

# Analysis Techniques for an Online Class

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## Abstract

The basics for the use of analysis in an online class with recommendations are reviewed. Assignment format, use of the text, and assignment scenarios are included. Examples for use of compare and contrast, “what if scenarios,” and process oriented assignments for analysis are presented. Suggestions for online instructor participation in analysis activities are given. Finally, student comments from actual courses are quoted in conclusion.

## 1. Analysis – The Secret Weapon

My love for using patterns and processes in learning came during my first course in Algebra. I marveled at how Mr. Sullivan could be so smart in finding solutions to problems we had to solve. Then he taught us the secret of using a process to analyze problems and arrive at the correct answer.



Later during my studies in various subjects, I learned that the same analysis process used in Algebra can be used in other subjects. The analysis technique worked for me in all Mathematics courses, and extended to courses in Engineering, Physics, Chemistry, Botany, Business, Computer Science, History, Art, English, and Music.

I knew if I could define the problem, select key variables, apply those variables to a solving process, a problem solution was in hand. The solution may be in the form of a number, an essay, a paper, an idea, or a formula – but there was a solution in hand. This technique was definitely a secret weapon.

## 2. Analysis Assignment Format

Analysis activities in an online class are recommended each week as the second step in a sequence of assignments in the online course design. The overall sequence of recommended steps involves discussing, analyzing, applying, and integrating concepts. This is an effective method to maximize the learning experience.



### Analysis Assignment & Weekly Sequence

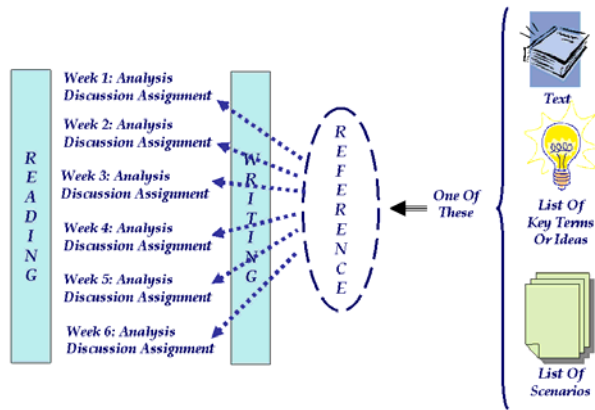
Assignments in the weekly sequence should be discussion based with students interacting in the classroom as much as possible. Also, assignments in the sequence should be modular, or “stand alone.” This means analysis assignments should be separated from the concept discussion assignments.

There is a tendency to employ analysis techniques during concept discussion assignment activities. This approach is often used in a teacher driven discussion using leading questions posed to students to encourage interaction. However, integration of analysis with concept discussion is not the best approach for an effective learning experience.

Activities for concept discussion and analysis should be conducted in two different areas of the online classroom. This separation of activities provides an online course design that is easier to use and makes updating the course easier.

The format for analysis assignments should be repeated each week. Directions on how the assignment should be completed should be the same. Variable information in the assignment format should change. The variable information references the concepts to be analyzed.

In some cases various techniques of analysis are used throughout the course. Learning should concentrate on analysis rather than mastering various analysis techniques. Repeated use of one analysis technique removes the need for students to master various analysis processes.



*Analysis Assignment References*

### 3. Use of Assignments from the Text

Texts often supply support material for analysis. For example, a common feature of mathematics texts is to give practice problems to prepare students for working exercise problems.

Including the exercise problems for analysis assignments in the online course design is appropriate. Using text material assures the analysis assignment is integrated with reading material.

There are instances where analysis material in the text may require augmentation. If this is necessary, a list of key terms or ideas, or a list of concepts to be analyzed, can be supplied in the course design. When special material is supplied for analysis assignments in the course design, care must be taken that the material and the reading assignment are complementary.

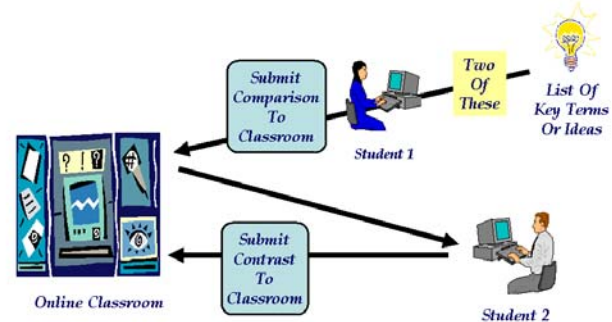
### 4. Analysis Using Compare and Contrast

Analysis assignments should be designed for probing, dissecting, and critical thinking of concepts. Techniques that might be used for analysis include comparing and contrasting concepts. This technique can be used in course design as a discussion based assignment that is individualized.

For example, a compare and contrast analysis assignment might direct each student to choose two concepts, compare them, and submit the comparison to the classroom. In addition the student is directed to respond to a comparison another student has submitted, contrast the two concepts, and submit them to the classroom.

Using this approach each student performs a compare and contrast analysis on two different sets of concepts. Also, the student must read and review material posted in the classroom on all other concepts in order to adequately

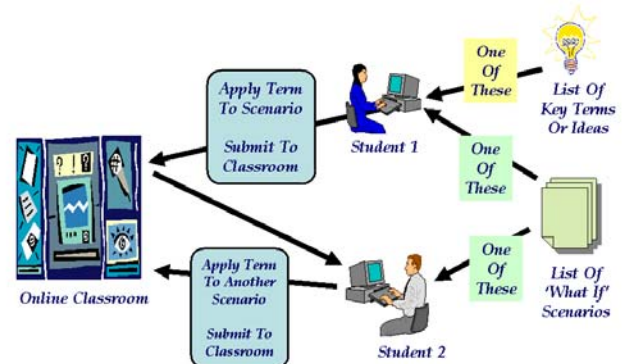
prepare the assignment. The review of all material in the classroom area becomes an added analysis learning activity for the student



*Analysis Using Compare & Contrast*

### 5. Analysis Using “What If” Scenarios

Another technique for analysis in an online course design is the use of “what-if” scenarios. This technique allows for an individualized approach with a combination of key terms, or ideas, used with two different scenarios.



*Analysis Using 'What If' Scenarios*

Students are directed to choose one key term, or idea, and one scenario from a list of those provided for the assignment. Students make their choice, apply the key term, or idea, to the scenario, and submit the material to the classroom.

They then choose material submitted to the classroom by another student, apply a different scenario than was used in the material, and post their work in the online class threads as a response to the chosen material. Thus the material with is displayed in the online class showing the application of key terms, or ideas, to various scenarios. Many students remark they learn as much from reviewing work from other students as they learn from reading the text or instructor lectures.

## 6. Analysis Using a Process

Using a process to support analysis is another technique that can be used in online course design. Analysis assignments are given for a student to choose a problem from a provided list, use a given process to solve the problem, and submit the solution to the classroom. In addition, the student is assigned to review and comment on a solution submitted to the classroom by another student.

This technique is very useful analysis in an online computer programming course design. As part of the materials for an online computer programming course, each student has compiler software. Students use this compiler software on their own computer to process the computer program they generate for the analysis assignment. For the analysis activity each student is assigned the following activities:

1. Select a problem from a provided list.
2. Write computer program instructions for the problem.
3. Process their computer instructions using compiler software.
4. Submit the result to the online classroom by posting material in public threads for view by all students.

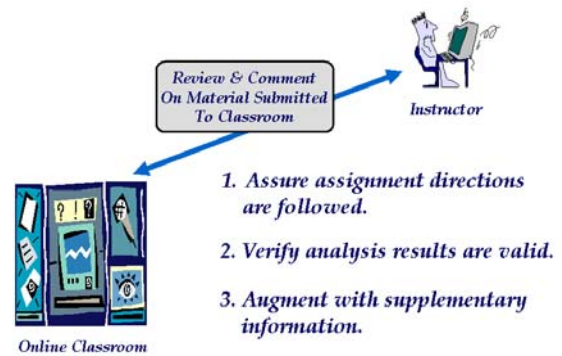
In addition, they are assigned to review and comment on the another student's computer program that has been submitted to the classroom. In that review they process the work of the other student using compiler software and verify that the result is valid.

This classroom activity for analysis is similar to the process used by computer programmers in their profession. One individual generates a program. Another individual reviews, checks, and tests the program.

## 7. Online Instructor Participation in Analysis

In any technique used for analysis, the course design requires participation of the instructor in much the same manner. The instructor is present in the online course analysis activity to review and comment on assignment material submitted by students.

Since the analysis activity is driven by the course design, there is no need for the instructor to direct or drive the discussion. During the review and comment on student assignment material, the instructor ensures assignment directions are followed, verifies analysis results are correct, and augments analysis results with supplementary information, if needed. In some cases, the supplementary information may be from personal experience.



### *Instructor Participation In Analysis Activities*

## 8. Student Deviation in Analysis Assignment

Assurance that all students comply with assignment directions is fundamental to the learning success of the analysis activity. Should a student not follow assignment directions, the instructor has the option to note the deviation in the classroom or notify the student by e-mail of the issue. When assignment directions are not followed, a student may require special instruction or assistance. Providing the additional instruction or assistance is best done with personal communication using e-mail.

Often a student deviation in the assignment is noted in the classroom by another student. When this happens, the best approach is for the instructor to note the issue in the classroom, express appreciation for the deviation being noted, and then communicate using e-mail with the student causing the issue.

## 9. Validation of Student Assignment Activity

Students should have verification that their analysis performed is valid and acceptable. This validation first comes from another student, and then it should come from the instructor.

Once the material has been validated by a student, the instructor should then comment on the work. The instructor should take care that the analysis material of a student does not receive comment until after it has been reviewed by another student. Then a comment from the instructor that results posted and reviewed are valid is sufficient.

If the results are incomplete, or invalid, the instructor should provide a positive critique for the analysis material offering suggestions for improvement and provide supplementary material where needed.

The instructor should be aware of the analysis performed by a student to reach results posted in the classroom. Reaching a valid conclusion is required, but the analysis used in

reaching it is important. If the analysis used is not apparent, the instructor should request clarification.

If an invalid result is achieved using a valid analysis, the instructor should be complimentary to the student for partial achievement, and encourage the student to correct deficiencies. In most cases, once student material has been questioned, the student will be quick to correct deficiencies.

## 9. Conclusion – Student Feedback

Analysis is all about defining a problem, selecting key variables, applying those variables to a solving process, and reaching a solution. A solution may be in the form of a number, an essay, a paper, an idea, or a formula.

The result of using these analysis techniques in an online class is collaboration on assignments, students learning from each other, student driven interaction, varied perspectives to a common problem, and a quality learning experience. Student experiences, listed below, support these results.

*Student 1: This is my first experience taking an online class, and what I really appreciate about this class is the collaboration. I have learned a lot from reading everyone's work and I have noticed reading others work has help me through some of the "muddy" areas of what I get confused with.*

*Student 2: The exercises were great; each of us working on a different problem gave us a chance to see more of the problems worked out and explained. I can improve my own*

*skills and given me different insights into doing the problems. Being able to ask a classmate as well as the teacher when we hit a rough spot is going to be a huge help as we proceed*

*Student 3: I like the fast pace of the class and the quick response from the Instructor. I like how we had the opportunity to see some of the problems that my class mates worked on. By seeing other classmates work, this helped to ease the gap of not taking this course in a classroom setting.*

## Acknowledgements

Graphics and selected narrative contain modified excerpts modified from:

Burk, E. (2007). The Online Class What Works.

Retrieved on June 10, 2009, from

<http://books.google.com/books?id=yqSUIpYa10C&dq=isbn:0979479304>

## Author Information

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