

Culture in the Math Classroom Project

Overview

The purpose of this project is to provide you the opportunity to examine your teaching practice with respect to the W&G framework. In this project you will survey the students in one of your classes about their perceptions of the four W&G framework conditions in that class. Using this information, you will develop modest instructional changes to address one or more of the four conditions and implement these changes for about a week. At the end of the week, you will again survey your students to assess if they perceived any change in the four conditions. The project will conclude with your reflecting upon the process. We want to emphasize a couple of points with respect to this project.

- Sudden, large instructional changes during the semester are often disruptive to both teacher and student. Therefore, we recommend you plan to make only small, incremental changes in your instruction for this project.
- Changing the four W&G conditions in a class takes time as it relates to building classroom culture. Because we only have about a month to do this project, it serves only as an abbreviated model of how to approach implementing and assessing more lasting change in the four W&G conditions. Therefore, it is possible that the students will not perceive any significant change in the classroom conditions.
- This project is not meant to be as extensive as the CIP project. A final report of 3-6 single-spaced pages is reasonable.

As with the CIP project, writing as you go will greatly facilitate putting together your final report. Therefore, with each step, we give recommendations for writing.

Timeline

Week(s)	Step	Task
Oct 25	<u>1</u>	Administer the student survey and analyze the results.
Nov 1	<u>2</u>	Plan instructional change for the following week.
Nov 8/15	<u>3</u>	Implement the instructional change and administer the follow-up survey.
Nov 15/22	<u>4</u>	Analyze the follow-up survey. Put together the project report and prepare the presentation.
Nov 29/Dec 6	<u>5</u>	Class presentations / Report due Dec 6 / Reflection due Dec 10

The [Grading Rubric](#) is at the end of this document.

Step 1

In this step, you will administer a survey to your students to assess their perception of the nature of the four W&G conditions in the class. Using the results of this survey, you will decide which of the four conditions you want to address with instructional change.

Administer the Survey

The survey you will give the students will be developed by the course instructors and reviewed/modified by the CIMC students prior to the start of this project. You will be conducting this project in one of the classes you teach, therefore begin by selecting the class you want to participate in this project.

Before or during the appropriate week (see the [Timeline](#)), administer the survey to your class. When administering the survey,

- Allow sufficient time, approximately 15-20 minutes
- Explain the purpose of the survey to the students
- Set up a “safe” environment for the students
 - If possible, consider having a colleague administer and collect the survey.
 - If this is not possible, position yourself in the room so students feel they have some privacy and have a student collect the surveys and place them in an envelope before giving them to you.

Analyze the Survey Results

Using the spreadsheet that indicates the category of each survey question (the four W&G conditions or motivation), sort the survey responses by category. In order to evaluate the results, you may choose to count the number of each type of response (Strongly Agree, Agree, Disagree, Strongly Disagree) within each category and compare these counts. Another option is to assign a number to each type (such as Strongly Agree = 4, Agree = 3, Disagree = 2, Strongly Disagree = 1) and average these numbers for each category. You may also want to evaluate the results of individual questions. You may want to develop other evaluation strategies as well. It might be helpful to conduct more than one strategy to see if different strategies provide different pictures of the data.

Based on your analysis, select a W&G condition you would like to focus on for change. You may consider selecting more than one W&G condition, but we suggest only doing so if it still allows for relatively small instructional modifications.

Design the Follow-Up Survey

After you have implemented your planned instructional changes for about a week, you will give the students another survey in order to determine if they perceived a difference in the W&G condition(s) you chose to target for change. The follow-up survey should include all the questions related to the condition(s) you want to change. In addition, you may include any other questions from the original survey and/or add questions to the survey if you wish to collect additional data. Draft your version of the follow-up survey in this step. You may modify your follow-up survey before you actually administer it.

Recommendations for Writing

Write a brief descriptive summary of the project class, including the class content, student demographics, and any other information you feel is pertinent to the project. Explain why you selected this particular class. Then write a summary of the survey results organized by the four W&G conditions and the overall motivation of the students. Specify which of the four conditions you plan to address with instructional change and why you chose the condition(s).

Step 2

Now that you have chosen one or more conditions on which to focus your instructional modifications, consider what specific instructional changes you will make. Then incorporate these instruction methods into your lesson plans for the project class. Select a set of lessons that span about a week (3-5 classes).

Recommendations for Writing

Provide an overview of the nature of the instructional changes you planned and what W&G condition(s) you intend for these changes to address. (You do not need to provide individual lesson plans.)

Step 3

In this step, you will teach the lessons you planned and administer the follow-up survey.

Teach the Lessons

Teach the lessons you planned in the previous step. As is normal in teaching, you may choose to modify these plans either before or during class. Note these modifications and why you made them.

Think about what you observe during these lessons about students' motivation. In particular, you may want to note if you observe behavior that indicates a change in the degree to which students are

- ▶ Actively engaged in the mathematics
- ▶ View mathematics as meaningful
- ▶ Perceive mathematics to be a social activity
- ▶ See at least one path to be successful
- ▶ View themselves as mathematical learners

and whether these changes indicate to you anything about the students' motivation.

Administer the Follow-Up Survey

Evaluate your follow-up survey to determine if you want to make any changes to it. As before, when you administer the survey, establish as best as possible a "safe" environment for the students.

Recommendations for Writing

After you have taught the lessons, summarize the successes, challenges, and issues you experienced implementing your planned instructional changes. Describe changes in students'

behavior that might indicate to you a change in their motivation. Explain your rationale for your follow-up survey.

Step 4

To conclude this process, you will analyze the follow-up survey results, put together the final report, and prepare your presentation.

Analyze the Follow-Up Survey

As with the administration of the initial survey, analyze the results of the follow-up survey. You might want to consider using the same analysis strategies you used on the initial survey, although you may want to use additional strategies as well. Once you have summarized the results of the follow-up survey, compare them to the results of the initial survey. Consider what might account for the similarities and/or differences between the results of the two surveys.

Write the Final Report

Your final report should contain the following parts.

1. A brief description of the project class demographics and other pertinent information.
2. A summary of the results of the initial survey.
3. An explanation of what W&G condition(s) you elected to target and why.
4. An overview of the instructional changes you implemented, over how many lessons you made these changes, and the successes, challenges, and issues you faced implementing these changes. Also, include a description of any behavioral changes you observed that may indicate a change in students' motivation.
5. A description of and rationale for your follow-up survey, the results of the follow-up survey, a description of how the follow-up survey results compare to the initial survey results, and your conjectures about what accounts for the difference/similarity in the results.
6. A discussion of what you learned about your teaching and your students by engaging in this project and how this might influence your teaching practice in the future.

Prepare Your Presentation

Prepare a 5-7 minute presentation of your project. You do not have to completely describe your project. Instead, emphasize those aspects of your project you think will be most interesting to your classmates.

Step 5

Everyone will present their project during class on November 29th or December 6th.

Write Your Reflection

After hearing everyone's presentations, write a short reflection paper on what you learned from these presentations. You might consider addressing the following, although you do not need to address all these question and you are not limited to these topics.

- What aspects of the other teachers' projects surprised and/or concerned you and why?

- What are some instructional methods you heard about that you might consider implementing in the future and why?
- Were there any trends or patterns in how overall students perceived the four W&G conditions and, if so, why do you think these patterns exist?
- Did any of the four W&G conditions appear to be more easily influenced than the others and what might account for this?
- Were there any questions on follow-up surveys that especially interested you and why do they interest you?
- Overall, do you think the W&G conditions capture the salient features of classroom culture that influence student motivation? Why or why not?

Grading Rubric

Objectives	Unacceptable	Acceptable	Exemplary
Paper – Class Description	0 points	6 points	7 points
Paper – Initial Survey Results	0 points	6 points	7 points
Paper – Instructional Modifications	0 points	6 points	7 points
Paper – Follow-up Survey Results	0 points	6 points	7 points
Paper - Reflection	0 points	6 points	8 points
Presentation	0 points	6 points	7 points
Reflection	0 points	6 points	7 points
Total Points (out of 50)			