

Calculus Review Project
Reflection on Peer Teaching

Scott Hagin
Math Teacher
Edwardsville (Illinois) High School
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Reflection on Peer Teaching Activities¹

This paper documents and offers reflections on a peer teaching activity conducted at Edwardsville High School, Jan – May 2004. The activity was a Calculus Review Project that involved 31 students (all Seniors) in two Advanced Placement Calculus classes. After describing the project and outlining student feedback to the project, I will provide some observations and comments on this peer teaching experience with honors students.

Project Description

The Calculus Review Project had multiple purposes, with the three most important:

1. Help students review a year of Calculus material
2. Provide an opportunity for students to peer teach
3. Meet a school-wide requirement for a formal writing assignment

In addition to these main purposes, as a new teacher of honors students, I also wanted (4) to gain a better understanding of preferred learning approaches for this level of student.

The first purpose, Calculus review, provided the project its title and the main purpose as explained to the students in the project handout (attachment 1). The project centered on the two activities of students writing a summary for a specific calculus topic and then leading a class review of the same topic. In order to include structured peer reviews into the project, facilitate preparation of students for the AP Exam as well as the course final exam, and not disrupt the schedule of course content needed for students success on AP exam, the project was organized into 7 goals that were scheduled for completion over the last 8 weeks of school. Note that not all students took the official AP Exam, so this project also served as preparation for the course final exam -- a compilation of previous years' AP exam questions.

Since the students were all Seniors in their last two months of school, motivation for them to give a meaningful effort was potentially an issue. Organizing the project activities into specific goals with milestones was an attempt to encourage student effort on content, not project planning. By using peer reviews, I had hoped peer pressure would also motivate effort. Finally, students were told the project grade replaced any graded homework for the entire 4th quarter, including the much dreaded homework quizzes. So, the project grade constituted 20% of their course grade for the quarter.

The first project goal was simply selecting topics. This was done using a topic lottery (I provided a list of candidate topics and students selected their topic in order of a number they drew from a hat – duplicate topics were not allowed). I also asked students

¹ I would like to acknowledge the importance of the Hoenny Center's Professional Partners Network -- Edwardsville in motivating this effort. These teacher's suggestions, criticism, encouragement and examples strengthened this activity in many ways. Thanks to all for your continued service to students!

to turn in a ranked list of 5 topics that they would like to work -- I used the student lists to assign two "collaborators" to each student topic. The responsibility of a collaborator was to provide feedback (to student and teacher) on the writing and presentation done by the assigned student (attachment 2 has the topic list and collaborator matrix, with names omitted, for the two classes). To summarize, each student ended up with a project topic and was assigned as a peer reviewer (collaborator) for two additional topics.

The additional project goals outlined the requirements for specific actions or products. Each student was responsible for turning in or providing the following:

April 15	Draft written summary (called a Dirty Purple ²) on their topic
April 21	Critiques on 2 other students' draft Dirty Purples
April 28	Final hardcopy and softcopy of Dirty Purple on their topic
May 12-18	Presentation or lead a discussion on their topic
May 20	Evaluations of 2 other student's presentations
May 20	Project feedback form

Students were provided grading rubrics for the Dirty Purple and Presentation (attachment 3), a draft Dirty Purple written by the teacher as an example (attachment 4), and critique form for reviewing other students' written work (attachment 5). They were encouraged to use creativity in their efforts. The Dirty Purple instructions emphasized a professional format and the need to use feedback from the written critiques for their final product. The presentation rubric also attributed a high proportion of the grade to creativity. The final dirty purples were copied and compiled into a class book that was provided to each student for their use in preparing for the AP exam (or class final exam).

Student feedback

Students were asked to fill out a feedback form (attachment 6) at the completion of the project. Class time was provided to do this. Also provided at attachment 7 is a summary of the data from the survey. Note that questions 1 and 2 were True/False (1. This project helped me improve my understanding of Calculus. 2. I would have preferred homework quizzes 4th quarter rather than have done this review project) Question 1 had a 100% "True" response and question 2 had a 100% "False" response. Question 3 was an attempt to measure the qualitative difference in gain to student understanding contributed by the different activities used in the project. A "Distribution of understanding" (ranging from "Not Much" to "A Lot" for each of the four activities) using student activity ratings as portrayed in figure 3 is described in the following table:

² *Dirty Purple* is a term from antiquity (when Ditto machines were the dominant duplicating technology) that refers to the writing output from this project. Specifically, a *Dirty Purple* refers to the topic summary handout each student wrote.

PROJECT ACTIVITY	Ratings of 4 or 5	DISTRIBUTION OF UNDERSTANDING
Writing a summary	87%	Skewed toward "A Lot"
Critiquing others' writing	39%	Symmetrical from "Not Much" to "A Lot"
Presenting my review	81%	Skewed toward "A Lot"
Evaluating others' presentation	52%	Slightly skewed away from "Not Much"

Clearly most of the 31 students thought writing and presenting contributed to their understanding of calculus. Less clear from this feedback, though, is whether or not students perceived that they had increased understanding through the critiquing and evaluating activities.

When students were asked to comment on what about the project specifically contributed to their understanding, many confirmed the generally acknowledged benefits of peer teaching.³ Student comments extracted from feedback forms are at attachment 8. Note that these representative responses were nearly equally split between the two categories: a) "helped me focus my personal out-of-class preparation" and b) "helped me understand the topic by hearing/seeing an alternative presentation by another student."⁴

The last question on the feedback form asked students to briefly describe their favorite way of learning math. Over a third of the comments dealt with using practice or example problems. However, the favorite way of learning varied widely and included humor, projects and games. Student comments on this question extracted from the feedback forms are at attachment 9.

Reflections

I was pleased with the outcome of this project. Students responded well to the challenge and the work. In discussing my interpretations and thoughts I'll first focus on my observations that lead me to believe this project successfully met its objectives (what worked well!). Then I'll discuss what I saw or experienced that might have distracted from meeting the project objectives (what didn't work well!). A caution: whatever understanding about teaching or learning that may be gleaned from this experience should not be separated from the context of the project. The 31 honors students in my two classes were self motivated, high achieving seniors, the majority of whom were academically within the top 10% of their graduating class.

What Worked Well

Purpose 1: help students review a year of Calculus material

From a course content perspective, the project was useful to remind all the students about material covered in the early part of the year. It also created the chance for each student to revisit earlier (fundamental) math concepts through the perspective of how those fundamentals had been applied in later course material. As writer, presenter or

³ See a summary of research on peer teaching benefits to students at <http://www.hoennycenter.org/pages/3/index.htm>

⁴ Observation and comment from Dr. Gates, Hoenny Center, on a draft of this paper.

collaborator, a student was focused on only a few topics, however, the presentations on each topic allowed some time for all students to review all topics.

The quality of student led discussions and presentations ranged from perfunctory to magnificently captivating. More than one used student participation to help emphasize a concept, including the student who recruited classmates to create a “live curve” on the floor as a demonstration for approximating lengths of curves. Regardless of quality, every presentation appeared to engage the focus of every student in the class – probably from a mix of wanting to help the presenter succeed, looking for how a peer might mess up, and seeking additional calculus understanding. Student comments about presentations include, “helped unify my understanding” and “a chance to rethink ideas presented earlier.”

The fact that students held in their hands a compilation of their own writing about the course content (the booklet of Dirty Purples each was provided) seemed to reinforce their confidence that it was possible to digest the large amount of material. Students commented, “Collection of dirty purples is a more manageable form of study guide” and “reading other dirty purples gave me a better overall picture.” Finally, since each student had the class booklet before student presentations began, the written summaries also provided a basis for some questions and answers between students.

Purpose 2: provide an opportunity for students to peer teach

By definition and structure, this project successfully provided a peer teaching opportunity for students. The students did not seem to be overwhelmed by the duration, amount, or nature of the tasks. The students appeared to be comfortable working with each other as evidenced by the risks many took to be creative during presentations. One student commented, the “Project ranked very low on the stress scale.” My previously mentioned concern about “senioritis” did not appear. There was one student who missed one milestone, but student promptness and efforts overall ensured peer interaction with the content. My students participated fully in this project’s opportunities. But did students understand what they were doing was peer teaching?

What I experienced through this project left no doubt that students recognize teaching activities, the work required for effective teaching, and the learning benefits to the teacher. Students described what they were doing in this project as teaching even though I was deliberate in not using the words “peer teaching” or “teaching” throughout the project. No startling revelation here, especially given that this group of students has undoubtedly succeeded in many “peer teaching” activities long before encountering this project. However, what was revealing to me from this project was how articulate students were in attributing an increase in understanding to both the extra effort required to prepare to teach, and the chance to discuss “the subject matter from the viewpoint of my peers” (see again, Attachment 8).

So how did they do at the assessment tasks? Many written comments were offered on the critique form for the Dirty Purples. I had encouraged students to use positive comments when they saw something they liked because that would help writers decide what to keep in the final 1-page summary. With very few exceptions, all 62 critiques (each student critiqued 2 other students’ writing) included positive comments. A large majority of the critiques contained specific items for improvement. Students were much

tougher graders than I on the presentation evaluation. I did not include the critiques in this paper because they served as part of the review process – a mechanism to compel students to review – rather than a measure of merit for peer teaching activity.

Purpose 3: meet a school-wide requirement for a formal writing assignment

Yes. The administration requirement for formal writing in Math classes was given as broad guidance, so by definition, the Dirty Purple satisfied the school need. From the students' perspective, I thought the following student response to how the project helped understanding summed it up pretty well, "Writing was the most advantageous. It acted like a refresher course."

Purpose 4: preferred learning approaches for honors students.

The most surprised I was in this project was to find out how much 12th grade Calculus honors students were motivated to participate in class by games, candy and competition. Sure they're students that take their learning seriously in a heavy duty course – but they are still KIDS! A few students included in their presentation "Board Races" with winning teams awarded various kinds of edible goodies.

A common theme to many of the student presentations was class participation. One presenter brought in a pre-school train track to illustrate functions and asked fellow students to use the train to describe functional behavior; another presenter lined up student volunteers against the board to define a function.

Students also used presentations to share their favorite mnemonics for remembering formulas and definitions. One student had developed glyphs involving smiley faces and frowns to characterize key concepts.

A dichotomy between my observations of student behavior while students led the class and student responses to the question "Describe your favorite way of learning (see attachment 9)" should be noted.⁵ While attachment 9 is only an extract from feedback forms, it is of interest that students only mentioned games twice. Is this a situation where students having fun simply don't characterize the activity as "learning"?

Opportunities for Improvement

Purpose 1: help students review a year of Calculus material

The number of comments made by students of the benefits of review and reflection on earlier lessons convinced me of the likelihood that as motivated these students were, they did not schedule such activity as part of their normal pattern of study (no surprise here, just acknowledgement of their overscheduled lives?). Perhaps a superior approach to meeting this objective would be to incorporate elements of this project as quarter reviews rather than wait until the end of the year.

I found a couple of errors in student written summaries that might have misled students using the write-ups for review. Quality control for student-created content is a

⁵ An observation by Dr. Gates, from his review of an early draft.

concern. A couple of ways (in addition to additional teacher review time) to reduce the chances of this might be to increase (from 2, to 3 or 4?) the number of peer reviewers for the written products and/or provide bonus points (candy bars?) for every error a student detects?

Purpose 2: provide an opportunity for students to peer teach

While difficult to assess what interaction occurs outside of class, it seemed like there was not much collaboration between students who critiqued a topic and the owner of the topic (other than specific written feedback that was required). I'm not sure of this, though, and an improvement to project feedback might be to ask that question ... how much collaboration did you do? The obvious, though an impractical improvement, might be to provide class time for collaborators to interact with students. Perhaps a way to increase interaction would be to assign one more collaborator to each topic (3 instead of the 2 used), and schedule a class period for collaborators to verbally review their written feedback on the topic in a "topic group." This would create the chance for more informal interaction.

Another question left unanswered by this project was, "Did the activities help students desire to be teachers? Certainly, for this age student, I would guess that the activities in this project reinforced established beliefs or directions. But again, maybe this is a question worth asking the students. During the project, my written comment ("Please be a teacher!") to a student, was acknowledged by the student saying her plans were to pursue a degree in the training field. I was also pleasantly surprised to find out after the class ended that one of these students is currently a student at SIUE pursuing a teaching degree in mathematics.

Purpose 3: meet a school-wide requirement for a formal writing assignment

My requirement for writing was to produce a summary. It may provide more benefit to the students for me to model in my example (attachment 4) and for students to produce a more essay-length document with more narrative.

Purpose 4: preferred learning approaches for honors students.

One of the improvements to help me better understand this would be to take better notes! When I went back to review my evaluation forms for presentations, I had written "Nice chicken introduction," on one student's evaluation. Needless to say, I cannot recall specifically what the student said. Certainly the benefit of video taping is clearer to me now. Another possibility is to have the students "document" presentations by requiring them to use software like PowerPoint. However, I don't want to stifle creativity or impede the review process by imposing this approach.

Edwardsville, Illinois
30 April 2005

Attachment 1

Calculus AB Review Project

Purpose: Prepare the entire class for the Calculus AB Final Exam.

Objective: Students will write about and lead a class review on a specific Calculus topic. Each student will create a topic summary handout and become the class expert on their topic.

Goal 1: Students will select a topic to lead and collaborate on 2 additional topics.

1-a. Turn in ranked list of 5 topics by Mar 31

1-b. Participate in topic lottery on Mar 31

Goal 2: Students will write a draft *Dirty Purple* on their selected topic.

2-a. Turn in draft *Dirty Purple* by April 15

2-b. Provide each student collaborator a copy by April 15

Goal 3: Students will critique two other students' *Dirty Purples*.

3-a. Turn in two Dirty Purple critiques by April 21

3-b. Provide each author a copy of your critique by April 21

Goal 4: Students will complete a final *Dirty Purple* for their topic.

Turn in hardcopy and softcopy by April 28

Goal 5: Students will lead a class discussion on their selected topic.

5-a. May 12-18 in lottery order.

5-b. Turn in a softcopy of presentation materials.

Goal 6: Students will evaluate two other students' class presentations.⁷

6-a. Turn in evaluation by May 20

6-b. Provide copy of evaluation to presenters by May 20

Goal 7: Students will provide feedback on improving the Review Project.

Turn in feedback by May 20

Milestones:

Mar 29 (Monday)

Assign Project

Mar 31 (Wednesday)

Topic Lists Due/Topic Lottery

April 15

Draft DP's due to Mr. H and collaborators

April 21

DP critiques due to Mr. H and authors

April 28

Turn in Final DP to Mr. H.

April 30

Mr. H. Publish DP's

May 12-18

Student Presentations

May 20

Presentation Evaluations & Project Feedback Due

This Project grade will be your only 4th quarter homework grade and will be earned as follows:

50% Completion of milestones on time.

25% Dirty Purple

25% Presentation

Attachment 2

2nd Hour AP Calculus AB Student Selected Topics:

Student	Selected Topic	Collaborator 1 for Topic	Collaborator 2 for Topic
	Continuity of Functions		
	Definite Integral		
	Definition of Limit		
	Derivative Rules		
	Volume of Solids		
	Monotonicity and Concavity		
	The Chain Rule		
	Volume of Solids of Revolution		
	Implicit Differentiation		
	Derivative, Velocity, and Acceleration		
	Maxima and Minima of Functions		
	Related Rate problems		

3rd Hour AP Calculus AB Student Selected Topics:

Student	Selected Topic	Collaborator 1 for Topic	Collaborator 2 for Topic
	Definition of Derivative		
	Volume of Solids of Revolution		
	Infinite Limits		
	Limit at Infinity		
	Limit Theorems		
	Derivative Rules		
	2nd Fundamental Theorem of Calculus		
	Monotonicity and Concavity		
	The Chain Rule		
	Definite Integral		
	The Derivative and Cost Functions		
	Antiderivatives		
	Continuity of Functions		
	Length of a Curve		
	Maxima and Minima of Functions		
	Derivative, Velocity, and Acceleration		
	The area of a plane region		
	Definition of Limit		
	Volume of Solids		

Attachment 3, part 1

Dirty Purple Instructions and Rubric

Your written assignment is to create a one-page summary of your topic (called a *Dirty Purple*) that will be used by other students for review. You will first write a draft Dirty Purple that will be critiqued by two students and the teacher. You will then have opportunity to improve your Dirty Purple based on the critiques. Your grade for this written part of your project will be based on your final Dirty Purple, as graded by Mr. H according to the following rubric; however, your grade will be better if you use any constructive suggestions in the critiques to improve on your draft Dirty Purple.

Instructions: Your Dirty Purple must be done in a professional manner, as if you were responding to your future CEO boss's request for an explanation of a technical subject for which you are the technical expert. That means some kind of computer based output (not handwritten), formatted so it's easily reviewed, yet has as much supporting information on it as possible (CEO's and students preparing for tests like to have as much information as possible in a quickly digestible form!). It must include a written summary of what your topic is about, statements of any appropriate definitions, theorems, graphs or any other pictures that might clarify ideas. One or more example problems may be appropriate for your summary.

Rubric (25 total points, 5 points each):

_____	Correct grammar use
_____	Professional Format (neat and legible)
_____	Use of theorems, graphs, or examples enhance summary
_____	All key points for topic are included
_____	Critiques were used to make improvements
_____	Total Points

Attachment 3, part 2

Presentation Rubric

Presenter Name _____

Presenter: If the average of your two student evaluation grades is higher than Mr. Hagin's grade for your presentation, you will earn the average of the students' evaluation grades for your presentation.

Evaluator: If the grade you give is invalid (i.e. your score is not supported by the effort) then you will not receive credit for your evaluation!

(Max Points)

(5) Time 5 – 15 minutes _____
0 points if too short or too long
Time was used efficiently

(4) Introduction and conclusion _____
Both were used
Gives overview of presentation
Emphasizes key points of topic

(8) Creativity _____
Some effort was taken to present ideas in unique manner
Technology (PowerPoint, Web demo, etc.) used
Calculator use demonstrated or discussed

(4) Example Problem(s) _____
Appropriate to topic
All steps explained

(4) Interaction with class _____
Questions for class response were used
Class activity used

Total Points _____

Evaluator Name _____

Attachment 4

1st Fundamental Theorem of Calculus

Summary: The 1st Fundamental Theorem of Calculus connects (or relates) integrals and derivatives. The theorem does this by using an accumulation function. Since the integral and derivative are BIG ideas in calculus, the fact that they are related is stated by some as a “beautiful connection,” and gives this theorem its name. Very simply, the theorem states that the derivative “undoes” the integral.

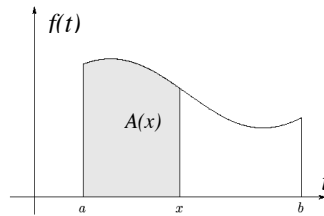
First Fundamental Theorem of Calculus: Let f be continuous on a closed interval $[a; b]$ and let x be a (variable) point in $(a; b)$. Then

$$\frac{d}{dx} \int_a^x f(t) dt = f(x)$$

Background: To understand this theorem, one must understand the definitions of the derivative, integral (and their defining limits), and the accumulation function.

Accumulation function: $A(x) = \int_a^x f(t) dt$

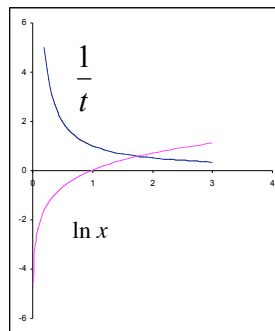
if f is a positive function continuous over $[a, b]$, then $A(x)$ is the accumulation function that represents the accumulated area under the curve f , from a fixed value a , to a variable value x , over the interval $[a, x]$.



Examples:

I. The definition for the derivative of the natural log function is a classic example of applying the 1st fundamental theorem. From knowledge of functions, you can see that the natural log is an accumulation

function: $\ln(x) = \int_a^x \frac{1}{t} dt$, where $a > 0$.



Taking the derivative of both sides:

$D_x[\ln(x)] = \frac{d}{dx} \int_a^x \frac{1}{t} dt$, we get the derivative of $\ln x$:

$$D_x[\ln(x)] = \frac{1}{x}$$

II. Find $D_x \left[\int_1^{x^2} (3t - 1) dt \right]$ Solution: Apply the chain rule and let $u = x^2$, then $du = 2x$, so

$$D_x \left[\int_1^{x^2} (3t - 1) dt \right] = D_u \left[\int_1^u (3t - 1) dt \right] \cdot du = (3u - 1) \cdot 2x = (3x^2 - 1) \cdot 2x = 6x^3 - 2x$$

Sources: See <http://www.calculus-help.com/index.html> for resources and ideas for your dirty purple

Attachment 5

Critique form for Draft Dirty Purple

Dirty Purple Author: _____

1. Correct grammar use in Summary:

Complete sentences used?

Ideas organized?

Topic Sentence, Main points, supporting facts or data?

Spelling, punctuation correct?

Comments: _____

2. Professional Format:

Neat and legible?

Position of supporting material easy to read?

No wasted space?

Sources other than text referenced (web, supplemental text, etc.)?

Comments: _____

3. Use of theorems, graphs, or examples enhance summary

Needed definitions, theorems, or formulas included or referenced?

Graphs are easy to read and referenced in summary?

Examples illustrate the topic ideas adequately?

Comments: _____

4. All key points for topic are included

Missing points?

Relative importance of points is given?

Applications are discussed?

Comments: _____

Collaborator Name: _____

Attachment 6, page 1

Calculus AB Review Project

Feedback

- 1. T F This project helped me improve my understanding of Calculus.
- 2. T F I would have preferred homework quizzes 4th quarter rather than have done this review project.
- 3. You did the following 4 activities for this project. Rate each activity as to whether or not it helped you to better understand Calculus (1 = not much at all; 3 = some; 5 = quite a lot).

not much		some		a lot	
1	2	3	4	5	
					Writing the Topic Summary (Dirty Purple).
					Critiquing other students' Dirty Purple.
					Leading a class discussion (topic presentation).
					Evaluating other student's topic presentation.

- 4. I think this review project
 - a. was about the right amount of work for its intended purpose.
 - b. should be shortened (remove _____)
 - c. should be expanded (add _____)
 - d. should not be done next year.

5. If you answered "True" to question 1, explain what about the project helped your Calculus understanding. If you answered "False" to question 1, explain what kind of activity or project might help your Calculus understanding.

continue on reverse

6. Briefly describe your favorite way of learning math.

continue on reverse

Attachment 7

AP Calculus AB Review Project Feedback Form

Student Response Data

Based on 31 Students

Question 1: 100% True

Question 2: 100% False

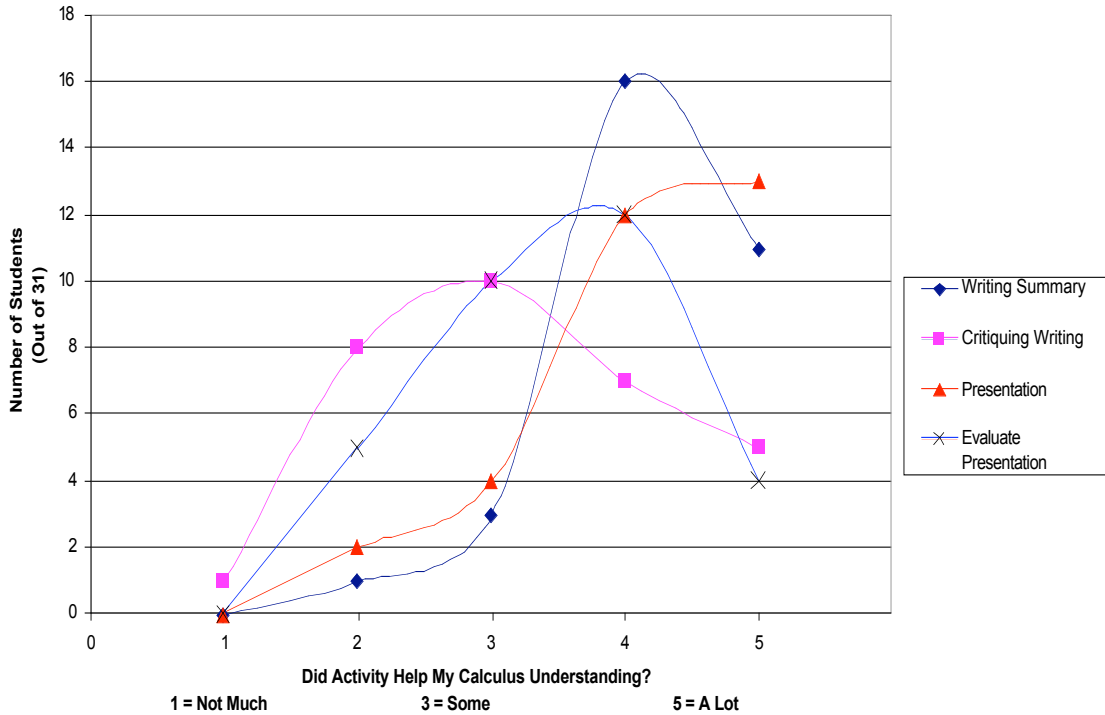
Question 3 Summary:

Score	Writing Summary	Critiquing Writing	Presentation	Evaluate Presentation
1	0	1	0	0
2	1	8	2	5
3	3	10	4	10
4	16	7	12	12
5	11	5	13	4
Total Responses:	31	31	31	31

Question 4 Summary:

4a	4b	4c & 4d
97%	3%	0%

UNDERSTANDING DISTRIBUTION Project Activity Impact on Student Understanding (Based on Student Feedback Data)



Attachment 8

Project Feedback from Students
How did the project help understanding?

Question 5. Explain what about the project helped your calculus understanding.
you had to know it well in order to adequately explain it to your "pupils."
Someone at our level explaining the problems didn't go over our heads
sometimes people our own age can put things in terms we better understand
forced me to over learn my topic because I would have to explain it
helped to hear how other people interpreted their topics
reviewing it helped me pick up things I didn't understand at first
having our fellow classmates teach, because they know what areas are hard for us.
looking over the information again from another's point of view is interesting
research on my topic gave better understanding
Teaching it helped because I had to be sure I knew what I was talking about
required me to review and relearn the sections I was teaching and evaluating
when people present, they are sure to put explanations that are easy to understand
because I had to teach I had to understand what I was doing
the presentations helped unify my understanding
viewing the subject matter from the viewpoint of my peers
other students know the difficulty we had on the topic
other kids explain things ... in their own words
having to know a subject well enough to teach it
other students explain their topics in a way different than how we learned it
collection of dirty purples is a more manageable form of study guide
people explained what confused them and what allowed them to better understand
project ranked very low on the stress scale
had to do research and know everything to be prepared for questions
reading other dirty purples gave me a better overall picture
teaching requires more understanding than working homework problems
a chance to rethink ideas presented early
allowed me to see all the topics we learned in an easily accessible manner

Attachment 8, continued

Chose topic I didn't understand -- project helped me to understand it almost completely

Helped me review the topic I was teaching ...

... much of it I knew, so didn't help me by reviewing it

... making examples helped a lot. I had to think about how to actually do it so I could explain

Writing was the most advantageous. It acted like a refresher course.

Attachment 9

Project Feedback from Students
Favorite way of learning math?

Question 6. Briefly Describe your favorite way of learning math.
examples...how to work through the problem
interaction and example
group projects ... talk it out with others
I dislike learning math ... I understand it better when I practice, like on homework.
I like visualizing ideas or concepts. It helps to see a picture ...
...details about the processes and equations
applying theorems to different situations ...examples
hands on
listening to teacher lecture -- sample problems -- not reading the book
read the book and work through completed example problems
playing math related games/competing with others
visually
projects and games ... I don't like journals.
In a no-test no-pressure environment
Discussing specific problems on the board with lots of different examples
Humor is also very important top my learning process
Just doing problems, But not too many ...
Homework exercises
hands-on activities. Practical applications
to teach
doing activities
a series of steps
applying to "real world" problems
take a test
working problems and then checking them ... checking is very important
multiple example problems

Attachment 9, continued

I don't know
practicing it
formulas and practice problems
hands on and visuals