

Marty-Jean Bender

WELCOME TO MY WORLD!



Educational Technology Portfolio



Education is a life-long process, made more accessible and personal through the innovations of technology. It is not enough to be just a learner of content any longer. A 21st century learner learns the content through a variety of media using an ever increasing array of tools, many of which need to be self-taught.

Learning how to learn - not just learning what to learn.

My goal is to further broaden educational opportunities within Hawaii through design and implementation of distance education courses - primarily online education - as an instructor or as an educational design consultant.

<http://www2.hawaii.edu/~mjbender/ETEC/>


May 2008

Good evening. I am Marty-Jean Bender and am delighted and honored to have been a part of this first online cohort in the Educational Technology Master's program. I have lived on Maui for almost 25 years and I've been a part of distance education for almost 20 of those years. I was part of Chaminade's post baccalaureate secondary education outreach program and received my teaching certification in 1990. Then in 1993, I finished the TIRM (Telecommunication, Information, & Resource Management) certification from UH Manoa also through distance ed. I've taught middle school, high school, and with this project taught college level, as well as being a school registrar. I currently work for the UH Center on Maui, helping to facilitate Maui residents to get their advanced degrees as offered from the UH campuses through distance education, including this program as well as a variety of others.

As you can see on my portfolio homepage, I believe in further broadening educational opportunities. The more profound learning that has occurred for me during this Master's program is in my ability and willingness to explore the unfamiliar, to add new tools, to self-teach ... to see myself become a 21st century learner. One day I hope to be actively part of online education, either as an instructor or as an educational design consultant.

I believe this ETEC program has prepared me to achieve this goal.






WELCOME TO MY WORLD!



Educational Technology Portfolio

Illustrative Works Created

- click on picture for actual artifact
- click on title for information about the artifact
- click on *HERE* text for designated information

ETEC 686	ETEC 448	ETEC 645	ETEC 661	ETEC 687
				
The Shape of Things to Come <i>(WebQuest final product)</i>	Welcome to My World <i>(Website final product)</i>	DE Orientation (Maui) <i>(WebCT Online Orientation class)</i> Click HERE to self-register.	Voice over Internet (VOIP) <i>(Published podcast mp3 final product)</i> Click HERE for podcast text	DE Orientation (Maui) <i>(Sakai / Lavalima Online Orientation class)</i> Click HERE for self-registration instructions

Goals, Philosophy & Reflections	Program Content	Illustrative Works	Resumé	Culminating Paper
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During the past 18 months I have grown greatly in knowledge and ability in this arena of ‘learning by using technology.’ I hope you’ll visit my e-portfolio and view some of the major works I have created through the guidance of the superb ETEC faculty. This portfolio is the newest portion of the personal Website project I began last year in ETEC 448.

Program Evaluation of Online Foundational Math Courses



Marty-Jean Bender



A Mixed Method Case Study &
Outcome Evaluation of an
Action Research project.

But today, I would like to share my culminating project with you. It is a program evaluation, of an action research project that I undertook in my former job at the Rural Development Project. Let me tell you the story of how this came to be.

In the beginning...

- RDP Grant: EAs fulfilling NCLB requirements and earning their AA



In the beginning, RDP had a Department of Labor grant to help Educational Assistants in the public schools with fulfilling the No Child Left Behind requirements, and for many this meant going back to school to earn their Associate of Arts degree. After a year or so, I noticed that while the EAs were only a class or two from completion, they would stop.

In the beginning...

- 1 class left - Math 100 ... BUT...
it could take 4 semesters (2 years!) to complete,
depending on Compass test placement.

Basic Math → Math 22 → Math 23 → Math 100



In researching further, it came to light that it all revolved around the Math 100 requirement. Statewide, students discover their math placement by taking the Compass test. While Math 100 was the only math class required for graduation, based on their test placement scores, most had between 1 and 3 prerequisite classes to take before they qualified to enter Math 100. That meant it could take up to 2 years to get through the math requirement! So here they were, needing their last required class, and they were looking at 2 or 3 extra math classes.

In the beginning...

- Why did this happen?
 - Math Avoidance (fear & dislike)
 - Scheduling Availability
 - Low Compass Test Placement - 84% at MCC
 - Why do so many need these remedial classes?



And, of course, like students of all ages, they had put off what was most difficult until they either had to face it or quit. Many quit. Why did they quit? For many, it was access. The classes they needed just weren't available. These were adults - working full-time in the schools, so could not travel to a community college during their school day, and there were no night classes, no weekend classes, and no where in the state was there offered any distance education classes for these foundational courses.

And, the plot thickens when I discovered that it wasn't just this specific population of EAs that were placing into these remediation classes. An incredible 84% of MCC's new students place into one of the 3 foundational classes! Clearly this is a much bigger problem than the scope of my project, and truly needs further investigation. The question begging to be answered is WHY do so many need these remedial classes?

- What did they need?

- Flexible location
- Flexible time
- Flexible pace



So what was it that they needed? They needed flexibility regarding where they attended class, when they attended class, and how rapidly they moved through the class. They also needed a safe way to return to a distasteful subject they didn't feel they were good at.

- What did they need?
 - Flexible location
 - Flexible time
 - Flexible pace
- What they got:
 - Math 22 (with Basic Math review)
 - Math 23
 - Online, asynchronous, CAI



Over the course of a year, I created an online Computer-Assisted Instructional class for the foundational classes Math 22 and Math 23 in order to fill this educational need. Fall 2006 MCC offered it as an option for the first time, with myself as the instructor.

- What did they need?
 - Flexible location
 - Flexible time
 - Flexible pace
- What they got:
 - Math 22 (with Basic Math review)
 - Math 23
 - Online, asynchronous, CAI
- What to find out?
 - What worked
 - What DIDN'T work
 - What might/must be changed



At the end of the semester, the students were given an evaluation survey to see how well this pilot worked.

Convenience vs Quality

“Can online courses match traditional face-to-face (F2F) courses in academic quality and rigor? Can online courses achieve the same learning objectives as F2F courses? Not only is the answer to these questions a resounding “yes,” but there are many ways that online courses may actually surpass traditional F2F classes in quality and rigor.”

(Kassop, 2003, p.1)

While it was clear an online asynchronous class can provide the flexibility desired by these non-traditional students, convenience cannot be substituted for quality in education, so it's very important that Kassop, among others, clearly provided successful precedent for looking to online education.

-read quote-

This is one of my favorite quotes, as it substantiates my personal belief in online education, as well as the foundational concept of Educational Technology that has been demonstrated as well as experienced throughout this Master's program.

Computer Assisted Instruction (CAI) in Math

- Specific to math, CAI highly effective.
(Fouts, 2000; Handle & Herrington, 2003; Kulik, 2002; Maag, 2004)
- 1/3 average reduction in instructional time.
(Kulki & Kulik, 1991)
- Positive effect on student attitudes toward instruction.
(Aivazidis, Lazaridou, & Hellden, 2006; Kulik & Kulik, 1991)

I chose Computer Assisted Instruction for content delivery because it showed much promise as being highly effective when used in math. It also contributed to accelerating the learning process and improving student attitude toward the subject. All of this sounded tailor-made for my non-traditional, math-avoiding student population. And even better, there were minimal developmental costs as there are a number of products already developed that are on the market for a cost comparable to traditional hard-copy textbooks.

What was done?

- The Class: August - December 2006
 - Counselor approval
 - Face-to-face training/orientation meeting
 - Plato Interactive Mathematics content lessons
 - Weekly email update from both student & instructor
 - Proctored (at MCC) midterm & final
 - Course evaluation/survey



The word about this new online delivery spread fast, and I was getting calls from all over the state. The Math Department limited admission to MCC students for this pilot however. Counselors helped students to understand the differences in the 4 delivery methods available at MCC, which in addition to this new online version, included traditional face-to-face, an innovative classroom alternative requiring a commitment to taking all the foundational courses in this same innovative manner, and a lab-based version. All students were required to attend 1 of the 2 training and orientation meetings that I held to further explain expectations, requirements, and opportunities. A timeline for completion was provided at this meeting, along with directions how to proceed. After that, it was up to them to get going.

What was done?

- The Evaluation: January 2007
 - SurveyMonkey link sent out via email
 - 33 questions
 - Anonymous responses, but verified class members
 - Follow-up email reminder
 - Follow-up phone reminder
 - 34 of 43 responses received
 - (1 eliminated as unverifiable)
 - (an almost 80% return rate!)



At the training meeting they were told they would be asked to participate in an evaluation survey at the end, so in January after the class was over and grades posted, a link to the survey was emailed out. With a bit of follow up, I got a very high return. So, by the beginning of February there was a lot of data to ponder.

What was done?

- The (Official) End: February 2007
 - RDP funded position terminated
 - Results filed...unexamined



Yes, the results came in, but RDP's money ran out ... and so did my job. No one ever looked at the results when the grant terminated 2 months after the class ended. That to me is like reading a mystery novel and skipping the last chapter! I wanted to know "who dun it," or in this case, what worked, what didn't, and how to make it better.

The story goes on...



- Survey revisited
 - Student Information
 - Age, gender, college math history, computer & online usage, job commitments, family situation , math affinity
 - Logistical Information
 - Non-completion reasons, access locations, face-to-face orientation importance
 - Course Information
 - Change in math affinity, course access use, personal reactions, tools used, tool non-use reasons
 - Opinion Information
 - Aspects liked/not liked, value, suggestions, learning experience

But the story doesn't really end there. In August 2006 there was another beginning, and that was acceptance into this ETEC program. So, when it came time to decide on a Plan B project topic, evaluating the mountain of data leftover from the RDP sponsored pilot classes seemed like a good fit for me. The faculty agreed and my concept paper was accepted.

So now the story can begin again.

Going back to the survey. What was in this mountain of data? Well, 33 students had each answered 33 questions that were divided into 4 areas. Student information, logistical information, course information, and opinion information.

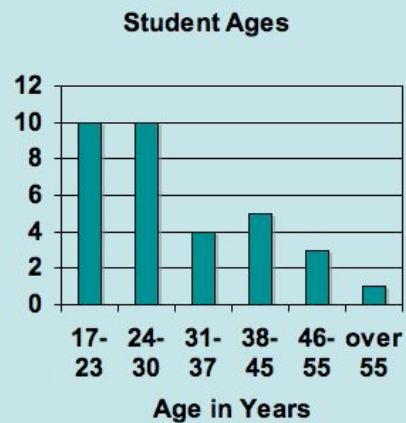
Who took this class?

- female (90%)
- comfortable with computers (90%)

- not good in math (52%)
- part-time students only taking this class or 1 other (50%)

- never taken online class (60%)
- never taken online math

- working 16+ hours (90%)
(1/3 working 40+ hours)
- single parents (60%)



So, who were these students willing to jump into this pilot program?

21 students completed Math 22, and 23 students completed Math 23, and this includes 3 who took and passed both classes within the semester.

They were mostly female, and most were computer comfortable - I was actually surprised anyone not computer comfortable would have chosen this delivery mode at all.

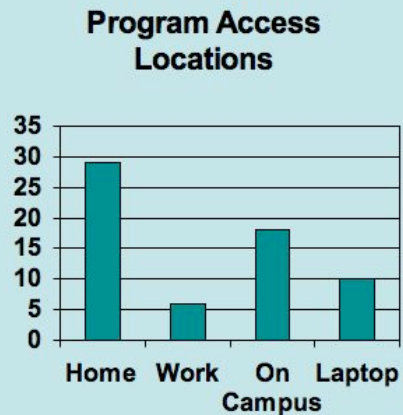
There was about an even split between those who thought they were good or okay in math and those who thought they were bad at math. And an even split between part-time and full-time students.

Most had never taken an online class before and none of those had taken math online.

A large percent of the class met the criteria for non-traditional students as they were older than traditional college students, also working, and single parents.

Why this mode?

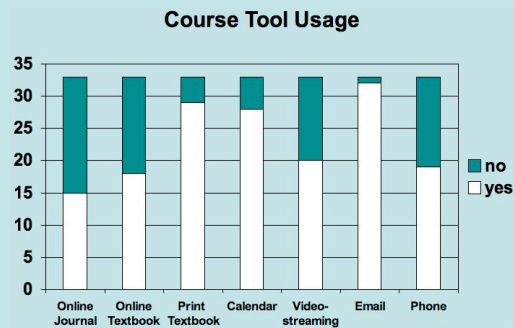
- Time and/or location constraints (73%)
- Not feeling dumb in front of others
- Could work on it in multiple locations
- Orientation important to success (91%)



Why did they choose this delivery mode instead of one of the more established methods? The majority made the decision based on the need for flexibility, either in time or in class location, while a few preferred the privacy of this method. Almost everyone worked on the program at home. A surprise that I'm sure some employers would be interested to know, was that almost 20% did some of their classwork at their job. I was personally quite surprised so many utilized campus, when most stated they took the class because of time and location constraints. And of course, using a laptop made it available anywhere. The training and orientation meeting was highly recommended by the students as being important to success as well as understanding expectations.

What about the course?

- Biggest hurdle: getting started
- Varying amount of use for the tools provided
- No (or very minor) technical difficulties (80%)
- Few major **personal** computer issues (6%)
- Few major **program** computer issues (15%)



As to be expected, the biggest hurdle was getting everyone started. There were some that never did start, and never dropped either. But for those who actually did participate in the class, there were a number of tools available for their use, some of which were well used and some were not.

Since this was a new delivery environment it was also important to look at the central tool, that being the computer and the program software which was Plato Interactive Mathematics Elementary Algebra. Most of the class had no problems or very minor problems with technology. The major personal computer difficulties mentioned were virus issues, computer crashes and software conflicts. The unresolved program issues included inability to access from their home computer and inability to play the video-streamed lessons. Also, part way through the semester Internet Explorer released an upgrade that was incompatible with the Plato program, which caused much frustration and took a lot of time to identify and resolve. Another big issue involved the third-party software, TestCheck, which was used for the midterm & final exam. The student data became corrupted, losing the electronic data and the online test-taking capability.

What did they think?

- Attitudes toward math



So what did they think? Most kept their same opinion of math. Some found they preferred face-to-face instruction after all, but over a quarter of the students liked math better using this online program! That was really important in light of the math aversion felt by many of these participants.

What did they think?

- Attitudes toward math
- Positive reactions



3/4 of the positive reactions were about meeting personal preferences, with almost all referencing the anywhere/anytime convenience or the self-paced design. Multi-sensory presentation and interactive nature with good explanations were the program features most liked.

What did they think?

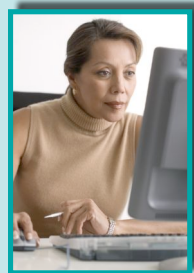
- Attitudes toward math
- Positive reactions **and negative reactions**



The suggestions for improvement predominantly involved fixing the technical issues. There was little agreement on what wasn't liked, although not having an in-person instructor to ask questions was the most common, and software or technical difficulties came up in a variety of comments.

What did they think?

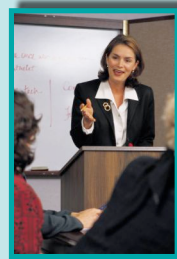
- Attitudes toward math
- Positive and negative reactions
- Learning mode



Over 3/4 felt they learned more than they expected to using this new modality, which was a powerful endorsement!

What did they think?

- Attitudes toward math
- Positive and negative reactions
- Learning mode
- **Instructor Assessment**
“The instructor was good;
I expect all to be good.”



Almost everyone responded that their decision to take another Plato-based online math class would not be influenced by having a different instructor. One student's response summarized what should always be the classroom experience: “The instructor was good; I expect all to be good.”

What did they think?

- Attitudes toward math
- Positive and negative reactions
- Learning mode
- Instructor Assessment
- **Overall Assessment**



Overall, they liked the Plato tool, liked the freedom, but had trouble with self-discipline, were upset by technical issues, and didn't like having to go to campus for the proctored exams. They gave lots of positive comments yet I have to agree as well with one student's assessment, "This method is certainly not for everybody."

Grades

Math 22			
Maui Grades:		Plato	%
A		2	7%
B		4	15%
C & I-C		7	26%
D & I-D		3	11%
F & I-F		5	19%
W		5	19%
drop		1	4%
		27	100%
		Total passed	59%
		Others	%
		28	18%
		28	18%
		26	17%
		6	4%
		28	18%
		20	13%
		21	13%
		157	100%
		Total passed	56%
Math 23			
Maui Grades:		Plato	%
A		2	11%
B		6	32%
C & I-C		3	16%
D & I-D		1	5%
F & I-F		2	11%
W		2	11%
drop		3	16%
		19	100%
		Total passed	63%
		Others	%
		19	15%
		22	17%
		18	14%
		9	7%
		34	26%
		20	15%
		8	6%
		130	100%
		Total passed	52%
Total at end			

Overall the passing rate was similar to the combined total of the the other 3 delivery methods. Grades were looked at to check for instructor bias not to rate the different modalities, since what is very suitable for one student is equally un-suitable for another. The passing rates between the Plato pilots and the other combined deliveries were very similar for both Math 22

Grades

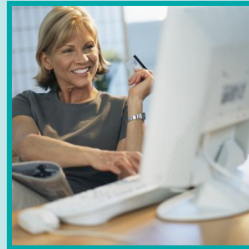
Math 22					
Maui Grades:		Plato	%	Others	
A		2	7%	28	18%
B		4	15%	28	18%
C & I-C		7	26%	26	17%
D & I-D		3	11%	6	4%
F & I-F		5	19%	28	18%
W		5	19%	20	13%
drop		1	4%	21	13%
		27	100%	157	100%
			Total passed		Total passed
			59%		56%

Math 23					
Maui Grades:		Plato	%	Others	
A		2	11%	19	15%
B		6	32%	22	17%
C & I-C		3	16%	18	14%
D & I-D		1	5%	9	7%
F & I-F		2	11%	34	26%
W		2	11%	20	15%
drop		3	16%	8	6%
Total at end		19	100%	130	100%
			Total passed		Total passed
			63%		52%

...and for Math 23 in spite of some student placement irregularities. 1/3 of the students were placed in the wrong class according to the Compass placement test. While 1/2 of these mis-placed students dropped out, all but 1 of those remaining passed. Most of the F grades shown were due to non-participation.

The bottom line...

- **What worked:**
 - Self-paced
 - Flexibility
 - Multi-sensory
 - Privacy



For self-motivated students the self-pace worked really, really well. In fact 3 students were able to complete both Math 22 and Math 23 within the 1 semester. The flexibility of time and location was highly successful. The multi-sensory approach kept it more interesting and the privacy removed the stigmatic component of peer-pressure, which was also beneficial. For those that met the entry criteria of self-discipline and comfort with computer use, this was a helpful and efficient modality as predicted by Muse in his paper from 2003.

The bottom line...



- What didn't work:
 - Software
 - Personal technology
 - Communication
 - Best fit choice

What didn't work dependably was the technology. Some issues were due to the student's computer & connectivity, some were problems with the programs. These technology issues were not really a 'surprise' finding, as Plato was due to roll out a major update Fall 2007, within a few months of this pilot's completion. The update was to eliminate many of the issues experienced here, through a major change to a Web-based delivery, and with the testing program integrated into the Plato software. Those not comfortable with computers struggled with more problems, plus there were several personal computer malfunctions.

In spite of reiterating expectations repeatedly in a variety of ways, communication of expectations could still use improvement. This is an ongoing issue for almost any classroom. Providing clear expectations does not insure those expectations are actually heard, understood, and believed... in spite of student assurances that they are.

The bottom line...

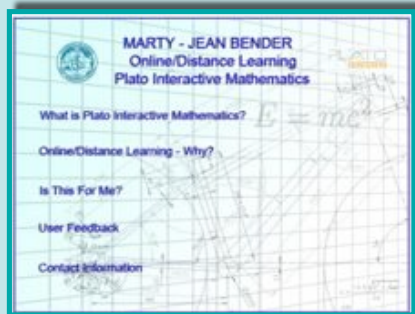
- What worked:
 - Self-paced
 - Flexibility
 - Multi-sensory
 - Privacy
- What didn't work:
 - Software
 - Personal technology
 - Communication
 - Best fit choice



That being said, it needs also to be acknowledged that at the community college level, these are adult participants, and while guidance is needed to make informed choices to maximize their learning success and receive the most educational value for their money, they are entitled to explore options they deem worthwhile even if it is not in their customary comfort zone.

Recommendations...

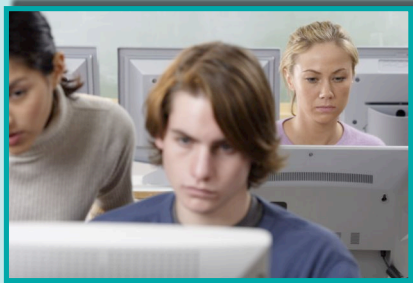
- Compare to New Plato software



Now that my study is over, here are some of my thoughts. I would love to see a similar trial done using the new Plato software, to see if they were actually able to keep and improve on the benefits and eliminate the technical liabilities.

Recommendations...

- Compare to New Plato software
- Follow up with next Math course



Following these same students into their next math class to evaluate whether they learned and retained as well as their counterparts from the other modalities would be a great follow-up project.

Recommendations...

- Compare to New Plato software
- Follow up with next Math course
- **Computer lab for 2-way synchronous teleconferencing**



Having a computer lab for synchronous 2-way videoconferencing would be really helpful. Elluminate could help with tutoring, however a lab would be needed for the initial training meeting if this course is opened up state-wide. Since demand is so high from MCC students, they still are not considering opening it up statewide, although that is what I had pushed for from the very beginning. They also are not considering adding additional sections of this modality, as they are concerned about filling the other modality sections.

Another extension study could be surveying all MCC math students in these foundational classes to see if they are actually in the delivery modality they prefer, what they prefer about it, or why they would have preferred another modality.

Recommendations...

- Compare to New Plato software
- Follow up with next Math course
- Computer lab for 2-way synchronous teleconferencing
- **Saying “no”**



This one may seem surprising, since saying “no” to a student is not an easy thing for a teacher, as their focus is to encourage students. However, in particular for this self-directed, less instructor-controlled learning situation, saying “yes” may actually do the student a disservice. There were criteria to follow to get in to this modality, and I had a number of requests to make exceptions. What I found was that if they don’t follow instructions to get into the class, they most likely won’t follow them during the class either. Being more rigid in following registration procedures may therefore be a good screening tool for this particular delivery mode.

Recommendations...

- Compare to New Plato software
- Follow up with next Math course
- Computer lab for 2-way synchronous teleconferencing
- Saying “no”
- Explore why the high demand



One of the most compelling further studies I see is exploring why we have such demand for these foundational courses. Why does such a huge proportion of incoming MCC students place into math below the college level? Is this the case elsewhere in the state? It was true with the EAs statewide, but how widespread really is this phenomena?

This paradox must be resolved where students graduate from high school having met expectations, yet arrive at college and cannot demonstrate pre-college mastery of math. A solution to this disconnect must be found, and reduce this current excessively large need for remediation.

Epilogue

- What did MCC do?
- Sequel?
- Questions?



In case you're curious what's gone on since this pilot ended, the Math Department finished the Spring semester of '07 with this same Plato program, but taught by Math Department faculty.

These online courses are continuing to be offered, with demand as well as academic need continuing to rise. Hopefully, current students will continue to find value in them as my study population did.

As of Fall 2007, a different delivery product is being used instead of the new Plato roll-out. Whether it meets the needs for the students is yet another study topic...who knows, perhaps one of these topics could be the sequel, now that the last chapter's been read and we all know "who dun it".

And now, I'd be glad to answer questions if there are any.