Transparent Assignments Promote Equitable Opportunities for Student Success

Mary-Ann Winkelmes

Transparent teaching/learning practices make learning processes explicit while offering opportunities to foster students' metacognition, confidence, and their sense of belonging in college in an effort to promote student success equitably. A 2016 publication identifies transparent assignment design as a replicable teaching intervention that enhances students' success equitably [Winkelmes et al, *Peer Review*]. We'll review the findings as well as educational research behind the concept of transparent teaching/learning in this session. Then we'll apply that research to the design of class activities and course assignments. Participants will leave with a draft assignment or activity for one of their courses, and a concise set of strategies for designing transparent assignments that promote students' learning.

Research on Learning	**Implications for Assignments** red numbers correspond to handout pages	**Possible Applications**
Elbow, Jaschik/Davidson, Mazur, Ambrose, Bergstahler Gregorc, Kolb	1 • Low stakes for greater creativity / risk • Varied / flexible formats are inclusive appeal equitably to student strengths	
Bass, Bloom, Colomb, Felder, Perry	2 • Build critical thinking skills in intentional sequence • Target feedback to phase, don't overwhelm	
Doyle, Felder, Tanner, Winkelmes	3 • Specify relevant knowledge/skills, criteria • Encourage self-monitoring	
Fisk/Light, Tanner	4 • Provide annotated examples of successful work w/ criteria applied, before students begin work.	
Aronson, Dweck, Fisk, Light, Schnabel, Spitzer, Steele,Treisman Yeager/Walton, Vygosky	5 • Structure and require peer instruction, feedback; positive attribution activities	
AACU Finley/McNair (HIP, Prob-Centered) Winkelmes et al., Yeager, Walton	6 • Explicate purpose, task, criteria before • Provide a compass, set expectations; • Explicate applicability, relevance; • Engage students in applying shared criteria to increase belonging.	

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1. Varied and/or flexible formats appeal equitably to students' strengths

Music in Andrew Lloyd Webber's
The Phantom of the Opera

Argument: Andrew Lloyd Webber's orchestration relies on converntional Westery styles of musical phrasing and instrumentation. It exploits the natural tendencies of music to correspond with the ebb and flow of emotions, and allows the music to reflect the mood and/or tone of a scene, thereby making the musical accessible to a large general audience.

1) Introduction
   a. The popularity of Phatontom and its music
   b. Possible reasons: story, spectacle, charactersSuccess mainly comes from orchestration

2) Criticis of Andre Lloyd Webber's music
   a. What reviewers criticize
   b. Why the are wrong

3) Why the music does deserve praise
   a. Tactics of Western music that Lloyd Webber uses
   b. Exploits the natural tendencis of musical phrasing
   c. Orchestrates the numbers with instruments commonly associated with different moods
   d. Relies on recurring themes, bringing back melodies associate in audience's memoris with certain character roles and types.
   e. In scenes with romatic implications, couples orchestration with rhythm of the lyrics to amplify sensuous overtones and transmit amatory expectations.

[outine continues]

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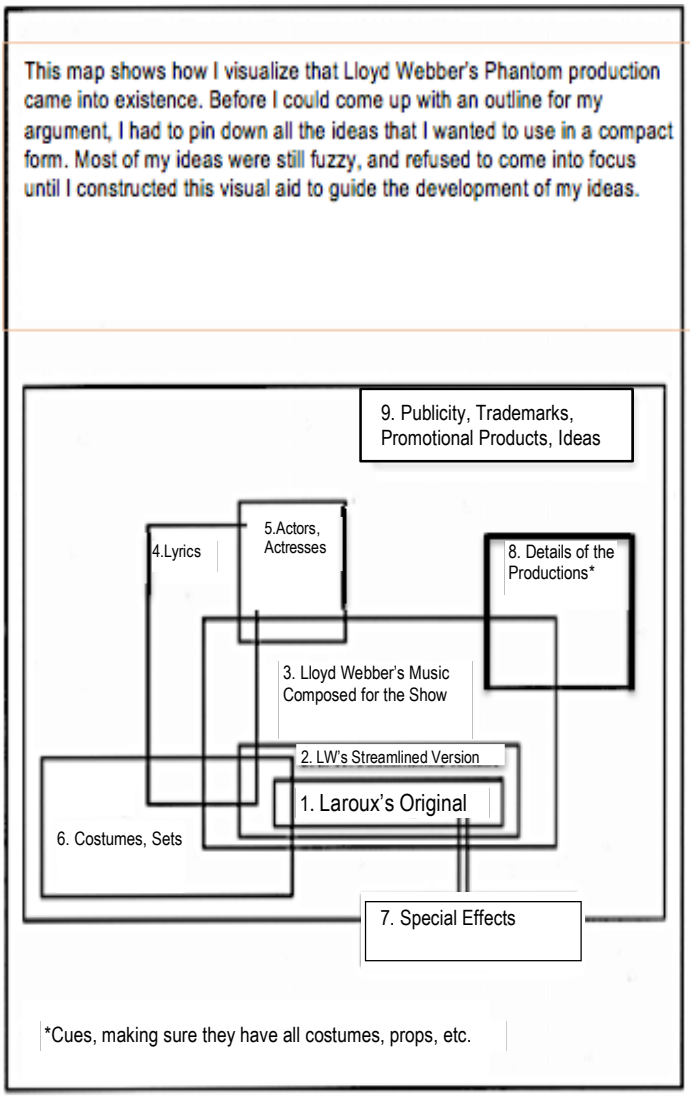

Source: Miley Nakamura, Mind Map of Lloyd Webber's Production, Reprinted by permission of Miley Nakamura. All rights reserved.

Guide for Preparing Your Paper

What is your topic? What position will you take on that topic?

What are the major primary and secondary sources essential to this topic? List full ciations
What main pieces of evidence will support your idea(s) about the topic?

What are possible counterarguments? What evidence might support these?
What are some possible ways to refute counterarguments? What evidence can be used?

What problems or questions do you have?

2. Build students' critical thinking skills in an intentional sequence

Bloom's Taxonomy of Educational Objectives

Competence	Skills	Assignment Cues
Knowledge	• observation and recall of information • knowledge of dates, events, places • knowledge of major ideas • mastery of subject matter	list, define, tell, describe, identify, show, label, collect, examine, tabulate, quote, name, who, when, where, etc.
Comprehension	• understanding information • grasp meaning • translate knowledge into new context • interpret facts, compare, contrast • order, group, infer causes • predict consequences	summarize, describe, interpret, contrast, predict, associate, distinguish, estimate, differentiate, discuss, extend
Application	• use information • use methods, concepts, theories in new situations • solve problems using required skills or knowledge	apply, demonstrate, calculate, complete, illustrate, show, solve, examine, modify, relate, change, classify, experiment, discover
Analysis	• seeing patterns • organization of parts • recognition of hidden meanings • identification of components	analyze, separate, order, explain, connect, classify, arrange, divide, compare, select, explain, infer
Synthesis	• use old ideas to create new ones • generalize from given facts • relate knowledge from several areas • predict, draw conclusions	combine, integrate, modify, rearrange, substitute, plan, create, design, invent, what if?, compose, formulate, prepare, generalize, rewrite
Evaluation	• compare and discriminate between ideas • assess value of theories, presentations • make choices based on reasoned argument •based on reasoned argument • verify value of evidence • recognize subjectivity	assess, decide, rank, grade, test, measure, recommend, convince, select, judge, explain, discriminate, support, conclude, compare, summarize

Assignments for a sample business course

This chart indicates how each required assignment for the course helps you practice the disciplinary skills needed for passing the course.

ASSIGNMENT	DUE DATE	Use of information technology^^	Communication abilities: oral and/or written*^	Teamwork; Understanding group and individual dynamics in organizations*^	Understanding of domestic and global economic environments *	Multicultural and diversity understanding*	Analytic skills*#	Applying learned concepts to practical situations#	Understanding of professional responsibility, including ethical reasoning regarding self, organizations, society*#^	Research: locating, evaluating and selecting useful information and resources##	Reflective, [self-evaluative] thinking skills*#
1.	8/31NOON		+								
2.	9/1		+								
3.	9/11	+	+	+							
4.	9/11	+			+						
5.	9/25				+						
6.	10/9						+		+		
7.	10/23						+		+		
8.	11/6					+			+		+
9.	11/13							+	+	+	
10.	12/4							+	+	+	+
11.	12/10							+	+	+	+

* from American Association of Colleges and Schools of Business "Assurance of Learning Standards," in *Eligibility Procedures and Accreditation Standards…*
# from Benjamin Bloom, *Taxonomy of Educational Objectives*
^ from Hart Research Associates, *It Takes More than a Major: Employer Priorities for College Learning and Student Success, April 2013.*

3. Specify criteria and encourage students' self-monitoring

CHEM 223 - Analytical Chemistry Lab

Kasia Kudzilo, University of Illinois

This document is an attempt to clarify the lab report organizational summary found in the online CHEM 223 Lab Manual.

I. Title of Experiment

II. Introduction
This section should concisely state the purpose of the experiment and the general means of accomplishing that purpose i.e., the method or instrumentation used. This includes stating your unknown (ex. Unknown A) and what you were tryingto find out about it.

III. Procedure
This section should only reference the procedure in the online manual and any deviations from it. The procedure is not meant to be repeated. A deviation example would be if there were different solution concentrations used than what was given in the manual or any necessary added steps. Other important
information includes drying time, temperature, cooling time, reagent amounts and not just what was given in the manual but what you actually did). For example, if the manual said to weigh out 1.0 g NaCl, write what you actually got on the balance – 1.2 g, 0.9 g etc.

IV. Results
This section should contain data obtained in the experiment in the form of correctly formatted tables and/or graphs as well as text describing the trends, observations and answering the often italicized questions posed within the procedure. There are spreadsheets (found online) of the necessary tables for each lab that should be filled out and added as a page(s) in the report. For the graphs, label axes, give units and name below the actual graph (Figure 1, 2, 3... and with an informative title). The graphs may be embedded in the report or stapled to the back. If embedded they should be large enough to read easily (half a page).

V. Discussion/Conclusion
This section should show thinking about the meaning of the results. The questions at the end of the experiment are good thought-provokers and guides for this. These questions should be answered within this section as smooth prose, not as numbered questions and answers.

VI. Questions
This section should answer all the questions found at the end of the experiment including ones that were left out of the discussion because they did not easily flow in the text as well as ones already in the discussion. However, for the ones already in the discussion all that is needed is to copy and paste your previous explanation with a preface stating this (Ex. "As already noted on P. 5, ... ").

VII. Calculations/Error Analysis
This section should include one detailed sample of each type of calculation in the appropriate units. For any other trials, only the results of the calculations need to be given. Always report the mean, standard deviation and confidence intervals for a set of trials. Include "IN YOUR LAB REPORT" items from each experiment.

First-class writing workshop
Writing Centre, London Metropolitan University

Core assessment criteria for essays

1. Addressing the question	The relevance of the content of the essay to the question or title set • **Good essays** select relevant material (knowledge, concepts, interpretation, theoretical models, others' perspectives). • **Better essays** make it clear throughout how the material is relevant to the question.
2. Using evidence	The use of externally sourced material, such as research findings, facts, quotations, or other forms of information • **Good essays** include information from outside sources that backs up the points made in the essay. • **Better essays** explicitly highlight or interpret the evidence to support a more general claim or idea or point being made in the essay.
3. Developing argument	The construction of a coherent and convincing set of reasons for holding a particular point of view; the following of an analytical path leading from a starting point to a concluding point • **Good essays** contain expressions of positions on the issues raised by the essay. • **Better essays** develop arguments throughout the essay, with each element building on the last.
4. Critical evaluation/analysis	Determining the value, significance, strengths and/or weaknesses of something (e.g., research findings, theory, methodological approach, policy, another's argument or interpretation) • **Good essays** contain evaluative assertions or descriptive points about the strengths and weaknesses of elements referred to in the essay. • **Better essays** contain systematic, reasoned explanations for the evaluative points being made.
5. Structuring	The formal arrangement of the essay content into paragraphs. • **Good essays** have clearly recognisable introductory and concluding paragraphs, and paragraphs in the main body of the essay each has a clear, single concept or point as its main focus. • **Better essays** have a paragraph structure that supports the development of ideas within the essay, so that the structure of the essay is linked to the developing argument.
6. Use of language	The use of words, grammar, and punctuation to formulate an utterance appropriate to the purpose and context • **Good essays** are free from errors in spelling, punctuation and grammar, and would be acceptable pieces of writing in the wider world. • **Better essays** adopt academic styles and conventions, and approximate to the appropriate academic 'register'.

4. Provide annotated example of successful work, before students begin working

Carol Augspurger, School of Integrative Biology, University of Illinois at Urbana-Champaign

Use "invented triangle" to organize introduction. First, give big picture/context.

Topic sentence of paragraph; all sentences in paragraph relate to this topic.

Background information.

Key references included.

No direct quotations – only paraphrases with sources. Proper literature format used.

Importance of study highlighted (Why should reader care?)

Prior studies/observations (data) relevant to specific study.

INTRODUCTION (4-5 paragraphs)

Both extrinsic and intrinsic factors affect the relative population size of species of small mammals in local habitats. Extrinsic factors may include the amount of food availability (Bell 1989), presence of competing species (Holt et al. 1995), and the presence of predators (Batzli and Lin 2001). Intrinsic factors may relate to their diet and food preferences (Heskie 2004), competitive ability (Holt et al. 1995), and body shape (Hoffmeister 1989) that affects their speed and agility in escaping predators. Differences in these factors are expected to result in varying population sizes of species of small mammals among local habitats. Understanding the factors that affect a species' population size is important because it allows us to predict how changes in the environment will affect its population dynamics and the community structure.

Augspurger et al. (2007) found that the relative population sizes of small mammals differed in successional old fields of contrasting age. Specifically, their four years of live trapping showed that voles have a large population in a field abandoned one year ago, while shrews have a larger population size in a field

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Sample Glossary Entry:

apse: in a Christian church, semicircular area at the end of the **nave** beyond the transept or choir

1

STEP 1) Locate a term in the glossary that lacks an illustration

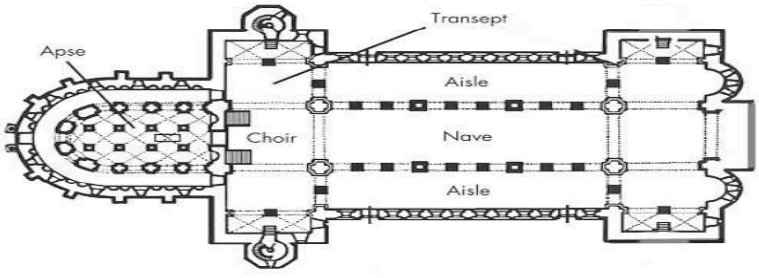
2

STEP 2) Insert an image that illustrates the term.

3

STEP 3) Insert a label for your image.

Insert image here



Insert label here:
Artist's or architect's name, title of work, materials used in the work, original location of the work, current location of the work, URL, date accessed [your first and last name]

EXAMPLE:
Plan of a cathedral.
http://www.cbcurtis.net/benedict/Humanities%20Site/cathedral_design.html, accessed January 20, 2015 [Mary-Ann Winkelmes]

5. Structure Peer Instruction Activities and Peer Feedback

ConcepTests are conceptual multiple-choice questions that were originally designed by Eric Mazur at Harvard University for students in large physics classes (Mazur, 1997 ; NSF, 1996). They: are generally short, and as they are multiple-choice, they are useful for immediate quantitative assessment of student understanding. It may be useful to the instructor to know how many correct responses there are to a question both before and after peer instruction to better gauge student understanding.
http://serc.carleton.edu/introgeo/interactive/conctest.html

Mazur Group: improving education through research: www.mazur.harvard.edu

1) EXAMPLE CONCEPTEST

Consider a rectangular metal plate with a circular hole in it.

When the plate is uniformly heated, the diameter of the hole

1. increases.
2. stays the same.
3. decreases.

2) EXAMPLE CONCEPTEST

At which location in the diagram below would the waves break closer to the beach?

A. A
B. B
C. C

Peer Response Sheet

Writer: _____ Reader: _____

RECORD YOUR RESPONSES TO THE FOLLOWING QUESTIONS EITHER IN THE SPACES BELOW OR ON SEPARATE SHEET(S) OF PAPER.

Read the paper through once, rather quickly, without pausing to write comments. Then put the paper aside and answer the following questions without looking back. (If you can't answer the question, write "I don't know.")

1. What single feature of the paper stands out to you as a reader?

2. What do you think is the writer's main point?

3. Was there anything in the paper that seemed confusing to you? (If so, explain briefly).

Now reread the paper, making any comments in the margins you feel would be helpful. Try to comment on development and organization of ideas: Do you understand the points the writer is trying to make? Do ideas seem well-connected? **Remember, you are not being asked to evaluate the paper; you are being asked to respond to it with an eye toward helping the writer improve it.**

4. Underline the thesis statement. Is it clearly stated? If not, what seems confusing?

5. Is there any place where the writer needs to support an idea with more concrete detail or explanation? If so, where?

6. How well does the writer make transitions between his/her main ideas? Identify places that need better transitions.

7. List at least two ways in which the essay could be improved.

8. List at least two things you like about the paper.

9. What would you like to know more about? What questions do you still have?

10. Ask of the essay "so what?" after you finish reading. Write a sentence or two paraphrasing the point of the paper, answering the question, "in what way(s) is this interesting, surprising, intriguing, etc.?" If the paper lacks a "so what," point that out and discuss the possibilities.

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6. Explicate purpose, task(s), and criteria for students' work in advance

Transparent Assignment Template*

This template can be used as a guide for developing, explaining, and discussing class activities and out-of-class assignments. Making these aspects of each course activity or assignment explicitly clear to students has demonstrably enhanced students' learning in a national study.[1]

Assignment Name
Due date:

Purpose: *Define the learning objectives, in language and terms that help students recognize how this assignment will benefit their learning. Ideally, indicate how these are connected with institutional learning outcomes, and how the specific knowledge and skills involved in this assignment will be important in students' lives beyond the contexts of this assignment, this course, and this college.*

Skills: The purpose of this assignment is to help you practice the following skills that are essential to your success in this course / in school / in this field / in professional life beyond school:

Terms from Bloom's Taxonomy of Educational Objectives may help you explain these skills in language students will understand. Listed from cognitively simple to most complex, these skills are:

- *understanding basic disciplinary knowledge and methods/tools*
- *applying basic disciplinary knowledge/tools to problem-solving in a similar but unfamiliar context*
- *analyzing*
- *synthesizing*
- *judging/evaluating and selecting best solutions*
- *creating/inventing a new interpretation, product, theory*

Knowledge: This assignment will also help you to become familiar with the following important content knowledge in this discipline:

1.
2.

Task: *Define what activities the student should do/perform. "Question cues" from this chart might be helpful: http://www.asaisntitute.org/conference2013/handouts/20-Bloom-Question-Cues-Chart.pdf. List any steps or guidelines, or a recommended sequence for the students' efforts. Specify any extraneous mistakes to be avoided.*

Criteria for Success:

Define the characteristics of the finished product. Provide multiple, annotated examples of what these characteristics look like in practice, to encourage students' creativity and reduce their incentive to copy any one example too closely. With students, collaboratively analyze examples of work before the students begin working. Explain how excellent work differs from adequate work. It is often useful to provide or compile with students a checklist of characteristics of successful work. This enables students to evaluate the effectiveness of their own efforts while they are working, and to judge the quality of their completed work. Students can also use the checklist to provide feedback on peers' coursework. Indicate whether this task/product will be graded and/or how it factors into the student's overall grade for the course. Later, asking students to reflect and comment on their completed, graded work allows them to focus on changes to their learning strategies that might improve their future work.

* The author developed and earlier version of this template at the the University of Illinois, Urbana-Champaign.

[1] Winkelmes, Mary-Ann. "Transparency in Teaching: Faculty Share Data and Improve Students' Learning." *Liberal Education* 99.2 (Spring 2013); Winkelmes et al. "A Teaching Intervention that Increases Underserved College Students' Success." *Peer Review* (Winter/Spring 2016).

Transparent Assignment Template BLANK

Purpose:

Skills:

Knowledge:

Due Date:

Task:

Criteria for Success:

EXAMPLES: Less Transparent

Sample A

1. Select a professional in your prospective academic discipline and/or career field that is considered an expert in an area in which you are interested.
2. Secure an interview with the professional for a date and time that is convenient for both of you.
3. Prepare 8-10 questions to ask the professional about their knowledge of a particular academic discipline/career filed.
4. Conduct a 20-30 minute, face-to-face interview to gather knowledge that will help you make an informed decision about the major/career you are considering. You will want to audio/video record the interview with the interviewee's permission
5. Prepare a typed transcript of the questions and answers using the audio/video recording.
6. Write a 400-500 word reflection paper in which you address the following items:
   a. Who you selected and why?
   b. What you learned from them that is most interesting?
   c. What this assignment helped you learn about your major/career decision?
   d. What questions you still have?
7. Submit the typed transcript and reflection paper to your instructor.

MATH 181

Sample B

For the given function $y(x) = x^{5/3} - 3x^{2/3}$

Find and simplify the first derivative

Identify any critical points

Find and simplify the 2nd derivative

Identify any inflection points

Indicate where the function is increasing/decreasing, concave up/down (ie. Make a sign diagram)

Make a rough sketch of the shape of the graph, and label the critical points and inflection points (x value only)

EXAMPLES: More Transparent

Sample C

COLA100E Interview Assignment, UNLV
Katharine Johnson

Due dates:

- Draft interview questions – September 30, 2014
- Transcript of interviews – October 15, 2014
- Report - November 17, 2014

Purpose: The purpose of this assignment is to help you make an informed decision about the major/career you are considering.

Skills: The purpose of this assignment is to help you practice the following skills that are essential to your success in school and your professional life beyond school. In this assignment you will:

- Access and collect needed information from appropriate primary and secondary sources.
- Synthesize information to develop informed views.
- Compose a well-organized, clear, concise, report to expand your knowledge on a subject in your major.

Knowledge: This assignment will also help you to become familiar with the following important content knowledge in this discipline:

- Issues facing professionals in a field
- Scholarly research formats for documenting in-text sources and creating reference pages (i.e., bibliographies).

Task: To complete this assignment you should:

1. Select two professionals in your prospective academic discipline and/or career field that are considered experts in an area in which you are interested.
2. Secure an interview with the professionals for a date and time that is convenient for both of you.
3. Prepare 8-10 questions to ask the professionals about their expertise in a particular academic discipline/career field. The questions must be based on a review of the field using 5 credible sources as defined by the librarian in our research module. Sources should be cited using APA formatting.
4. Conduct a 20 – 30 minute, face-to-face interview with each professional to gather knowledge that will help you make an informed decision about the major/career you are considering. You will want to audio/video record the interview with the interviewee's permission.
5. Prepare a typed transcript of the interviews
6. Compare and contrast the information provided by both professionals in an **8 page (1.5 spaced, 12 point Times New Roman font, 1 inch margins) report** that documents the advantages and disadvantages of a career in the selected field.

Criteria for success: Please see the attached rubric.

Sample D

Science 101
Exercise 3: Scientific Evidence

Alison Sloat

Purpose: The purpose of this assignment is to analyze a past poster to help you research, design, and create your own effective poster with sufficient scientific evidence that supports your conclusion.

Skills/Knowledge: As a result of completing this assignment, you will be able to identify and judge the success of the important parts of a scientific poster:
the sources of scientific information,
the interpretation of the results, and
the scientific merit of the conclusion.

Task: Read through your example scientific poster and answer the following questions. You will be graded based on how completely you address the following:

1. Identify the ethical question that is being asked.
2. List the evidence the authors provide in support of **and** in opposition of their question.
3. Examine the pieces of evidence listed in #2 above. Identify whether they are from popular (Pop), scientific peer-reviewed (SPR), or non-scientific peer-reviewed (NSPR) sources, and note each statement above as (Pop), (SPR), or (NSPR). Do you think there is enough scientific evidence from peer-reviewed articles? Why or why not?
4. Describe how the pieces of evidence are presented (e.g., numbers, graphs, tables, figures).
5. Explain how the pieces of evidence are analyzed in the Discussion section.
6. Identify the ethical conclusion.
7. After analyzing the content of the poster, do the pieces of evidence support their conclusion? Explain why or why not.
8. After assessing the scientific merit of their evidence, are you convinced of their ethical conclusion? Explain why or why not.
9. List the questions you still have after reading this poster. What could they have done better?

Criteria for success:
Your responses should be as complete as possible. After completing this assignment, you will have increased your understanding of how to identify the essential parts of a scientific poster and how to evaluate its use of evidence.

Sequencing Worksheet for Assignments and In-class Activities

PURPOSE: CONTENT KNOWLEDGE 5 years out	**PURPOSE:** SKILLS, 5 years out (Bloom, DQP, GenEd)	**TASKS:** ACTIVITY OR ASSIGNMENT CUES (Bloom, Felder [page 2])	**CRITERIA**	**Feedback from**	**Stakes**	**Additional Research-based practices**
Michelangelo's David, Ancient models for Ren. Legitimacy, Daily Life in Ren. Italy	**understand tools, terms, methods, measures, frameworks**	*in-class formal analysis of art exercise: identify, describe*	*examples, checklist*	*peers and teacher*	*low*	*review of skills/knowledge goals, explicate their relevance guidelines /checklist provided annotated examples provided*
	understand Renaissance art-making techniques and tools, terms,	*take-home paper: formal analysis of artwork: identify, locate, describe*	*examples, checklist*	*teacher*	*medium*	*in-class annotation of examples, using the checklist*
art and politics in Renaissance republics, religious orders, dynasties	**apply tools, terms, methods to analyze a case**	*in-class analysis of primary, secondary sources: separate, compare, summarize*	*examples, checklist*	*peers and teacher*	*low*	*review of skills/knowledge goals, explicate their relevance build skills in a sequence*
	use artifacts, primary and secondary sources to construct the story	*take-home assignment: annotated bibliography explaining how each source helps you: choose, cite, decide, describe*	*examples, rubric*	*peers*	*low*	*in-class narration of skills in use*
				teacher	*medium*	*peer feedback on drafts, using checklist feedback targeted to phase*
politics of preserving, pricing and selling Renaissance art	**evaluate an example/case**	*in-class activity: reconstruct the painting of Michelangelo's Last Judgment from conflicting primary sources and contemporary conservation analysis: compare, make a judgment, interpret, debate, choose*	*examples, checklist*	*peers and teacher*	*low*	*review of skills/knowledge goals, explicate their relevance build skills in a sequence*
	judge reliability of primary sources, secondary scholarship	*take-home paper; likely original context/use for your selected artwork: compare, make a judgment, interpret*	*examples, checklist, rubric*	*teacher*	*high*	*in-class narration of skills in use peer feedback on drafts, using checklist feedback targeted to phase*
student-designed art exhibitions	**develop/create an example/ case**	*presentations and feedback: identify, describe, compare, judge, interpret, design create final paper: identify, describe, compare, judge, interpret, design create*	*examples, checklist, rubric*	*peers and teacher teacher*	*medium high*	*review of skills/knowledge goals, explicate their relevance in-class narration of skills in use peer feedback suggests revisions*
	design an exhibit for a Renaissance artwork					

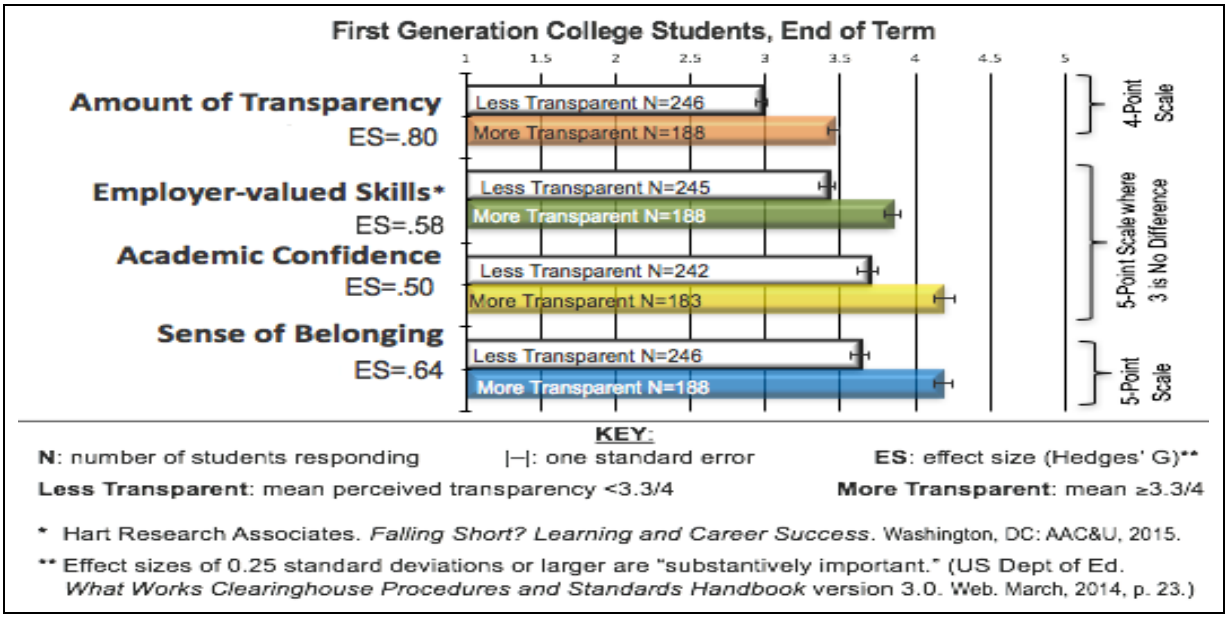
Recent Findings: Transparency in Learning and Teaching in Higher Education

A 2015 study (Winkelmes, et al., (Peer Review, Winter 2016) identified transparent teaching about problem-centered learning as an easily replicable teaching method that produces learning benefits already linked with students' success. This simple, replicable teaching intervention demonstrably enhanced the success of first-generation, low-income and underrepresented college students in multiple ways at statistically significant levels, with a medium-to-large sized magnitude of effect. The results offer implications for how faculty and educational developers can help their institutions to right the inequities in college students' educational experiences across the country by contributing to efforts to increase underserved students' success, especially in their first year of college (when the greatest numbers drop out).

In 2014-2015 a group of 7 Minority Serving Institutions launched a pilot project that included 1180 students and 35 faculty. Tia McNair and Ashley Finley at the Association of American Colleges & Universities (AAC&U) led the project in partnership with Mary-Ann Winkelmes at the University of Nevada, Las Vegas' Transparency in Learning and Teaching in Higher Education Project (*TILT* Higher Ed), with funding from TG Philanthropy. The main research goal was to study how faculty transparency about the design and problem-centered nature of student assignments would affect students' learning experiences and the quality of students' work. Faculty received training on how to make two take-home assignments in a course more transparent (accessible) and problem-centered (relevant) for students, and each instructor taught a control group and an intervention group of the same course in the same term. Results were measured via online surveys about students' learning experiences before and after each course, and direct assessment of students' work. Students who received more transparency reported gains in three areas that are important predictors of students' success: academic confidence, sense of belonging, and mastery of the skills that employers value most when hiring. While the benefits for all students in the aggregate who received more transparency were statistically significant, the benefits for first-generation, low-income and underrepresented students were greater, with a medium-to-large sized magnitude of effect. Important studies have already connected academic confidence and sense of belonging with students' greater persistence and higher grades (Walton and Cohen 2011, Aronson et al 2002, Paunesku et al 2015), and recent national surveys identify the skills that employers value most when hiring new employees (Hart 2015 and 2013).

TILT Higher Ed and the AAC&U continue to promote transparency and problem-centered learning. *TILT* Higher Ed participants include more than 25,000 students in hundreds of courses at 40 higher education institutions in the U.S. and five other countries.

End of Term: Skills, Confidence, and Belonging - Less vs. More Transparent Courses



Publications and information about the Transparency in Learning and Teaching Project are at: **www.unlv.edu/provost/teachingandlearning**