Innovative Course Design for Transformative Learning

Part I: <u>What's the Big Idea?</u>

Using capacious dilemmas, issues and questions to frame your course.

Learning Goals

1. To apply intentional design principles to your course (re)design.
2. To identify a dilemma, issue or question to frame a course (re)design.

Set your intention

I hope to …

I am curious to know …

Guiding Initiatives & Research (1)

LIBERAL EDUCATION AND AMERICA'S PROMISE (LEAP) – AAC&U

https://www.aacu.org/leap

"The key concept at the center of the LEAP Challenge is that all college students need to prepare to contribute in a world marked by open or unscripted problems—problems where the right answer is far from known and where solutions are necessarily created under conditions of uncertainty." (Schneider, 2015). Projects include

- Essential Learning Outcomes—as a guiding vision and national benchmarks for college learning and liberal education in the 21st century
- Principles of Excellence—offering both challenging standards and flexible guidance for an era of educational reform and renewal
- High-Impact Educational Practices—ways of engaging and challenging students—such as first year programs; intensive writing, collaborative assignments, undergraduate research, internships, and major projects that help students achieve essential learning outcomes
- Authentic Assessments—using students' own work and faculty-validated rubrics, probing whether individual students have developed essential capacities, and can apply their learning to complex problems and real-world challenges
- Students' Signature Work—challenging higher education to prepare all students to complete a substantial cross-disciplinary project in a topic significant to the student and society, as part of the expected pathway to a degree. The signature project can take one of many forms (e.g. capstone, internship, field work, research, community-based research)
- VALUE (Valid Assessment of Learning in Undergraduate Education) a nationwide project that examines direct evidence of student learning through direct measures developed by AAC&U. The VALUE rubrics have been developed for 16 ELOs: Inquiry and analysis, Critical thinking, Creative thinking, Written communication, Oral communication, Reading, Quantitative literacy, Information literacy, Teamwork, Problem solving, Civic engagement—local and global, Intercultural knowledge and competence, Ethical reasoning, Foundations and skills for lifelong learning, Global learning, Integrative learning.
- On Solid Ground reports the results from two years of data collection for the VALUE initiative, a nationwide project that examines direct evidence of student learning. It represents the first attempt to reveal the landscape of student performance on key learning outcomes—Critical Thinking, Written Communication, and Quantitative Literacy—that educators, employers, and policymakers agree are essential for student success in the workplace and in life. AAC&U has recently launched a scoring service in partnership with Indiana University's Center for Postsecondary Research. Learn more at https://www.aacu.org/VALUEInstitute.

Guiding Initiatives & Research (2)

VISIBLE LEARNING (HATTIE, 2009)

https://visible-learning.org/

"Visible Learning means an enhanced role for teachers as they become evaluators of their own teaching. According to John Hattie Visible Learning and Teaching occurs when teachers see learning through the eyes of students and help them become their own teachers. In his meta-analysis of over 800 meta-analyses, Hattie identifies the interventions with the highest rate of return for student success.

WABASH NATIONAL STUDY OF LIBERAL ARTS EDUCATION (WNS)

http://www.liberalarts.wabash.edu/study-overview/

The WNS is a multi-institution, multiyear, longitudinal study. The purpose of the WNS is to determine which teaching practices, programs, and institutional structures support liberal arts education. Students enrolled in the study were assessed three times: upon matriculation, at the end of their first year, and at the end of the fourth year. The study used a number of different measurement instruments to examine a variety of liberal arts outcomes. Results from this research show that clear and organized classroom instruction leads to student learning gains. Additionally, deep-learning experiences, such as reflection and integrative learning activities, positively impacted students' critical thinking and moral reasoning abilities.

EMPLOYER SURVEY & ECONOMIC TREND RESEARCH (AAC&U)

https://www.aacu.org/leap/public-opinion-research

As part of AAC&U's LEAP) initiative, AAC&U periodically commissions Hart Research Associates to conduct national surveys and/or focus groups to examine trends related to college graduates and the learning experiences and outcomes they need to successfully navigate the global economy. The most recent survey, Falling Short? College Learning and Career Success (2015) confirms findings from previous surveys. Employers overwhelmingly endorse broad learning and cross-cutting skills, including as written and oral communication, teamwork, and critical thinking as the best preparation for long-term career success.

TRANSPARENCY IN LEARNING AND TEACHING IN HIGHER EDUCATION

https://www.unlv.edu/provost/transparency

The Transparency in Learning and Teaching in Higher Education project (TILT Higher Ed) is a national educational development and research project that helps faculty implement a transparent teaching framework that promotes college students' success. Transparent teaching methods help students understand how and why they are learning course content in particular ways. Housed at UNLV, the project invites participants from all institutions of higher education in the US and abroad. Any instructor may join the project by signing up online.

The Essential Learning Outcomes

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Beginning in school, and continuing at successively higher levels across their college studies, students should prepare for twenty-first-century challenges by gaining:

✦ Knowledge of Human Cultures and the Physical and Natural World

- Through study in the sciences and mathematics, social sciences, humanities, histories, languages, and the arts

Focused by engagement with big questions, both contemporary and enduring

✦ Intellectual and Practical Skills, including

- Inquiry and analysis
- Critical and creative thinking
- Written and oral communication
- Quantitative literacy
- Information literacy
- Teamwork and problem solving

Practiced extensively, across the curriculum, in the context of progressively more challenging problems, projects, and standards for performance

✦ Personal and Social Responsibility, including

- Civic knowledge and engagement—local and global
- Intercultural knowledge and competence
- Ethical reasoning and action
- Foundations and skills for lifelong learning

Anchored through active involvement with diverse communities and real-world challenges

✦ Integrative Learning, including

- Synthesis and advanced accomplishment across general and specialized studies

Demonstrated through the application of knowledge, skills, and responsibilities to new settings and complex problems

Note: This listing was developed through a multiyear dialogue with hundreds of colleges and universities about needed goals for student learning; analysis of a long series of recommendations and reports from the business community; and analysis of the accreditation requirements for engineering, business, nursing, and teacher education. The findings are documented in previous publications of the Association of American Colleges and Universities: *Greater Expectations: A New Vision for Learning as a Nation Goes to College* (2002), *Taking Responsibility for the Quality of the Baccalaureate Degree* (2004), and *Liberal Education Outcomes: A Preliminary Report on Achievement in College* (2005). *Liberal Education Outcomes* is available online at www.aacu.org/leap.

LEAP

Association of American Colleges & Universities. (n.d.). Essential Learning Outcomes. Retrieved April 16, 2017, from https://www.aacu.org/leap/essential-learning-outcomes

What Matters MOST in College?

Rank the top 3 outcomes for each	To you	To a broadly educated student	To employers
Critical thinking			
Ability to apply knowledge and skills to real-world settings			
Oral communication			
Teamwork			
Written communication			
Ethical reasoning & action			
Problem solving			
Information literacy			
Intercultural knowledge and competence			
Quantitative literacy			
Creative thinking			

Hart Research Associates. (2015). *Optimistic About the Future, But How Well Prepared? College Students' Views on College Learning and Career Success Selected Findings from an Online Survey of College Students Conducted on Behalf of the Association of American Colleges & Universities*. Washington, D. C.
www.aacu.org/sites/default/files/files/LEAP/2015StudentSurveyReport.pdf

Design with the end in mind

The process of backward design, or planning with the end in mind, is a way to approach course planning that puts *what you want your students to be able to do at the end of the course* – first.

Dilemma, Issue or Question (DIQ)
What is the "big idea"?

⬇

Learning Goals or Outcomes
What do you want your students
to know and do?

Tasks & Assignments
What
assignments/activities
will your students do?

⬌

Assessment
How will you know if
your students are
successful?

⬇

Reflect
What worked?
What can be improved?
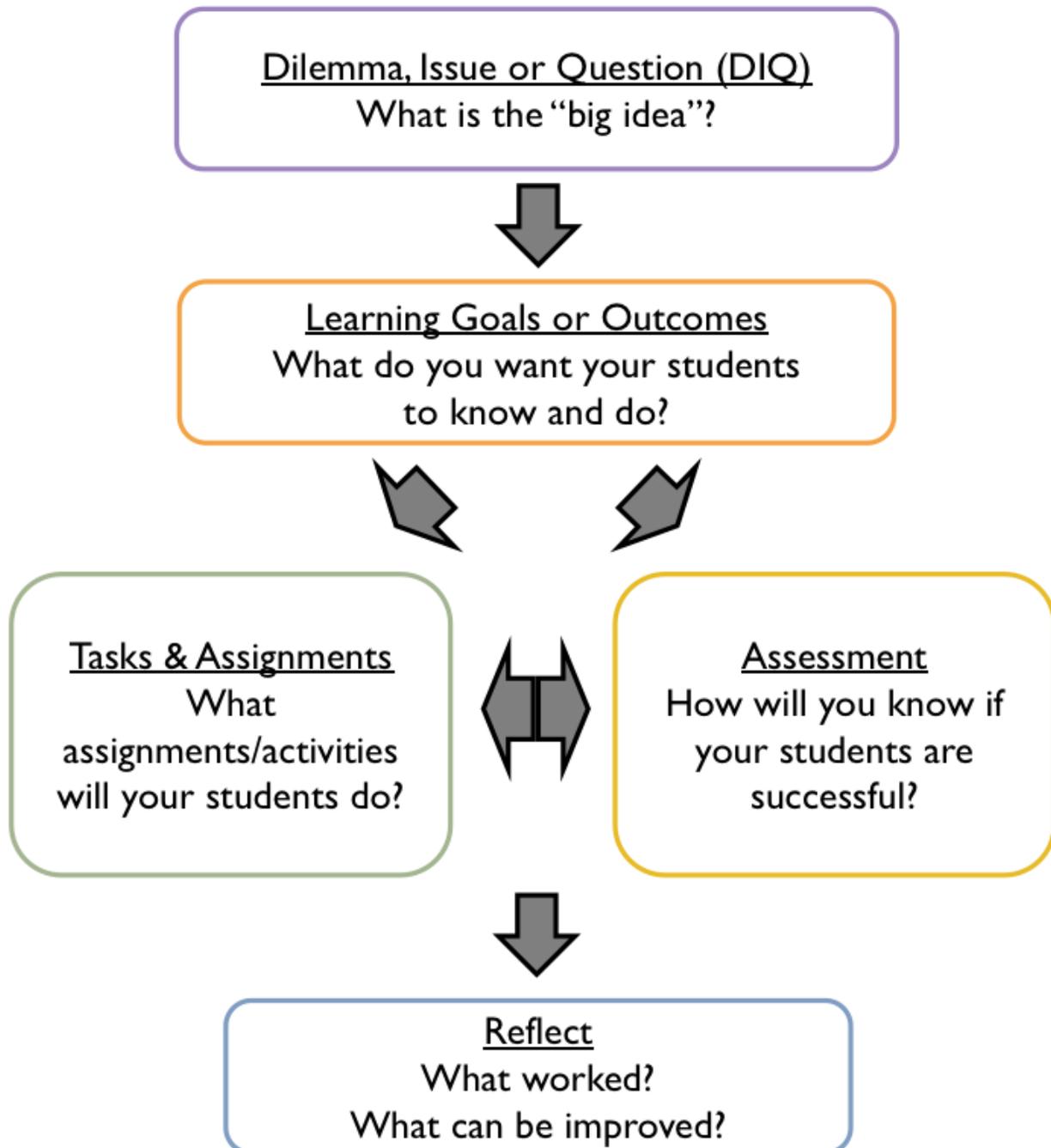
Adapted from Understanding by Design by Wiggins & McTighe

Why do I have to take that class?

THINK – PAIR - SHARE

THINK:

In your deepest, fondest dreams, what would the classroom of your dreams look like? What types of interactions would it foster? When the course is over and it is now two years later, what would you like to be true about students who have had your course that is not true of others? What is the distinctive educational impact you would like for your teaching and your courses to have on your students?

Envision a well-rounded student that encounters your course as part of their general education (i.e., not a major). How will this student use what they learned five or ten years in the future? Describe the intellectual skills (mind), dispositional learning (heart), and practical skills they will gain (hands).
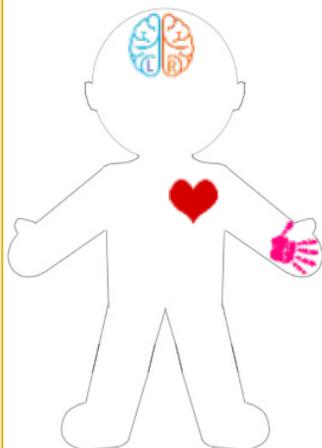
EXTRA TIME? Brainstorm! Think up ways your students could demonstrate to you that they understand the big ideas of your course, discipline or subject.

PAIR: Share your responses with a partner NOT from your discipline.

SHARE: Share a "highlight" with the larger group.

Dilemmas, Issues, or Questions (D.I.Q.s)

The problem: Our society faces complex problems whose solutions will require years of work, collaboration among individuals from different cultural and disciplinary backgrounds, and innovative, creative thinking. We cannot teach typical courses in our disciplinary silos and then magically expect students to be able to make connections among disciplines. We cannot say that we want students to develop critical thinking skills, but then ask them to memorize terms, equations and dates.

Photo: Stéphane Bidouze

The solution: Intentionally designing courses that challenge students to tackle complex, real world problems by using teamwork, creativity and critical thinking.

We call this the D.I.Q. approach and we use D.I.Q.s to frame courses. A single D.I.Q. can be used to guide an entire course or multiple D.I.Q.s can be explored throughout a course. This approach uses big questions, civic issues, social problems and current events to generate and hold student interest.

Most of our students will not go on to academic careers in our field of study, but many will go into careers where they can apply what they learn in our classes creatively. We do students a great service by training them to apply disciplinary skill sets to socially relevant contexts and situations.

Designing a course, or module within a course, around a D.I.Q.

Step 1: Brainstorm potential D.I.Q.s. Use current events, textbook case studies, colleagues, social media, and other sources in order to create a list of D.I.Q.s that could work for your course.

Step 2: Evaluate each D.I.Q. using the following questions:
1. Is the D.I.Q. broad enough to encompass the disciplinary content and skills you intend for your students to gain?
2. Is it engaging and relatable to students?
3. Is it appropriately complex?
4. Is it sufficiently aligned to your course learning outcomes?

What's the big idea?

Speed-dating Activity:

In pairs you will evaluate several Dilemma, Issue, or Questions (D.I.Qs)

- <u>Step 1</u>: Sit across from your partner – you will be given a D.I.Q. Read it together.
- <u>Step 2</u>: Evaluate the D.I.Q using the guiding questions below.
- <u>Step 3</u>: Decide if this D.I.Q. would be good to use in a general education course one of you might teach.

Guiding Questions

Answer for a general education course (introductory, non-majors) course one of you might teach.

1.   Is the D.I.Q. broad enough to encompass the disciplinary content and skills you intend for your students to gain?

2.   Is it engaging and relatable to students?

3.   Is it appropriately complex?

4.   Is it sufficiently aligned to your course learning outcomes?

Is this a good D.I.Q. to use? (select one)

a)   Yes – it is good to use "as-is".

b)   Yes – it is good to use with some modifications (describe these).

c)   No – it is not an appropriate D.I.Q.

What's the big idea?

Flint, Michigan Water Crisis. Residents of Flint, Michigan were exposed to extremely elevated levels of lead in their drinking water. Lead is a neurotoxin. In 2014, the Flint River became the drinking water source for the city of Flint, Michigan. This water was improperly treated, which caused lead from aging pipes to leach into the water supply.

Federal Reserve Interest Rates. The US Federal Reserve (the Fed) is likely to raise its target interest rate a quarter of a percentage point within the next few weeks. Barring economic setbacks, it is likely that the Fed will repeat this interest rate increase later in the year.

West African Ebola virus epidemic. Beginning in 2013 and not ending until 2016, the countries of Guinea, Liberia, and Sierra Leone experiences the most widespread outbreak of Ebola virus disease in history. There were more than 11,300 deaths, though the World Health Organization believes that this is an underestimate.

Does free will exist? Free will is the ability to choose between different possible courses of action. Many philosophers connect the concept of free will to the concept of moral responsibility.

Who is the better of these two American, feuding authors: Tom Wolfe or Norman Mailer? Wolfe is best known for his association with and influence over the New Journalism literary movement. Mailer is considered an innovator of creative nonfiction, which uses literary fiction style and devices in fact-based journalism.

Ozone formation in the stratosphere. Ozone (O_3) in the ozone layer (approximately 10-30 miles above the Earth's surface) shields the Earth from incoming UV radiation. Stratospheric ozone is formed naturally by chemical reactions involving sunlight and oxygen.

Black Lives Matter. This protest, social movement was created in 2012. Rooted in the experiences of Black people in this country who actively resist dehumanization, #BlackLivesMatter is a call to action and a response to the virulent anti-Black racism that permeates our society. (from: http://blacklivesmatter.com/about/).

CRISPR technology. Crispr-Cas9 is powerful genetic editing tool that enables researchers to edit parts of the genome by removing, adding or altering sections of DNA. Human Crispr trials are set to begin in the US and Europe in 2018.

Three courses …

First Year Seminar

Dilemma, Issue, or Question: These days every one of us is bombarded on a daily basis with quality news, fake news, facts, alternative facts, debates, and opinions galore. How do we know what to believe? How do we ensure that our own ideas are founded on quality information?

Explanation: In this course I address these questions in an explicit and detailed way in a unit that extends for about a quarter of the course, and they have a final project that assesses information literacy. But in any given class period I make sure to weave in some aspect of information literacy, and often as students are coming in I have a current news story projected that relates to the issue of the quality of information we receive and how we can best evaluate that information.

Ecology (sophomore-level, biology majors)

Dilemma, Issue, or Question: Agriculture. The application of ecological principles, at the organismal, population, community and ecosystem level, through the lens of agriculture.

Explanation: In this course, students examine and apply ecological concepts in agricultural settings. Agriculture is not explicitly mentioned in every class. However, a variety of agricultural case studies and scenarios are used throughout the course. For example, students examine honey bee pollination of crops in the section on community interactions. In the section on ecosystem ecology, students apply knowledge of nitrogen cycling to fertilizer applications in fields and also the impacts of fertilizer runoff.

Freshman Honors Seminar
**(University of Massachusetts Amherst:
www.honors.umass.edu/academics/courses/honors201h).**

Course: Ideas that Change the World.

Dilemma, Issue, or Question: This course will address questions such as: 1) Why do some ideas become influential? 2) What social conditions tend to foster creative thinking? 3) Under what circumstances can creativity transform societies? 4)Across disciplines, what do innovators have in common?

Explanation: The course is organized into four units, and each unit engages with a common text as a primary example of inquiry and innovation. The course is writing intensive and includes many discussions. Unit 1: Models of Inquiry. Text: Plato, The Trial and Death of Socrates. Unit 2: Social Thought and Civic Action. Text: Mahatma Gandhi, The Essential Writings. Unit 3: Revolutionary Changes in Science and Technology. Text: Rachel Carson, Silent Spring. Unit 4: The Power of the Arts. Text: Orson Welles, Citizen Kane

Think | Reflect | Grow

Course Title: _____

Identify 2-3 Potential D.I.Q's for this course:

Evaluate your D.I.Q's:
- broad enough?

- engaging and relatable?

- appropriately complex?

- Sufficiently aligned with your course goals?

Which D.I.Q. will you use?