Online Student Collaboration

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WHY DO GROUP WORK ONLINE?

Collaboration Essential for Learning

- Number of student-student interactions was best predictor of student success in online classes (Mager, 2012).
- College students benefit from strategic online discussion (Darabi et al., 2013).
- Student-student collaboration is a key component of emerging quality standards, including Quality Matters and EPIC.

Collaboration Essential for Employment

In an interview with Fast Company, Prof. Daniel Alexander Usera said,

> "A lot of times degree programs and employers focus on the hard skills, but then end up with employees who do not know how to **work with other people** or can't **communicate a complex thought** in an effective manner. Although STEM degrees will continue to be in high demand, those skills are not as impactful if the person can't function in a **team-based, information-sharing context**." (Vozza, 2016)

MOTIVATING STUDENTS

Tell Students the “Why”

- Best practices
- Communities of the Future Predictions
- Hearing others’ explanations
- Mastery from teaching others

Build Community First

- Introduction early
  - Ice breaker
  - Connection to major
  - Study habits (for picking group members)
- Be a real person, not just “course instructor”
- Model enthusiasm

Basic Expectations

There should be clear, basic expectations for all groups and all assignments.

- Known Project Length
- Consistent Final Deadlines
- Mandatory Midweek Planning

Let Students Have Control

- Let students pick own groups
- Let students pick tools that work best
- Let students plan (roles, expectations, deadlines)
- Let students customize look/theme in LMS

Evaluations are based on agreed-upon expectations

Example of Group-Set Expectations

RE: Week 5 Attendance - Discussing Strategy

- Will you meet together in person? Where? When?
  We will meet in person on Sunday afternoons at 4:30 at Panera Bread at North Hills for group assignments and discussions.
- How will you share files?
  We plan to use google docs
- How much time will you need to review and discuss each other's answers? 2 Days? 3 Days?
  Assignments should be posted to the google doc no later than two days before the due date.

Student Motivation Grows

- Students build camaraderie
- Difficulty ramps up, students rely on each other more
- Beyond requirements - students end up studying and doing homework together

SAMPLE GROUP PROJECTS FOR STATISTICS AND PRE-CALC TRIG

Statistics – Probability Assignment

- First Group Assignment
- Calculation-heavy
- Handout is Provided in the Conference App

Trigonometry – Polar Graphing Lab

- Discovery-heavy Group Lab
- Handout is Provided in the Conference App
- Desmos Link: https://www.desmos.com/calculator/qhrzgybd05

Statistics – Non-graded Discussion

As an attendance requirement this week, you will discuss a critical thinking question with your group.

Follow these steps:

- Read and study Chapter 6 material.
- Read the question posted in your Group Forum.
- Have a discussion in that forum with your group to develop an answer to the question.
- When everyone feels comfortable with the answer, have one person volunteer to post a 4-6 sentence summary of your group's answer and reason to the Class Discussion Board.
- Read the other group summaries to make sure you are comfortable with these topics.

Statistics – Non-graded Discussion

Discussion Questions:

- What makes a confidence interval “good?”
- How does sample size affect the width of a confidence interval?
- If two samples are collected from the same population, and a confidence interval is calculated for each sample, will you get the same interval each time?
- How does confidence level affect the width of a confidence interval?

Trigonometry – Creative Assignment

- Last Group Project
- Similar to a Formal Presentation
- Open-ended, Multiple Approaches
- Instructions and Sample Work in the Conference App

GROWTH IN COMPLEXITY

Complexity in Content

Statistics

- Probability
- Binomial Distributions
- Normal Distributions
- Confidence Intervals

Trigonometry

- Trig Functions and Unit Circle
- Modeling
- Polar Coordinates and Graphing
- Conics
- Polar form of Conics

Complexity in Project Requirements

- Begin with straightforward problems
- Build in critical thinking and analysis
- By the end, synthesis and evaluation

Complexity in Interpersonal Skills

- **Straightforward Problems**
  - Compare responses
  - Discuss differences
- **Open-ended Questions**
  - Generate ideas
  - Evaluate others' ideas
  - Combine and organize multiple ideas
- **Creative Projects**
  - Plan and brainstorm
  - Negotiate and compromise
  - Create a draft
  - Refine and finalize

TOOLS FOR COLLABORATION

Tools Students Use

- Very Common
  - LMS Discussion Board
  - Texting and/or Messaging Apps
  - Email
- Occasional
  - Voice Chat and/or Phone
  - Video Chat

Different Tools for Different Purposes

Students use different tools depending on the demands of the assignment

- **Planning**
  - Text, Group Chat, Discussion Board
- **Executing and Sharing**
  - Email, Google Docs, Wiki, File Exchange
- **Discussing and Finalizing**
  - Email, Discussion Board, Text, Live Chat

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