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Advancing Underserved Student Success through Transparency and Problem-Based Learning

**TRANSPARENT AND PROBLEM-BASED ASSIGNMENT DESIGN**

**Name:** OSVIL ACOSTA-MORALES

**Institution:** COMMUNITY COLLEGE OF PHILADELPHIA

**Class Name/Description:** HUM 101 – CULTURAL TRADITIONS, Interdisciplinary study of the humanities from the ancient world to the European renaissance drawing on works of literature, philosophy, art and history. Themes of continuing significance, including concepts of the hero, justice and the self are examined in Western and non-Western contexts. The course emphasizes oral and written analysis of primary texts.

**Class Level:** 100-level, Introductory Course

**Defining the Assignment**

1. Describe the assignment. In your description, please include the problem that students were encouraged to explore, key elements of the assignment, and the type of final product students were asked to submit. (You may want to refer to the performance descriptions in the Problem Solving VALUE Rubric.)

Near the end of the term, students were asked to submit an academic essay of approximately 1000 words in which they were told to expand upon and further explore one of the conceptual problems introduced during the semester. The goal was not to conduct outside research. Instead, students were asked to focus their problem analysis and problem solving on the texts and primary content studied in class. Some of the potential problems addressed were (1) how to promote the value of humanities education in the face of limited resources and unsure job prospects for humanities graduates, (2) how to properly respond with respect and empathy to the death of a loved one without letting ourselves be lead into despair, rage, or other destructive emotions, and (3) how to find a proper balance between the need to fight injustice and defend our country with the moral challenges of violence towards other human beings.
Designing a Transparent Assignment

2. How did you redesign the assignment and/or the assignment directions to make the purpose of the assignment more transparent to students? In other words, how did you make the skills students would practice and the knowledge they would gain through the assignment more transparent? Provide specific examples of the changes.

Transparency in the assignment was increased by including additional details about how the assignment tasks were directly linked to the Student Learning Outcomes of the course. More specifically, students are reminded to think about the role of the humanities in shaping society, and to think about how the literature, art, and philosophy of an ancient society can reflect the social, political, and cultural context of its people.

3. How did you redesign the assignment and/or the assignment directions to make the assignment’s task—in this case, a problem-based task—more transparent? In other words, how did you make “what to do” and “how to do it” more transparent? Provide specific examples of the changes.

In this case, no changes were made to the assignment directions that made it more transparent with regards to “what to do” and “how to do it.”

4. How did you redesign the assignment and/or the assignment directions to make the criteria for success more transparent? In other words, how did you illustrate to students “what excellence looks like”? Provide specific examples of the changes.

The criteria for success were made more transparent by sharing with students excerpts from essays that successfully achieved the goals for this assignment. The excerpts were samples of writing from former students that exemplified a demonstrated mastery of the material and significant contribution to our class learning environment as well as a clear understanding and application of the relevant concepts, theories, and analytical skills with a high level of precision and impact.

Incorporating Problem-Based Learning Strategies (Optional Questions)

The assignment was not enhanced in any of the ways described below.

5. How did you enhance the assignment to encourage student engagement with course content through reflection on personal experience?

6. How did you enhance the assignment to synthesize student experience and course content to facilitate students’ exploration of a problem?

7. How did you enhance the assignment to prompt solutions for student-defined problems?
Advancing Underserved Student Success through Transparency and Problem-Based Learning

TRANSPARENT AND PROBLEM-BASED ASSIGNMENT DESIGN

Name: Elisa McCool

Institution: Community College of Philadelphia

Class Name/Description: The course that I taught for this project was English 101: English Composition I. The English 101 course was also linked to a college reading course called English 108, Academic Reading Across the Disciplines.

For several semesters, I collaborated with two other English professors at Community College of Philadelphia, Jill Shashaty and Andrea Ross, to develop collaborative course materials for linked reading and writing courses focused around the themes of sustainability and the food system. These themes provided many opportunities for engaging in problem-based learning as we asked students to engage with real world issues related to food and the environment. In order to reflect the theme for our writing and reading courses, we gave our courses a subtitle: Growing Sustainable Communities in the 21st Century.

Class Level: First course in the college-level writing sequence

Defining the Assignment

1. Describe the assignment. In your description, please include the problem that students were encouraged to explore, key elements of the assignment, and the type of final product students were asked to submit. (You may want to refer to the performance descriptions in the Problem Solving VALUE Rubric.)

For this project, I attempted to enhance the transparency of the two problem-based essay assignments in my course (Essay 1 and Essay 3). (The original versions of these assignments were created along with the other two faculty members from Community College of Philadelphia, Andrea Ross and Jill Shashaty, with whom I had been working on collaborative course materials.)

Essay 1 asked students to write an essay in response to the Youth Food Bill of Rights, a document produced by Rooted in Community, which is a nationwide, youth-focused organization that works on issues of food justice. In their essays, students were asked to respond to the question, “Which one demand in the Youth Food Bill of Rights relates most to your life, and why?” The assignment utilized the Problem Solving VALUE rubric by asking students to define the problem represented by their chosen demand from the Youth Food Bill of Rights and then to discuss and evaluate potential solutions as well as consider implementation, and think about evaluating possible outcomes.
After taking time at home to choose which demand they wanted to address in their essays, students got into groups based on which demand they had chosen to complete a pre-writing activity that guided them through all of the steps of the Problem-Solving VALUE rubric.

Essay 3 asked students to make an argument about which type of food system(s) they thought would be best for Philadelphia’s future in response to Michael Pollan’s book *The Omnivore’s Dilemma*. Students were asked to use evidence from the book to support their argument as well as personal experience from some field trips we took as a class that explored different aspects of the food system in Philadelphia. The assignment directions guided students to engage with all the steps of the problem solving process in order in their essays, beginning with defining problems in the food system and continuing with their proposed strategies and solutions, evaluating the solutions, discussing implementation and how outcomes would be evaluated.

**Designing a Transparent Assignment**

2. How did you redesign the assignment and/or the assignment directions to make the purpose of the assignment more transparent to students? In other words, how did you make the skills students would practice and the knowledge they would gain through the assignment more transparent? Provide specific examples of the changes.

Prior to my participation in this project, neither of these assignments had a section explaining the purpose of the assignment, so one of the most significant changes I made was to add a section on purpose at the beginning of both assignments. For both essays the purpose section explained which of the course student learning outcomes the essay assignments would help students to achieve.

3. How did you redesign the assignment and/or the assignment directions to make the assignment’s task—in this case, a problem-based task—more transparent? In other words, how did you make “what to do” and “how to do it” more transparent? Provide specific examples of the changes.

The biggest change I made to make the task more transparent was to label the steps of the essay assignments with language from the Problem-Solving VALUE rubric – I used language directly from the Problem-Solving VALUE rubric on the essay assignments so that students would more clearly see the links between all of the steps of problem solving and the essays I was asking them to write.

4. How did you redesign the assignment and/or the assignment directions to make the criteria for success more transparent? In other words, how did you illustrate to students “what excellence looks like”? Provide specific examples of the changes.

For both assignments, one small change I made was to specifically label the guidelines section of the assignment “Criteria for Success.”
In addition, I also provided students with an annotated sample student response to the Essay 1 assignment. The annotated sample essay indicated strengths and areas for revision whereas the sample I had been using previously was not annotated. I liked giving students the annotated sample essay because they could easily refer to the successful strategies used in the sample when they were working on the assignment at home.

**Incorporating Problem-Based Learning Strategies (Optional Questions)**

5. How did you enhance the assignment to encourage student engagement with course content through reflection on personal experience?

6. How did you enhance the assignment to synthesize student experience and course content to facilitate students’ exploration of a problem?

Both of these assignments already incorporated personal experience along with course content; Essay 1 asked students to relate a text to their own lives, and Essay 3 asked students to respond to a text using their own ideas and experiences based on several field trips. One addition I made to Essay 1 was to add a pre-writing activity involving a PowerPoint that walked students through all the steps of the Problem Solving VALUE rubric and encouraged them to relate their own ideas and experiences to the text as well as to discuss the problem solving steps with a small group.

7. How did you enhance the assignment to prompt solutions for student-defined problems?

In designing this PowerPoint pre-writing activity for Essay 1, I was hoping that the step-by-step guidance through problem solving as well as the small group discussion would encourage students to more fully develop and elaborate on their ideas about the problem and the potential solutions by doing lots of pre-writing and discussing their ideas with others.
Defining the Assignment
The assignment was the diagnostic essay the first week of class, the transparency essay. Before my introduction to Transparency, the assignment I gave was to have student read CCP’s mission statement and write a five-paragraph expository essay discussing three of CCP’s institutional goals for students that aligned with their own goals. After the transparency workshops, I changed the assignment. The “readings” for the assignment expanded to include the CCP catalog description of the course, the official student learning outcomes for the course, the mission statement, CCP’s “core competencies” (critical thinking, effective communication, information literacy, quantitative reasoning, responsible citizenship, scientific reasoning, technological competence), two quotes about service-learning, and a quote from Mike Rose’s Back to School about the value of a college education beyond the economic gains students may achieve. The quotes about service-learning were included because I was introducing service as a part of English 102—as one of AAC&U highlighted “high impact practices” along with undergraduate research and writing intensive courses that help underserved students become more engaged and successful at college (as the bulk of CCP students are underserved whether minority, low-income, first generation, or older students). The transparency aspect of the revised assignment I was pleased with. I thought the skills listed in the student learning outcomes could be clearly seen in the institutional goals listed in the mission statement and the core competencies—and those same themes and skills were echoed in the service-learning and Mike Rose quotes. I also doubted that students had been presented with this information in such a manner before or asked to think about. The problem-based aspect of the assignment was clumsy and artificial. Our problem was getting a writing sample so that I could assess student writing skills. In the Problem Solving VALUE Rubric terms of “define problem,” “identify strategies,” “propose solutions,” “evaluate potential solutions,” “implement solution,” and “evaluate outcomes,” they really only “identified the problem” of getting me a writing sample. I found the problems-based part of this very difficult and not well suited to a research paper course. I also found the rubric very unhelpful; only the first three items were helpful in framing the research paper topics—the last three were mostly beyond the scope of what students could find out or know.

Designing a Transparent Assignment
I did not specifically format most of the assignments with “purpose,” “task,” and “criteria for success” labels. We talked about these, however. The class was an online course, so I often prompted students at the various stages of the research paper (writing a paragraph about a final paper topic, handing in a 10 source bibliography on the topic, handing in 25 notes from their sources, handing in an additional 25 notes, handing an outline of their papers, handing in a first draft, and handing in a second draft) on what the purpose and tasks of the their assignments were. I also modeled to them examples of strong papers including some of my own to give them concrete ideas for criteria for success. I think that the first assignment, the transparency essay
was very successful. Students have often never read the CCP mission statement or the core competencies. In their essays, students made clear connections to the student learning outcomes and goals in the mission statement and the core competencies. They also saw and articulated how research paper writing skills would help them in the course, in further courses beyond English 102, and many saw the skills as important for their careers and lives beyond college. All the other assignments were designed to help them craft the students’ research papers and make those papers the best they could be. Again, at the various stages of writing the assignments leading to the paper, I tried to link the various stages to the end products—strong research papers. So I asked questions in discussion like “how does writing out the notes help you understand the content of the sources you have” “how does writing out the notes help you to connect information from one source to another?” “how does writing out the notes help you see where you need better or more research?” “how does writing out the notes help you start organizing your paper?” I have continued to add transparency features to my course materials since Spring 2014. (I taught have taught English 102 in Summer I 2015, Fall 2015, Spring 2016, and currently, Summer I 2016.) I continue to add transparency. Many of the online assignments have the “purpose,” “task,” and “criteria for success” labels and explanations. Additionally, I have added in the first week of the course information on Angela Duckworth’s “grit” and asked students to read about student persistence and practice being more important that talent. I am hoping that these materials also help to make students see that though college can be challenging, they can employ strategies and even outlooks that can help them succeed.

**Incorporating Problem-Based Learning Strategies (Optional Questions)**

As I mentioned, I had real difficulty in framing the research paper in terms of a problem-based assignment. “How did I encourage student engagement with course content through reflection on personal experience?” In an online environment, there was very little room for this or places for me to see it. It happened some in class discussion. It also happened in their service-learning journals. Again, Spring 2014, I experimented with not only transparency but with having a service-learning component to the course. I made lots of suggestions for service including online service options. Since CCP has no official center for service-learning and no officially designated service-learning courses, I explained that the service part was an experiment and I asked students to do six hours of service. Having taught for five semesters in a Philadelphia jail, I did my service at Books Through Bars a small organization that has sessions on the first and third Saturdays (11-2) of every month where volunteers read letters from people incarcerated in local jails and prisons who are requesting books and packages those books to be sent to the inmates. I usually do two sessions, so I ask students to try to do at least six hours of service. Some do more, some do less. Again, it is an experiment. The good news is that a handful of CCP faculty are also experimenting with service-learning and the college seems committed to expanding service-learning and eventually moving to officially designated service-learning sessions of courses. These service-learning journals allowed students to reflect on their service and to try put their service in the frame of the college’s mission statement and other community goals. Often they were quite moving descriptions and realizations. The most meaningful experiences were when students’ service corresponded to their research paper topics. How did I synthesize student experience and course content to facilitate students’ exploration of a problem? Again the problem-based frame did not work well for us (and I have actually participated in a two week summer course on problem-based learning in the past). The biggest thing was the text. I used James Crone’s *How Do We Solve Our Social Problems?* the first two semesters. Then I
switched to Richard Sennett’s *Together: The Rituals, Pleasure and Politics of Cooperation*. Currently, I am using Marcus Aurelius’ *Meditations*. Crone was fine—and it overviewed a range of different social issues which was helpful. Sennett was challenging for students. I really like Aurelius—and students find the kind of civic commitment that Aurelius keeps talking about interesting and inspiring. When I switch texts again (a necessary precaution when teaching the research paper), I think I will try another Ancient Greek or Roman text. Students relating the text to their service and/or their research topic were things I tried to encourage, and the results were positive where that happened. How did I enhance the assignment to prompt solutions for student-defined problems? Students picked their research paper topics and I helped them refine those topic into workable theses, but again the whole problem-based frame was artificial for us.
Advancing Underserved Student Success through Transparency and Problem-Based Learning

**TRANSPARENT AND PROBLEM-BASED ASSIGNMENT DESIGN**

**Name:** Margaret Stephens

**Institution:** Community College of Philadelphia

**Class Name/Description:** Earth Science 111 – Environmental Conservation – An introductory survey course covering basic ecological concepts, current issues and potential solutions to environmental challenges. Students from many disciplines choose this as an alternative to biology, chemistry or physics that satisfies a science distribution requirement.

**Class Level:** Non-majors science course without a lab component. 3 credit hours. 15 week, 3 hours/week in-person class meetings. Used Canvas as the Course Management System (LMS).

**Defining the Assignment**

1. Describe the assignment. In your description, please include the problem that students were encouraged to explore, key elements of the assignment, and the type of final product students were asked to submit. (You may want to refer to the performance descriptions in the Problem Solving VALUE Rubric.)

   The Ecological Footprint Analysis assignment I chose to adapt is inherently problem-based. It requires students to respond to an online survey ([footprintnetwork.org](http://footprintnetwork.org)), which queries them about various aspects of their lifestyle (e.g. food, energy and material resources consumed, waste generated) that impact the environment. The results are displayed in terms of the number of Planet Earths that would be needed if everyone on Earth lived the way each individual respondent did. The activity and assignment involved my introducing the concept of an ecological footprint as a unifying framework for the course, having students respond to the online survey individually, discuss the results with two or three classmates, and then develop written responses to reflective questions individually.

   While the online ecological footprint survey was a standard instrument, I modified the assignment itself to align with the categories of the Problem Based VALUE rubric. I changed the layout and design of the assignment to list the categories in bold print and included detailed explanations and prompts to help students respond to each question.

   I distributed to the experimental group a print out of the Problem Based VALUE rubric and explained the steps briefly. In the control group, I just mentioned the VALUE rubric and referred students to the place it was posted in Canvas for their reference.
The assignment became much longer as a result of including all the detailed categories and instructions. It expanded from about three pages to seven.

**Designing a Transparent Assignment**

2. How did you redesign the assignment and/or the assignment directions to make the purpose of the assignment more transparent to students? In other words, how did you make the skills students would practice and the knowledge they would gain through the assignment more transparent? Provide specific examples of the changes.

At the outset of this project, I thought most of my assignments were already quite transparent and that the purposes were clear. However, upon reexamination, in light of the transparency materials provided by AAC&U, it was evident that those elements could be much more explicit.

In my introduction in class and in the written assignment directions, the purpose and goals were stated directly:

**Background**
This activity sets the stage for the entire environmental conservation course. Throughout the semester, we will address fundamental questions about humans’ interactions with and impacts upon Earth’s natural systems. We will explore how we can protect and improve Earth’s life support systems while meeting the needs of current and future generations in sustainable, equitable ways.

**Task**
You will explore an essential problem:  
*How can we reduce our ecological footprints to live sustainably, within our planet’s means?*

**Purpose**
The purpose of this activity and assignment is to help you use a problem solving approach in building a basic understanding of some of the fundamental language and concepts in environmental conservation, specifically ecological footprint, biocapacity, overshoot and sustainability.

You will begin to
- Use a problem solving approach to define issues in environmental conservation and identify and evaluate potential strategies for addressing them.
- Describe the role of various human activities that place stress upon the environment.
• Demonstrate an understanding of the interrelationship between humans and the physical environment.

Although the purpose and learning outcomes of assignments had been stressed in previous versions, I made those sections much clearer by adding headings for the purpose, tasks, criteria for assessment categories and providing the experimental group more detailed written and oral instructions. During class with the experimental group, I delineated the instructions and discussed examples of a range of possible responses to the types of questions posed.

I posted in Canvas, our Learning Management System (LMS), annotated examples of other assignments and a grading rubric for writing assignments.

3. How did you redesign the assignment and/or the assignment directions to make the assignment’s task—in this case, a problem-based task—more transparent? In other words, how did you make “what to do” and “how to do it” more transparent? Provide specific examples of the changes.

The assignment specified the task and delineated the steps needed to accomplish it:

Task
You will explore an essential problem:

*How can we reduce our ecological footprints to live sustainably, within our planet’s means?*

4. How did you redesign the assignment and/or the assignment directions to make the criteria for success more transparent? In other words, how did you illustrate to students “what excellence looks like”? Provide specific examples of the changes.

The assignment described criteria for success:

Criteria for Success
A successful assignment will:

• Use a problem solving approach to develop complete, thorough and thoughtful responses to the questions;

• Demonstrate understanding of ecological footprint, biocapacity, overshoot and sustainability;

• Cite specific examples from the readings and class discussions to support your responses.

Refer to the *Problem Solving Value Rubric* and the checklist for self-assessment for further details.
In addition, I posted annotated examples of satisfactory and incomplete “works in progress” from previous students’ work on other, similar assignments on the course webpage and spent a few minutes in class discussing those examples and having students generate responses to sample questions and providing feedback to one another.

**Incorporating Problem-Based Learning Strategies (Optional Questions)**

5. How did you enhance the assignment to encourage student engagement with course content through reflection on personal experience?
   I used a variety of strategies to prompt students to reflect on and integrate their personal experiences with course content. The strategies included: having students reflect and share through brief presentations in class, journaling or writing short articles for publication in the student newspaper, describing what they had learned from service learning projects and field trips; writing reflective journals about their evolving thoughts and any changes in household or consumer habits; having them work in teams, as we covered topics throughout the course, to develop potential solutions to problems of over-consumption and exploitation of natural resources.

6. How did you enhance the assignment to synthesize student experience and course content to facilitate students’ exploration of a problem?
   I reframed the questions in the assignments to foster deeper reflection. For example, students were asked to compare the ecological footprints of urban vs. rural residents and to explain how changes in diet, walking vs. driving habits, or public policies might affect ecological footprints.

7. How did you enhance the assignment to prompt solutions for student-defined problems?
   The modified assignment explicitly asked students to define problems and suggest potential solutions. I devoted class time for students to work in small groups to develop problem statements and discuss potential solutions.
Advancing Underserved Student Success through Transparency and Problem-Based Learning

**TRANSPARENT AND PROBLEM-BASED ASSIGNMENT DESIGN**

Name: Michael Parra

Institution: Heritage University

Class Name/Description: Biology 110/General Biology

Class Level: 100 level

**Defining the Assignment**

1. Describe the assignment. In your description, please include the problem that students were encouraged to explore, key elements of the assignment, and the type of final product students were asked to submit. (You may want to refer to the performance descriptions in the Problem Solving VALUE Rubric.)

   Students were given a report published by the Washington State Department of health. This report discussed the disparities (between socioeconomic class and race) in diabetes diagnoses in the state of Washington. They were to write a 1-2 page paper addressing this problem. In the paper, they were asked to: define the problem, identify strategies to address the problem, propose a solution to the problem, and evaluate their potential solutions.

**Designing a Transparent Assignment**

2. How did you redesign the assignment and/or the assignment directions to make the purpose of the assignment more transparent to students? In other words, how did you make the skills students would practice and the knowledge they would gain through the assignment more transparent? Provide specific examples of the changes.

   In the experimental assignment, the outcomes were listed. The three learning outcomes were: 1) Reading a scientific report and analyzing data, 2) Developing a plan to combat the problem, and 3) Understanding the importance of proper scientific communication. In addition, the instructor gave a background section on diabetes. This background information defined terms as well as the molecular cause and differences between Type I and Type II diabetes.
3. How did you redesign the assignment and/or the assignment directions to make the assignment’s task—in this case, a problem-based task—more transparent? In other words, how did you make “what to do” and “how to do it” more transparent? Provide specific examples of the changes.

In the experimental assignment, a description of the three tasks was given. For example, after the students were asked to define the problem, they were given an explanation of what it meant to define the problem (as outlined and defined in the value rubrics).

4. How did you redesign the assignment and/or the assignment directions to make the criteria for success more transparent? In other words, how did you illustrate to students “what excellence looks like”? Provide specific examples of the changes.

The students in the experimental class were given the value rubric whereas the students in the control class did not have access to the value rubric.

Incorporating Problem-Based Learning Strategies (Optional Questions)

5. How did you enhance the assignment to encourage student engagement with course content through reflection on personal experience?

6. How did you enhance the assignment to synthesize student experience and course content to facilitate students’ exploration of a problem?

7. How did you enhance the assignment to prompt solutions for student-defined problems?
Advancing Underserved Student Success through Transparency and Problem-Based Learning

**TRANSPARENT AND PROBLEM-BASED ASSIGNMENT DESIGN**

Name: Noel Vincent

Institution: Heritage University

Class Name/Description: English Composition 101

Class Level: First year

**Defining the Assignment**

1. Describe the assignment. In your description, please include the problem that students were encouraged to explore, key elements of the assignment, and the type of final product students were asked to submit. (You may want to refer to the performance descriptions in the Problem Solving VALUE Rubric.)

**Evidence Based Summary & Response Essay**

The goal of the essay is to evaluate the student’s proficiency in identifying and summarizing key portions of an informative article, including its thesis, main points and opinions while also offering comment or opinion of the student’s own in the essay.

For this assignment, students are asked to read and evaluate an article, then write a summary and response essay based on an article provided by the professor. Students are assigned to write 3-4 pages and at least five (5) paragraphs but the summary should not exceed more than 2/3 the length of the original article. The essay is expected to adhere to the following rubric guidelines thus showing adequate summary, response and writing skills.

**The essay is evaluated on the following**

- Appropriate essay organization, including an introduction, body, conclusion and transitions.
- A section introducing the context of the essay and which introduces the article’s title, author, and author’s claim.
- A presentation summary of the main ideas from the article.
- A critique of the article’s claims with personal responses to each of its main points which includes a well written thesis statement.
- Development that provides detail for the critique
- Appropriate writing conventions and mechanics with correct APA citation and documentation
Designing a Transparent Assignment

2. How did you redesign the assignment and/or the assignment directions to make the purpose of the assignment more transparent to students? In other words, how did you make the skills students would practice and the knowledge they would gain through the assignment more transparent? Provide specific examples of the changes.

This department-wide summary response essay in English was notorious for student oversight. They tended either to summarize or respond, but not both, as the assignment required.

The transparent revision was a scaffolded assignment divided into three parts to be submitted independently. The result was not an overwhelming success; students largely disregarded the initial summary and response portions, instead, opting to complete the final summary/response essay at the last minute.

Also, an assignment expanded from a single murky page to a crystal clear 10-page packet is equal in inaccessibility. Grades did not improve, but new student biases and habits were revealed for further improvement.

The experiment can be considered a success, if only at times it swapped inefficiency for inefficiency, yet it opened a conversation between faculty that resulted in-sighted perspective: clarity comes with intentionality in assignment design, format, and content that reflects the students in their world.

It’s the 21st century way to re-see; text and ideas are as fluid as the flick of a button: delete. copy. paste. Transparency is an active progress that begins and ends with collaboration.

3. How did you redesign the assignment and/or the assignment directions to make the assignment’s task—in this case, a problem-based task—more transparent? In other words, how did you make “what to do” and “how to do it” more transparent? Provide specific examples of the changes.

Specific Changes included providing the rubric for the assignment, and providing a student example, with the emphasis “This is a guide, not to be a model that you follow entirely.” Finally the assignment included three steps:

Assignment 1: Article Summary, upload to My Heritage Due Sun. 1/25
Assignment 2: Response/rhetorical critique, upload to My Heritage Due Sun. 2/1
Assignment 3: Completed Summary Response Essay, upload to Chalk and Wire Due Wed. 2/4
4. How did you redesign the assignment and/or the assignment directions to make the criteria for success more transparent? In other words, how did you illustrate to students “what excellence looks like”? Provide specific examples of the changes.

Specifically, we reviewed the rubric and handouts in class. The rubric and the student example/model are available in previous submission. Thank you.

Incorporating Problem-Based Learning Strategies (Optional Questions)

5. How did you enhance the assignment to encourage student engagement with course content through reflection on personal experience?

6. How did you enhance the assignment to synthesize student experience and course content to facilitate students’ exploration of a problem?

7. How did you enhance the assignment to prompt solutions for student-defined problems?
Advancing Underserved Student Success through Transparency and Problem-Based Learning

**TRANSPARENT AND PROBLEM-BASED ASSIGNMENT DESIGN**

Name:  
Tamera Wiley-Fauth  
Institution:  
Heritage University  
Class Name/Description:  
Introduction to Statistics  
Class Level:  
Freshman/Sophomore – general undergraduate requirement course

**Defining the Assignment**

1. Describe the assignment. In your description, please include the problem that students were encouraged to explore, key elements of the assignment, and the type of final product students were asked to submit. (You may want to refer to the performance descriptions in the Problem Solving VALUE Rubric.)

   **Transparency Designed Assignment for Math 221 Introduction to Statistics:** This assignment was an incremental approach to incorporate student generated data to build student-ownership and increase the level of relevancy in using descriptive statistics to characterize and compare data sets, take realistic look at how economic factors impact their lives and asked to develop strategies to take a proactive approach at improving their monthly electric bill, as well as come up with strategies to develop an active civic voice in political decisions that impact the price of electricity in their region.

**Designing a Transparent Assignment**

2. How did you redesign the assignment and/or the assignment directions to make the purpose of the assignment more transparent to students? In other words, how did you make the skills students would practice and the knowledge they would gain through the assignment more transparent? Provide specific examples of the changes.

   Intentional focus on clarity in written tasks - purpose - learning objectives - and building relevancy of context using student comments, questions, and experiences.
Included a purpose statement at the beginning of the assignment as well as rationale for why students need to know these skills. (specific example from the assignment included below).

**Purpose:** The purpose of this assignment is to gain a solid understanding of Descriptive Statistics and learn how to present the facts and figures in a simplified form by using a variety of statistical measures to communicate the story in the data that is easy to understand.

Our society is guided by data-driven decision making. We are constantly attempting to improve our current state by making things better in terms of issues such as healthcare, employment opportunities, education, financial stability, etc. The power in using statistics is to allow us to study the behavior and make comparisons so that we can confidently do things such as: evaluate the effectiveness of things from health care products to educational programs, identify automobiles that yield the most efficient gas mileage for the price, identify the computer software with the greatest degree of versatility, find the company that has the offers the best value in mortgage, life or auto insurance, locate the best neighborhood in which to raise a family, or identify the career fields that have the greatest demands for jobs in the future, etc.

3. How did you redesign the assignment and/or the assignment directions to make the assignment’s task—in this case, a problem-based task—more transparent? In other words, how did you make “what to do” and “how to do it” more transparent? Provide specific examples of the changes.

Choose contexts that are relevant to my audience. This requires allotting time for research and revision of materials.

Use of a rubric to create framework for PBL assignments

Use Transparency strategies (written and verbal) to provide clarity of the purpose, task and criteria for students.

Use multiple ways to communicate three key parts verbally, in writing (on the assignment, on the syllabus/course plan, and provide clear and accessible support structures when students have questions.

4. How did you redesign the assignment and/or the assignment directions to make the criteria for success more transparent? In other words, how did you illustrate to students “what excellence looks like”? Provide specific examples of the changes.
Specifically state the criteria to be successful, clearly state key characteristics of student work that will be assessed, followed with a list that includes what, and how to turn the assignment in including the due date. All students were given a copy of the PBL rubric for how the extension exercises would be scored (PBL part of assignment): specific instructions are included below.

Criteria for Success: A successful assignment will have the following characteristics:

- A complete listing of the data values with clear label of what the values represent.
- A carefully selected, clearly labeled and well-designed visual (graph) of the data set.
- A complete characterization (written description) of the data set with listing of key statistical measurement values, a clear written description of the graph indicating whether the data is skewed or not, shape of distribution, a statement describing the amount of variation, with any oddities in the data clearly noted.
- Requested data comparison clearly labeled and justified with appropriate measurements.
- Extension answers brief (one or two – at most) paragraphs that are well written, address all questions and communicate student voice and experience.
- Complete List of research sources.
- Upload your documents to Chalk N Wire Math 221 Folder by March 10th, 2015

Incorporating Problem-Based Learning Strategies (Optional Questions)

5. How did you enhance the assignment to encourage student engagement with course content through reflection on personal experience?

6. How did you enhance the assignment to synthesize student experience and course content to facilitate students’ exploration of a problem?

7. How did you enhance the assignment to prompt solutions for student-defined problems?
Advancing Underserved Student Success through Transparency and Problem-Based Learning

TRANSPARENT AND PROBLEM-BASED ASSIGNMENT DESIGN

Name: Michael P. Saclolo

Institution: St. Edward’s University

Class Name/Description: Mathematics for the Liberal Arts
A course in general quantitative literacy, intended for the non-Science, non-Mathematics major. Topics include methods of problem solving, real number operations and applications, mathematical modeling, basic finance, geometry and symmetry, voting and apportionment, networks and graph theory, and elementary probability and statistics.

Class Level: Freshman

Defining the Assignment

1. Describe the assignment. In your description, please include the problem that students were encouraged to explore, key elements of the assignment, and the type of final product students were asked to submit. (You may want to refer to the performance descriptions in the Problem Solving VALUE Rubric.)

The assignment is designed to use and reinforce the concept of “percent” in the context of income levels. The assignment has three components: 1) A worksheet, 2) Essay (letter), 3) Oral Presentation. The essay component of the essay is the primary focus of the problem-solving aspect. For this portion, students are asked to act as life consultants to a fictional “client” who wants to make a major move in his/her life. The student must take into consideration all of the client’s requirements and write the letter to the client where the student recommends a solution (city to move to), giving reasons based on the client’s requirements. The student also does an oral presentation outlining the contents of the letter.

Designing a Transparent Assignment

2. How did you redesign the assignment and/or the assignment directions to make the purpose of the assignment more transparent to students? In other words, how did you make the skills students would practice and the knowledge they would gain through the assignment more transparent? Provide specific examples of the changes.

• The assignment was delivered after the introduction of the lesson on uses (and abuses) of “percent,” which is the focus of the assignment. It was also designed to connect with a life-issue, which is income and how income levels vary in different cities.
3. How did you redesign the assignment and/or the assignment directions to make the assignment’s task—in this case, a problem-based task—more transparent? In other words, how did you make “what to do” and “how to do it” more transparent? Provide specific examples of the changes.

- The primary task was to resolve a “problem” for a fictional “client” delivered through a letter to the client. Detailed instructions as to the content of the letter was provided.
- Students were provided a “Comparison Table” (last page of assignment packet) to fill out in order to store and organize the information needed to resolve the client’s problem and write the letter.

4. How did you redesign the assignment and/or the assignment directions to make the criteria for success more transparent? In other words, how did you illustrate to students “what excellence looks like”? Provide specific examples of the changes.

- A detailed grading rubric (table) was provided, where the number of points to each component or sub-component is given.
- Though the assignment is fulfilled out of class, periodic “check-in” in class was performed. During the this periodic check in, instructor asked for general progress report and welcomed questions from the students as to clarifications on how to progress with the assignment.

Incorporating Problem-Based Learning Strategies (Optional Questions)

5. How did you enhance the assignment to encourage student engagement with course content through reflection on personal experience?

6. How did you enhance the assignment to synthesize student experience and course content to facilitate students’ exploration of a problem?

7. How did you enhance the assignment to prompt solutions for student-defined problems?
MATH 1312 Project I

What Percent Are You?

General Instructions

Household income has become a hot-button issue in politics and the economy in recent years. The term “one per center” has been used to refer to those people whose incomes are in the top one percent, and many regard this group of people as having a comfortable life. But since the cost of living varies in different parts of the country, a certain income may or may not afford a comfortable living in every region.

For this project, you will access the following website, examine household incomes, and help make decisions about the lives of fictional characters.

- The web page is called “What Percent Are You?” by the New York Times. On this site, one can enter a household income and find out where does this income lies as compared to others in the country or certain regions of the country. From now on refer to this site as “Percent Site.” (On a search engine, entering “what percent are you,” usually leads to this page as the first result.)
  
  http://www.nytimes.com/interactive/2012/01/15/business/one-percent-map.html

Familiarize yourself with the interactive features of the Percent Site. Note that non-subscribers to the New York Times web site are limited to ten article or feature views per month total.

Now proceed with the project. The purpose of this project is to reinforce the proper use and interpretation of percent.

There are three parts to this project:

- Part I is the **Exercise Sheet that is page 3 of this packet.**
- Part II is the **Written Composition** portion. This part has two portions: a LETTER and a COMPARISON TABLE to fill out. Instructions for this part are on page 4 of this packet.
- Part III is the **Oral Presentation.** The oral presentation portion is based on the written composition portion. So you must complete the Part II before doing Part III. In your presentation you must:
  - State your client’s name.
  - State the city where you recommend your client to move.
  - State the mean or median salary (specify which) for their profession in the new city.
  - Explain in what ways you have satisfied the client’s wish list, citing the comparisons you made in the LETTER and the COMPARISON TABLE.

The presentation must 45 to 75 seconds long. No visual aids are allowed for this presentation. The presentation will be scored on whether you addressed the four items above, whether you stayed within the time allotted, as well as how well you delivered your presentation (engaging? appropriate volume? good flow?).

DUE DATE and WHAT TO TURN IN:

The due date for the written portion and the oral presentation is [Day and Date].

On this day, turn it a packet consisting of the following sheets of paper stapled together in the following order:

- Grade Sheet (with your name on top).
- Exercise Sheet
- Comparison Table
- Letter to Client
Math 1312 Project I: What Percent Are You?

REMINDER DUE DATE and WHAT TO TURN IN:

The due date for the written portion and the oral presentation is [Day and Date]. On this day, turn in a packet consisting of the following sheets of paper stapled together in the following order:

- Grade Sheet (with your name on top).
- Exercise Sheet
- Comparison Table
- Letter to Client

Grade Sheet

<table>
<thead>
<tr>
<th>Component</th>
<th>Description of evaluation criteria.</th>
<th>Maximum Points</th>
<th>Points obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise Sheet (1-9e)</td>
<td>Total out of 20:_________ x 2.5 - _________</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comparison Table contained all relevant data and sources.</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Letter described plan of attack to client’s problem.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Letter addressed all items in wish list (whether fulfilled or not),</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Written Composition</td>
<td>Claims in the letter supported by sources (as mentioned in Comparison Table), and mathematical statements and arguments.</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Satisfied all five on client’s wish list (2 pts.); three to four on wish list (1 pt.); only one or two on the wish list (0 pts.).</td>
<td>Up to 2 points</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Letter is in an acceptable standard format. Written expression of the letter is in proper grammar, correct spelling and style. Letter is at least 400 words in length.</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Oral Presentation Total (10 points total)</td>
<td>Fulfilled requirements for the content of the oral presentation (one point each for first three bullets, up to two points for the fourth bullet).</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Right length (45-75 seconds) and Overall Presentation Quality (Was the presentation engaging? Did the presenter speak with an appropriate voice volume? Did the presentation have a good flow?)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Did the student evaluate others’ presentations?</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total points from above.</td>
<td>101</td>
<td></td>
</tr>
<tr>
<td>Penalties</td>
<td>Packet not stapled, not neat, not in the right order, missing items such as the grade sheet, letter not typed (up to 5 points off).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lateness (2 points off per class day late).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Part I: Exercise Sheet for “What Percent Are You?”  
(Note: This is the SECOND page of what you turn in.)

Do the following exercises. Use the Percent Site for this portion when necessary.

If your family (last) name begins with A-L, then circle the following dollar amount: $59,500; but if your last name begins with M-Z, circle the following amount: $73,700. For the rest of the exercises, when something refers to “your income,” or “my income,” use the amount you circled.

1) (1 pts.) If someone’s income is in the top 5%, is it necessarily in: The top 10%? YES or NO
   The top 1% YES or NO

2) (1 pts.) If someone’s income is in the bottom 10%, is it necessarily in: The bottom 25%? YES or NO
   The bottom 5% YES or NO

3) (2 pts.) If your neighbor’s household income:
   a) 30% more than yours, what is his/her income? Show your work, round to the nearest whole dollar, and circle your final answer.
   b) 25% less than yours, what is his/her income? Show your work, round to the nearest whole dollar, and circle your final answer.

4) (2 pts.) Enter your income into the entry field of the “What Percent Are You” site. Now click on the Austin, Tex. region on the interactive map. (You may need to center Texas on the screen and zoom in.) What does the site tell you about how your household income compares to the (e.g. “Top X%” or “Bottom Y%”)?
   Answer:______________________________________

5) (2 pts.) Now click on the Wichita Falls, Tex. region (close to the border with Oklahoma). How does your household income compare to the rest in that region (e.g. “Top X%” or “Bottom Y%”)?
   Answer:______________________________________

6) (2 pts.) Suppose that the Austin, Tex. region consists of 784,000 households. Using your answer in number 4 above, how many households in the region have an income at or above your income? Compute the answer below, showing your calculations, and round to the nearest whole number. Circle your answer.

7) (2 pts.) Click back on Austin, Tex. and look to the left of the map. It should say some more information about household incomes in the Austin, Tex. region. According to the information on this part, what household income would put you at the top 1% of incomes in Austin? Write the answer below. (The answer should be bigger than your income.)
   Answer______________________________________

8) (4 pts.) Fill in the blank with the closest whole number, and show your calculation below:
   The amount that is my answer to Question 7 is __________ times my income.
   Show your calculation here:
   __________________________________________

9) (4 pts.) Suppose you want to increase your income so that you are in the top 1% in the Austin, TX region.
   a) What is the smallest amount of money do you need to add to your income to reach the top 1% in the Austin, TX region. Show all your calculations and circle your answer.

   b) What percentage of your income does your answer to question 9a represent? Show your calculation, round to the nearest whole percent, and circle your answer.
Part II: Written Composition Portion of the “What Percent Are You?” Project

Instructions for Part II

You are a life consultant who is hired to help people make their decisions. Three current Austinites want to leave Texas for new adventures. They are all looking for a new place to live in the US. Each person has a particular career and a wish list about where and how they want to live. Read each person’s scenario below, then choose one to be your “client.”

(1) Amparo Argonath. Amparo is a web designer. Here is her wish list:

- She would like her income to be in the top 30% or better in her community
- For housing, she would rather be in an area where she can find a home to buy with an asking price of no more than three times her annual salary.
- She would like to live in a community where the violent crime rate is less than 500 per 100,000 people per year.
- She likes to go camping at state or national parks at least twice a year, but prefers not to drive more than six hours one way to the park.
- She likes steaks and steakhouses. She would very much like to live at places with such eating establishments within a half-hour drive from home.

(2) Imre Ithilien. Imre is a high school English Teacher. Here is his wish list.

- He would like his income to be in the top 40% or better in his community.
- He would rather rent at first and pay no more than $1000 per month rent for a one bedroom apartment.
- He would like to take public transportation to work and to other activities as much as possible.
- He likes Italian cuisine. He would very much like to live at places with such eating establishments within a half-hour drive from home.

(3) Uzma Udun. Uzma is a graphic artist. Here is her wish list.

- She would like her income to be in the top 50% in her community or better.
- She doesn’t mind sharing a house or apartment, but wants to limit her rent to $700 per month.
- She would like to take enrichment courses at a local community college.
- She likes to go to a Comic Con at least once a year, but wants to minimize her travel costs.
- She likes Southern (USA) food. She would very much like to live at places with such eating establishments within a half-hour drive from home.

Your job is to choose one of them as your client. You must do research (internet ok) into possible areas to live (from the “What Percent Are You Map?”), and satisfy as many items on their wish lists as possible. So you must:

1) Find out the mean or median salary for their profession in the new location and in Austin.
2) Research the various items on their wish list both in the new city and in Austin to be able to make comparisons.
3) Write a letter (at least 400 words) to your client with the proposed location chosen from the “What Percent Are You?” interactive map. This letter must be typed not handwritten. Include the date, salutation, complimentary closing, and signature, though you may use first names to address your client. You must address all five items on his/her wish list. Your goal is to come as close to satisfying all of the items. Your client would like to know about your plan of attack in solving his/her problem, so say something about how you approached the problem. Also when you make a claim in the letter, make sure you tell her where you are getting the information (e.g. “According to ..., Place X has five Ethiopian restaurants.) Web sources are fine, but be as specific as you can as to name of the site or the organization it represents. Your clients also also be very numerically oriented and would very much appreciate as much mathematical comparison as possible in your analysis (e.g. “The violent crime rate in Place X is twice that of Place Y,” “Thirty percent of the apartment listing in ... offer a one-bedroom for $1000 or less”).
4) To help you determine your recommendation, fill out the accompanying COMPARISON TABLE. As sources, you may use information found online, but try to name the web site’s name (e.g. New York Times web site), rather than write the URL, unless the URL is short and clear as to what organization it represents. This table to your letter shall accompany your letter.

The product for this part of the “What Percent Are You?” project is the LETTER to the client and the accompanying COMPARISON TABLE.
<table>
<thead>
<tr>
<th>City and State</th>
<th>Austin, Texas</th>
<th>Chosen city and state (NOT in Texas):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean or median (specify which) salary for profession in given city or region:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source(s) for salary data:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What percentage does that place them in? (according to the site; specify top or bottom):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>House buying or house/apartment renting data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source(s) House buying or house/apartment renting data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violent crime rate OR transportation OR community college data (depending on client chosen):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source(s) for Violent crime rate OR transportation OR community college data:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreational interests information:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source(s) for recreational interests data:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Favorite cuisine information data:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source(s) for favorite cuisine information data:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Name: Yuanyuan (Connie) Kang

Institution: University of Houston - Downtown

Class Name/Description: Biol3303 General Genetics. This core course is required for all biology majors and teaches concepts in molecular genetics and classical genetics. Students are encouraged to apply them to real life phenomena.

Class Level: Junior level

Defining the Assignment

1. Describe the assignment. In your description, please include the problem that students were encouraged to explore, key elements of the assignment, and the type of final product students were asked to submit. (You may want to refer to the performance descriptions in the Problem Solving VALUE Rubric.)

This assignment addresses a hot issue in the media on genetically modified organisms (GMO) as food. Through this assignment, students will learn the scientific facts on GMO and their impacts on the society through research on published literature and media. Students will also explore the reasons behind people’s attitudes toward GMO food by reflecting on their own positions on this issue and by designing a short survey followed by implementation. The assignment was designed as three steps with collaborative learning and peer feedback built in its mechanism.

Step one. Before the assignment, each student had to write a pre-assignment self-reflection essay based on several prompts, which include identifying problems, proposing hypotheses and solutions. This assignment serves as a baseline for their previous knowledge on this issue and their problem solving skills as defined in the AAC&U rubric. It also serves as an instrument to receive feedback from peers and instructors.

Step two. Students formed groups and picked one genetically modified organisms (GMO) food to collect information on with instructor’s guidance. As a group and with feedback from the instructor, each group came up with five questions they thought most important to address. Furthermore, each group constructed a wiki page with creditable information that addresses each question. This step aimed to develop students’ problem solving skills in a collaborative way. The product of this step was mainly used as the resource for the next step and to teach students how to approach and solve problems. Therefore, they were not used as scores for the project.
Step three. As the final assignment, each student developed a 5-question survey to investigate people’s position on GMO food and the reasons for their decisions as well as conducted a preliminary analysis using the survey. When doing so, they were asked to only use the information from the wiki pages developed above and provide rationales for each survey question and analyze its results. All steps of the problem solving skills were assessed in this final product.

Designing a Transparent Assignment

2. How did you redesign the assignment and/or the assignment directions to make the purpose of the assignment more transparent to students? In other words, how did you make the skills students would practice and the knowledge they would gain through the assignment more transparent? Provide specific examples of the changes.

In the transparency instruction for the final product only in the intervention class, the purposes of the assignment were outlined in details and specified as shown. Furthermore, a rationale was put forward in why the assignment was important. Examples:

Purpose
You will demonstrate the following knowledge and skills in this assignment
- Demonstrate basic knowledge on GMO food in general and specifically in at least one example
- Identify problems related to the common attitudes toward GMO food among the public
- Design a strategy to evaluate the problems identified
- Present sufficient arguments or rationales for decisions

Rationale
In order to design a good survey, we first have to identify the key factors that affect people’s opinions and attitude toward the topic. For example, one factor that could play a role is the lack of education or knowledge on GMO food. Do you think this factor could apply to you? Specifically, you have now reflected on your own position, explored in depth one example of GMO food and addressed the top five questions for that example. Does this gain of knowledge or exposure to the constructive discussion strengthen your belief, shift your position, or even change your mind? Do you think that applies to the general public?

In turn, designing a good survey and collecting data can help us understand more the gap between people on opposite sides. This knowledge can be beneficial in many ways. The companies who generate GMO food can use this information to make better products. Schools and government agencies can use this information to clarify misconceptions and provide educational opportunities to the general public. Policy makers can make better informed decisions given more insights into people’s thoughts and concerns. Consumers can gain by receiving information through the process.
3. How did you redesign the assignment and/or the assignment directions to make the assignment’s task—in this case, a problem-based task—more transparent? In other words, how did you make “what to do” and “how to do it” more transparent? Provide specific examples of the changes.

In both classes, the three steps of the assignment were introduced sequentially and outlined in details. Templates were provided to convey clear expectations and to ensure consistency in the format and layout the products. However, in the intervention class, several transparency techniques were scaled up to provide more clarity. For examples,

- A debate was carried out in the intervention class at the beginning of the semester using the philosophical chair format. This helped students see the issues/problems and appreciate the diversity of opinions and arguments behind their attitudes. This served as a great introduction to the critical thinking components of problem solving.
- The pre-assignment reflection essays were given to senior students in microbial technology class for peer feedback and returned with comments to each student.
- Flexible formats were used in the intervention class, including more class discussion on what to do and how to do it, a more visual PPT format of the instruction, in addition to text format instructions.
- Tutorials were included as a resource on how to design surveys.

4. How did you redesign the assignment and/or the assignment directions to make the criteria for success more transparent? In other words, how did you illustrate to students “what excellence looks like”? Provide specific examples of the changes.

- In addition to the template, examples were included for the intervention class. In the example below, the gray text was the example given only to the intervention class.

<table>
<thead>
<tr>
<th>Question</th>
<th>Why are there divided opinions on GMO food?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pertinent facts on GMO food in general</td>
<td>Here you should list some common general knowledge on GMO food. i.e. how is GMO usually generated? What are some common reasons for generating GMO food? How abundant is GMO food in our market? Etc. Example: GMO food comes from genetically modified organisms. A gene is transferred into the host genome using the recombinant DNA technology and can be stably passed on to future generations.</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Reasons why people have a positive or negative attitude toward GMO?</th>
<th>Reasons for people to support GMO food</th>
<th>Specify at least one GMO example that the reason is based on.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td>People believe that GMO crops can be more resistant to harsh conditions such as drought, therefore, can increase the crop yield and land productivity</td>
<td>Corn is genetically modified with CspA and CspB, encoding for cold stress proteins.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reasons for people against GMO food</th>
<th>Specify at least one GMO example that the reason is based on.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td>People think that GMO food may be harmful to one’s health because it contains hazardous chemicals</td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

- Criteria are more defined for prompt questions. The gray text was only given to the intervention class.

**Prompt 1.** Do you think the results from the survey accurately reflected one’s position on GMO and provided insights into the reasons behind their positions?

This should be 100 to 300 words. You should make general comments and refer to specific questions as necessary. If there is a discrepancy between the survey results and self-identified position, specify the question and suggest any modification to the question.

**Prompt 2.** Is your survey broad enough to cover a range of attitude and different factors that affect one’s position?

This should be 100-300 words. The survey is considered broad if it addresses four or five factors identified in your worksheet and show a range of responses from you and your family. The survey is too narrow if it only addresses one or two factors in the worksheet, or, showed the same answers for everyone. Suggest any modification to the survey questions so it can capture a wide range of responses.
Incorporating Problem-Based Learning Strategies (Optional Questions)

5. How did you enhance the assignment to encourage student engagement with course content through reflection on personal experience?

6. How did you enhance the assignment to synthesize student experience and course content to facilitate students’ exploration of a problem?

7. How did you enhance the assignment to prompt solutions for student-defined problems?

The above three questions are related so I am addressing them altogether. Three actions were taken to enhance student engagement and approach problems for student-defined problems.

- In the pre assignment reflection, students were asked to reflect on their own attitude toward GMO and evaluate why that is relating to personal experiences.
- In the second step, the type of GMO food and important questions were chosen by the students based on their unique interests and personal experiences.
- For the last step, the students were asked to try the survey questions on their family and friends, to whom they relate in their backgrounds and environments. This approach has pushed students to customize the problems to their unique experiences.
Advancing Underserved Student Success through Transparency and Problem-Based Learning

TRANSPARENT AND PROBLEM-BASED ASSIGNMENT DESIGN

Name: John Kelly

Institution: University of Houston - Downtown

Class Name/Description: PED 3301: Introduction to Special Populations. Course focuses on developing the conceptual knowledge of special education in pre-service general education teachers

Class Level: All Levels

Defining the Assignment

1. Describe the assignment. In your description, please include the problem that students were encouraged to explore, key elements of the assignment, and the type of final product students were asked to submit. (You may want to refer to the performance descriptions in the Problem Solving VALUE Rubric.)

Transparency helped me transition the traditional professor directed survey course using lectures and slides and flip-it into a more 21st century, technology driven, student-centered/directed, interactive and collaborative course that students demand in today's University classrooms - online or hybrid. My flipped classroom model features: discussions, multimedia presentations, service learning projects, mini blogs, web quests, wikis, games, surveys, assignments, online quizzes, and webinars throughout the semester. All My students use their time to engage in meaningful authentic learning activities, Team based learning, that brings the curriculum to life and promotes critical thinking. Instead of getting a lecture, Power Point, and discussion, my students work in their groups (virtually) prepared to work with their peers and apply what they have learned to problem-based case studies - students in an online class were asked to use a Team based learning strategy to develop Differentiating Instruction for 5 different Disabilities.

Designing a Transparent Assignment

2. How did you redesign the assignment and/or the assignment directions to make the purpose of the assignment more transparent to students? In other words, how did you make the skills students would practice and the knowledge they would gain through the assignment more transparent? Provide specific examples of the changes.
3. How did you redesign the assignment and/or the assignment directions to make the assignment’s task—in this case, a problem-based task—more transparent? In other words, how did you make “what to do” and “how to do it” more transparent? Provide specific examples of the changes.

4. How did you redesign the assignment and/or the assignment directions to make the criteria for success more transparent? In other words, how did you illustrate to students “what excellence looks like”? Provide specific examples of the changes.

I am going to answer.

The whole course was designed around having students work independently and collaboratively with content using virtual technology in order to initiate self learning on new topics. This allowed me opportunities to offer students meaningful real world experiences using evidenced based instructional methods that engage students’ critical thinking – service learning, project based learning, and team-based learning online in real time. The course was redesigned to foster communication between individuals and groups. The multiple means of engagement meets the needs of all students including those with disabilities and any learning style. Communication using new virtual technology was strictly outlined in the instruction from the beginning and practiced throughout the course. Using a structured approach makes it easy for students to navigate the course, communicate and interact in real time with others via any electronic devise including smart phones, and frees up my time to provide immediate and timely individual feedback that is responsive to each student’s needs, which I believe has had a major impact on my students’ interest, scholarship, and course evaluation. In other words, the students were focused on their teams and project and I was focused on individual understanding. I offered a syllabus that was transparently aligned with the course objectives and the content. I used new communication technology (virtual instruction) to systematically and transparently throughout the course to indoctrinate my students from the beginning of the semester to buy into this brave new world of team work that will be essential for their success in the future. I also offered extra credit points as incentives along the way. Everything they learned in the course, content and team work, culminated in a final project based learning assignment, Differentiating instruction for 5 disabilities.

Incorporating Problem-Based Learning Strategies (Optional Questions)

5. How did you enhance the assignment to encourage student engagement with course content through reflection on personal experience?
6. How did you enhance the assignment to synthesize student experience and course content to facilitate students’ exploration of a problem?

7. How did you enhance the assignment to prompt solutions for student-defined problems?

I am going to answer #5, #6, and #7 together

This course was designed as a model for achieving the principles of universal design for learning and differentiating instruction for all students – both are critical keys to success in today’s general education classroom. My students are explicitly informed and treated in my classes as though they are both special and gifted students - transparency. Therefore, all the activities in this course including project based learning (differentiating Instruction assignments) through team work are a set of scaffolds and choices that are designed to offer them a basic understanding of the culture of disabilities. Each element is aligned with core standards and placed within a learning module to assist them in learning how to provide services and accommodations for students with specific disabilities that are essential for them to be successful in their own future classrooms. There is a minimum amount of material and information on special education that I believe is essential for all of them to functionally master. This core content is presented in modular fashion using a unique empirical method called organic learning, which involves learning on multiple fronts at the same time. The required subject matter, class communication, and team work are scheduled on the syllabus as in-class activities, wikis, blogs, discussions, videos and quizzes, group work, assignments, and tests. Everything else in each learning module is extra credit work - designed to help them work together to become fluent in special education, push the envelope, leave their comfort zone, develop professional skills including team work that will allow them to grow as an educator and have fun in the process. Because extra credit is voluntary, it not only offers them personal choices in their development as a teacher but they provide motivation for all students by presenting them with multiple ways to recover from poor results - grades. Finally, this course addresses diversity and the different learning styles of students by offering individualized instruction, immediate feedback, and allows alternative ways for students to express their learning through project based and team based learning.
Advancing Underserved Student Success through Transparency and Problem-Based Learning

**TRANSPARENT AND PROBLEM-BASED ASSIGNMENT DESIGN**

Name: Louise Allen

Institution: Winston-Salem State University

Class Name/Description: General Biology 2/Second semester of Biology, organismal topics.

Class Level: Freshman

**Defining the Assignment**

1. Describe the assignment. In your description, please include the problem that students were encouraged to explore, key elements of the assignment, and the type of final product students were asked to submit. (You may want to refer to the performance descriptions in the Problem Solving VALUE Rubric.)

Students worked in groups of 3 to design a 50-minute environmental-based educational module aimed at middle school science students. Students and the faculty member worked in collaboration with a local non-profit called the Piedmont Environmental Alliance (PEA). In the last 12 months, PEA launched a new environmental education program in the local K-12 schools. They have targeted middle school science classrooms and initially rolled out with a program called “Energy Explorers” which engages 6th grade students with issue surrounding renewable and non-renewable energy resources. Students were given the following problem: “The Winston-Salem/Forsyth Country School District really likes the Energy Explorers program and would like PEA to offer more programs to their students that fit with the N.C. Essential Standards (our version of the common core) and encourage sustainability, however PEA is primarily a volunteer run organization and time is their most limited resource. They need our help developing the next successful program.” Students were then given 4 main guidelines to help them narrow down from all the possibilities; 1) the program had to be engaging, it couldn’t just be a lecture that the teacher could do themselves, 2) the program had to align with the N.C. Essential Standards for 6th, 7th or 8th grade science curriculum, 3) the program had to fit the PEA mission to “Inspire individuals to make changes that protect and restore the environment”, and 4) the program had to cover some topic related to General Biology 2 (the course in which they were currently enrolled). Students had 2 check-in points with representatives from the organization, first starting with pitching 3 general topic ideas, then pitching 2-3 in class activities around a single topic (narrowed from the first 3 topics), and finally they made a final pitch detailing what their 50-minute program would look like in a 10-minute presentation at the end of the semester. Students had 5 final work products that they had to submit at the end of the
semester with several drafts due to their professor and undergraduate teaching assistants throughout the semester; they included: A 1-page program overview, a detailed program outline, a pre- and post-assessment, an optional homework assignment, in addition to the oral program pitch they presented on one of the last days of class. I also asked them to individually write a reflective essay on the problem-solving process, in which I used the Problem Solving Value Rubric to guide the assignment prompt/instructions.

Designing a Transparent Assignment

2. How did you redesign the assignment and/or the assignment directions to make the purpose of the assignment more transparent to students? In other words, how did you make the skills students would practice and the knowledge they would gain through the assignment more transparent? Provide specific examples of the changes.

*This was a brand new assignment. I used a template from UNLV’s transparency project when I created my assignment directions to more explicitly make the purpose of the assignment more transparent. See attached assignment prompts.*

3. How did you redesign the assignment and/or the assignment directions to make the assignment’s task—in this case, a problem-based task—more transparent? In other words, how did you make “what to do” and “how to do it” more transparent? Provide specific examples of the changes.

*See above (question 2).*

4. How did you redesign the assignment and/or the assignment directions to make the criteria for success more transparent? In other words, how did you illustrate to students “what excellence looks like”? Provide specific examples of the changes.

*Again, I used a template from the transparency project. Because this was a brand new assignment, I was unable to provide an annotated example for many of the work products. I provided a detailed rubric for the reflective essay and provided two annotated examples for this portion of the assignment, since this is my second semester using the problem solving rubric and using reflection essays in my General Biology course.*

Incorporating Problem-Based Learning Strategies (Optional Questions)

5. How did you enhance the assignment to encourage student engagement with course content through reflection on personal experience?
I think the fact that they have recently been in the K-12 system they could bring a lot of their personal experience to the table. We had plenty of rich discussion about what they liked and didn’t like about their middle school science experience. I think the reflective essay allowed them to stop and think about problem solving in a way most of us do not. I also think because they knew that outside evaluation would be occurring they saw this assignment as “more valuable”. I think especially for my education majors (usually sophomores or juniors) this assignment was especially beneficial, and they were able to bring in their own experience with creating lesson plans to the benefit of their groups.

6. How did you enhance the assignment to synthesize student experience and course content to facilitate students’ exploration of a problem?

Students needed to research and develop a module based on course content, but in an environmental context. Students really did struggle the most with aligning their topic ideas with the PEA mission. This synthesis seemed more effortless, and actually allowed most students to explore an area of organismal biology that we didn’t have time to cover in our own class.

7. How did you enhance the assignment to prompt solutions for student-defined problems?

Technically, the students didn’t define their own problems. They were given quite a bit of latitude in which to solve the problem of developing their educational module. They received feedback on multiple occasions. Some students were encouraged to start over after the initial 3 topic idea pitch; especially if PEA did not respond favorably to their topic ideas. In a way this would present some groups with an additional problem to solve, that was student-defined (forge ahead with a weak topic, or start with a new topic that might better align with what PEA was looking for.
Transparency and Problem-Based Assignment Design

Name: Jeff Overholt

Institution: Winston Salem State University

Class Name/Description: Anatomy and Physiology II

Class Level: Sophomore

Defining the Assignment

Describe the assignment. In your description, please include the problem that students were encouraged to explore, key elements of the assignment, and the type of final product students were asked to submit. (You may want to refer to the performance descriptions in the Problem Solving VALUE Rubric.)

Anatomy and Physiology II serves students who wish to enter into fields of health care including nursing, physical therapy, occupational therapy, pharmacy, and medical school. Therefore, I wanted to make the assignment something that would be of interest to them personally and stay somewhat on topic to the class itself. Rather than the normal types of science questions with right or wrong answers, I wanted it to be an open-ended assignment that students could feel free to write about whatever they wanted. I chose the topic: What is, or will be the most challenging health problem affecting your generation? The students were instructed to enter their responses in a Blog entry on Blackboard. Some entered it in the Blog and others chose to just upload a Word document. Students were not able to see each other’s blog.

Designing a Transparent Assignment

1. How did you redesign the assignment and/or the assignment directions to make the purpose of the assignment more transparent to students? In other words, how did you make the skills students would practice and the knowledge they would gain through the assignment more transparent? Provide specific examples of the changes.

Most importantly, I tried to relate it to their personal lives and career plans; and to look at both the scientific and social aspects of health. I provided the following introduction: These entries will give you the chance to show your ability to understand the physiology and humanitarian side of human health problems. They are designed to get you to think about the health challenges

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you will face as an individual and as a health care professional. They will help to teach you how to identify and understand the scientific and social aspects of disease, characteristics that are essential as you embark on your career in the health sciences. Your blog can be found in the tab labelled “Class Project Blog”. You will have your own private journal where you will enter your thoughts (your instructor can see your entries).

In the redesign the question was much more open-ended. Previously I was much more specific in my prompts and many students ended up just answering the prompts as though they were questions.

2. How did you redesign the assignment and/or the assignment directions to make the assignment’s task—in this case, a problem-based task—more transparent? In other words, how did you make “what to do” and “how to do it” more transparent? Provide specific examples of the changes.

I included the following points for students to address that are based on the rubric.

Please address the following in your entry:

1. Define what your problem is, why you are interested in it, and how it does/will affect your life, your friends, your family and/or the world.
2. Identify a set of strategies to develop a solution to the problem.
3. How would you determine what is the best solution?
4. How would you implement an effective solution?
5. How would you know if the solution has been effective?

Also see below with the inclusion of an annotated example.

3. How did you redesign the assignment and/or the assignment directions to make the criteria for success more transparent? In other words, how did you illustrate to students “what excellence looks like”? Provide specific examples of the changes.

The main thing I did was to include an annotated example of an excellent post from a previous student. I also talked to students about it in class.

Incorporating Problem-Based Learning Strategies (Optional Questions)

4. How did you enhance the assignment to encourage student engagement with course content through reflection on personal experience?

As mentioned in #1 I chose a topic that was open-ended and that they could relate to their personal lives and career plans; and to look at both the scientific and social aspects of health. It is funny, at first I was going to make it “health problem affecting you” rather than generation. However, I was afraid I might get too much personal medical information, which could pose a privacy problem.
5. How did you enhance the assignment to synthesize student experience and course content to facilitate students’ exploration of a problem?

Same as above. Since we cover organ systems and the body in anatomy and physiology, we also relate the normal function to pathophysiology and disease. Therefore, knowledge gained in the classroom could be applied to understanding the disease that they were writing about.

6. How did you enhance the assignment to prompt solutions for student-defined problems?

The question was completely open-ended. Students could write about anything they wanted. While many students wrote about obesity, anxiety and depression, cancer etc., there were also many unique takes. For example one student wrote about something I had never heard of (but is very pertinent to this generation). He wants to be a physical therapist (as you can see from the unique topic he chose). It started out:

*Many fellow classmates would say that cancer or obesity are the most challenging health problems affecting our generation and they have good logical explanation behind this. What I believe our generation will have trouble with in the future is something that is hardly known by the common every day person but it is becoming more and more prominent. Anterior neck syndrome, Cell phone neck or “texting neck” is a more common term amongst health practitioners today. Anyone that owns a cell phone is susceptible to this, it just depends on how much time they are on their phone and how they position themselves when on the cell phone or other hand held device.*

He even included diagrams.