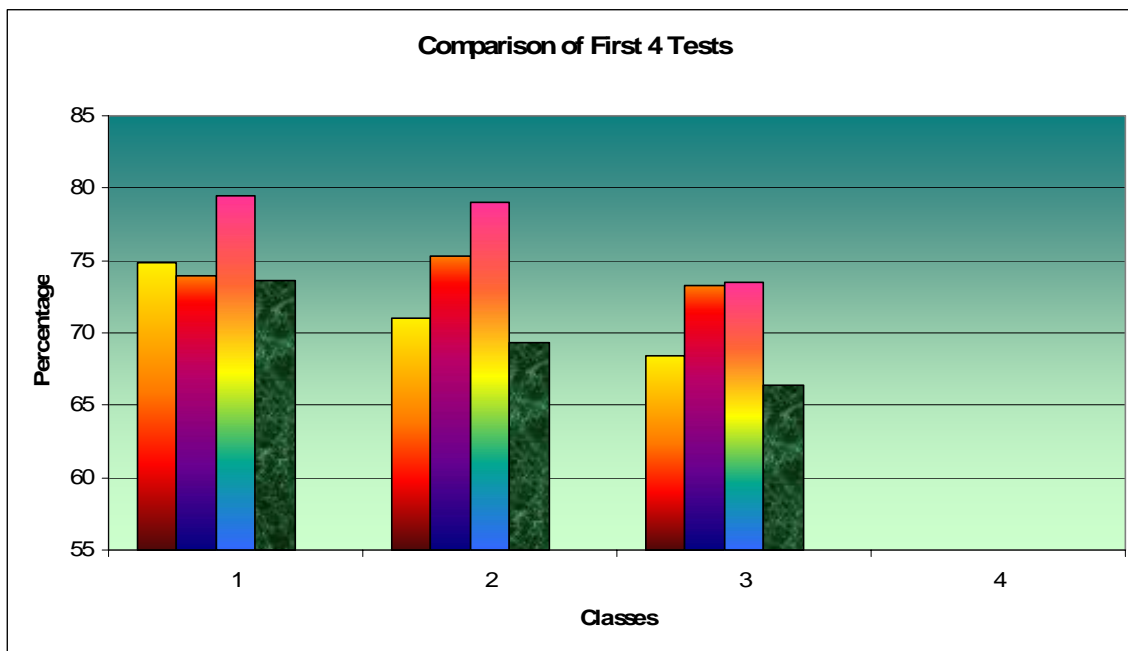
One other dilemma came to the surface after a few more podcasts were created. MACUL was fantastic to work with, offered help, guidance, but it does take time to not only create a podcast you are willing to post but to have them posted on the iTunes U site.

Problems are made to be solved, and this one was not different. I went out and purchased some flash drives and I let students take the flash drives home and download the podcasts from the flash drive. My big concern here is every time one goes home and gets hooked up to a personal computer, the possibility of picking up a virus is very real. So the technology director at the school allowed me to use his MAC notebook and check to make sure each is virus free before downloading the next podcast. Another thing to add to the "to do" list for this project; check for viruses on the flash drives for every one of the twenty five podcasts.

It seems that I finally get all the bugs worked out, student's have the podcast on their touch, and then I find out that they won't play the PowerPoint complete with audio unless they have the latest upgrade from Apple. Unfortunately, this upgrade comes with a \$10.00 fee. Many of the students go ahead and pay for it themselves, and I was able to use some money set aside for "emergencies" and that took care of the rest.

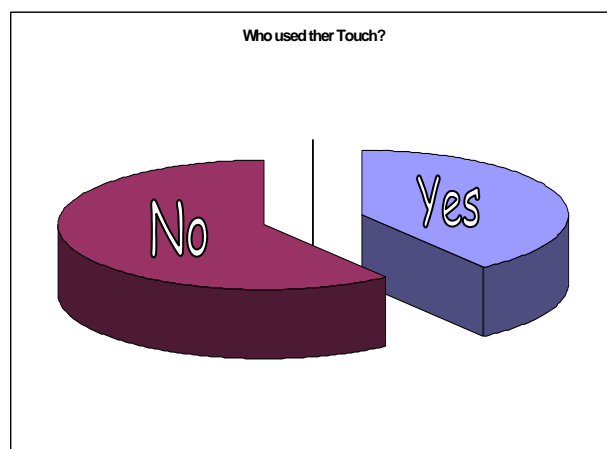
So finally comes the day of the first test. Scores for the class average of the class who were given the iPod's increase by 4% over the last test. Of course looking at the "data" the scores from test two compared to test one (both without the iPods) also increased by 4%.

The third chemistry class showed no change in the percentages without the iPod while the second class posted a 5.5% increase in their overall percentages without the iPod. So the results weren't conclusive yet. But with any tool, there is a learning curve, so I was sure it would improve with the coming of more podcasts for the next test.



So after creating more podcasts, and teaching the next section which traditionally is a challenging chapter for my students as they are introduced to some concepts that are very complex, comes the test. I don't think I've ever graded a test more quickly than this one, my expectations were up. Then the numbers, a 10% drop in test scores for the iPod class. A 6% drop in the first chemistry class and a 4% drop in the other chemistry class. Not the results I was expecting at all.

Trying to be a good scientist I immediately look at my hypothesis and my objectives, but what do I change? The day after the test I asked my students to tell me if they used the podcasts to help them study, and the results were again not what I expected: 40% said that they used the podcasts while 60% said they did not. The next obvious question had to be "why not?" The number one response was that the student's thought that the material was easy so they didn't need the additional help, in fact most didn't feel the need to study even.



The next series of questions went to the 40% who endeared themselves to the teacher and said they used the podcasts. I asked if what I had created was helpful to them. The numbers weren't too bad: 65% said they were helpful, 25% felt they really didn't make any difference and 10% said they did not help at all. In realistic terms 35% of the students didn't like my podcasts or found them not that much help. Those numbers were totally unacceptable, so what to do next.

Taking inspiration from Zig Ziglar who said "If you give enough people what they want, you will in turn get what you want" I figured this wasn't a bad idea so I did the unthinkable, I asked the students what they would like to see in future podcasts and what would they find most helpful.

It is at this point I decided to change the focus of the project just a little and concentrate on those who were actually using the podcasts. I still did all the same things providing the opportunities, but I decided to track those students who used the technology for other than games and music. I also decided that I would attach a survey on each of the tests I gave to make sure that I could identify my new targeted group. The surveys would ask how much they used the podcasts, how helpful they thought they were, what they liked about them, what they did not like about them, and what could be done better.



Upon changing the focus I found that those students who took advantage of the podcasts showed about a 3% increase in overall grades compared to those who did not have access or did not use the podcasts.

Those students in the iPod class but chose not to use them had about the same fluctuations with their grades on the tests as did the students in the classes without access to the podcasts.

I admit that I was expecting to find strong empirical data to support my hypothesis and prove my objectives, and was able to show an increase in student performance by hard quantitative data supporting the use of this technology in the classroom. I do know that there are those in my classes that would auction their brother/sister on eBay for a 3% grade increase (but they would probably try this without the grade increase...).

Quantitative Results of Research:

- 84% of those students who said they used the podcasts on a regular basis showed a 2.9% increase in the percentages they earned on their test grades.
- Looking at students who had the iPods and didn't use them, grouping them into the same category as the classes without the iPods, and there was not a statistical significance in the changes in their test grades. The changes fluctuated all over the spectrum and did not produce any patterns.
- 92% of the students said they used the podcasts throughout their time in chemistry and they were helpful.
- Of those who intermittently used the podcasts, they did not show a net decrease in their scores ever on a test.
- The number of students who said they were using the podcasts went to about 85% Yes and 15% No by the last test.

Being a scientist, I was aware that there is much more to research and an experiment than quantitative measurements. Qualitative observations and measurements have importance as well. It was in this area that I was the most surprised in my findings.

Qualitative Results of Research:



Observation #1:

Upon handing out an iPod touch to every student in the class, I had several students who rarely participated in class, and when they did it was because of a concerted effort on my part, who became engaged in the classroom, asking questions, offering suggestions and ideas and becoming vocal. They went from passive learners to more active learners when they had a level playing field with everyone else, i.e. the iPod.

Observation #2:

Those students who always seem to be absent on a lecture day did not show any appreciable drop in their scores come test day. One student had been sick on every "lecture" day and usually this spells disaster on the test. When grading her test she scored about the same as she did on previous tests. There wasn't a net gain in percentage points, but neither was there a big loss of points that normally occurs with absent students. So I asked her about her study habits for this test. I was a little surprised about her response. She told me that upon downloading the podcasts for this chapter they helped her learn the material. It seems students still learn better when they are taught, and not just left on their own or just copy down material.

I tracked the progress of two other students who also missed lectures on material, and both did well on the assessments over the material. Both said the podcasts really helped them not get behind.

Observation #3:

This observation is about those A students who would probably get an A even if I was a block of wood. They are highly motivated, grade driven, successful students. These students really didn't show a large change in their grades, other than their A average on the test was about 1% higher from using the podcasts. Reading their surveys I noticed a theme, they did not need to spend near as much time studying for their tests when they used the podcasts. They claimed the podcasts were very helpful and the surveys showed almost an hour of time savings when it came to studying (about half the time they would normally spend).



Observation #4:

The class that had the iPods exhibited a bit of a swagger when they interacted with the two classes without them. Upon switching at the trimester, I no longer had a whole class of iPod users, they were intermixed with all three classes. Those students with the tool felt they had an advantage, and their grades often reflected this feeling.



Observation #5:

In chapters where the material was more difficult for the students, the number of students who used the podcasts to help them study increased.

Observation #6

Students who used the podcasts thought they were better prepared for the test, even if their test grades did not reflect their confidence.

Conclusions:

- Podcasting is a lot of initial work for the teacher. If you do not have the time, materials, or patience to begin and finish through, you won't produce quality podcasts.
- For those more inclined to be auditory learners, the podcasts were very helpful. As is well known in all educational circles and especially in the classroom, different students learn best in different ways. Using the iPod touches really helped those students who like to see things over and over. A podcast is forever and can be replayed as often as it takes a student to master the concept.
- For those who consistently used the podcasts as a learning tool, they showed an increase in their test scores. Technology just for the sake of having cool toys is not a goal for the classroom. Technology that helps student achievement is to be embraced and used in the classroom. And while many may think that a 3.9% increase in grades hardly justifies all the work in doing the podcasts, ask those students whose grades went up if they agree!
- You can truly lead a horse to water, but cannot get him to drink! Realizing that this is only a cliché, it certainly holds true. When 15% of the students don't use the iPod touch for anything other than their music and some free games, how do you get them to take advantage of what is being offered? Of the 15% that did not use the iPod touches, only one student actually received a failing grade for chemistry (and this was because of attendance issues). The podcasts were a powerful tool in the educational toolbox, but even then there are still those who pound in nails using a wrench or pair of pliers.

- I would do it all over again if I had the opportunity. Doing the podcasts allowed me to expand myself professionally, to look at what I did in the classroom a little differently, and finally reinforced the fact that asking students what would help them learn is still an educationally sound idea.
- Every student on the final survey said they loved having the iPods in the classroom even the 15% that said they didn't use them for studying chemistry. Many students commented that it was "cool", "a lot of fun" and several other words that only teenagers use to express they like something. Making learning more fun is always worth the effort.



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