Idea-Based Learning: A Framework for Instructional Design
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EXHIBITS

EXHIBIT 1:
Examples of Big Ideas

Disciplinary Content Ideas
(largely specific to individual disciplines)

PSYCHOLOGY:
- Causes of human behavior
- Individual differences
- Free will vs. determinism
- Mind-body interaction
- Interaction of nature and nurture
- Cross-cultural dis-/continuities

SOCIOLOGY:
- Social structures
- Social inequality
- Social institutions
- Culture (and subcultures)
- Ideology
- Social construction

LINGUISTICS:
- (Animal v. human) communication
- Regional and social dialects
- First language acquisition
- Language origins
- Sociolinguistics
- Syntax
- Language families

BIOLOGY:
- Theory of evolution
- Interdependent ecosystems
- Cell communication networks
- Life (vs. inanimate)
- Metabolic cycles
- Fundamental building blocks
- Thermodynamics

GEOLOGY:
- Plate tectonics model
- Relativity of time and space
- Earth's dynamic equilibrium system
- Non-/renewable supplies of energy
- Natural hazards
- Fluid spheres within the Earth system

STATISTICS:
- Central tendency
- Sampling
- Correlation
- Degrees of confidence

- Prediction

Skills Ideas
(most of them relevant for many disciplines)
- Theorizing: forming hypotheses
- Non-judgmental observation
- Metacognitive awareness (Self-assessment)
- Applying the scientific method
- Developing career goals
- Seeking out diverse perspectives
- Effective collaboration
- Taking a leadership role
- Conflict resolution/problem-solving
- Persuasive writing

Attitudes & Value Ideas
(applicable across disciplines)
- Attitude of critical thinking
- Socio-cultural awareness
- Development of professional values
- Importance of lifelong learning
- Commitment to pursuit of knowledge & truth
- Tolerance for ambiguity
- Tolerance of others' views
- Social accountability

Abstract Concept Ideas
(suitable for interdisciplinary teaching):
- Change
- Motivation
- Structures
- Conflict
- Diversity
- Equilibrium
- Context
- Interdependence
- Patterns
- Perspective

EXHIBIT 2:
Examples of Enduring Understandings

Economics:
- As societies develop transportation and trade networks, interactions with other regions lead to both cooperative and competitive relationships
- Specialization and division of labor can increase worker productivity
- Relative scarcity may lead to trade and economic interdependence or to conflict
- In a free-market economy, price is a function of supply and demand

Geography:
- The topography, climate, and natural resources of a region influence the culture, economy, and lifestyle of its inhabitants
- All maps distort Earth's representation of area, shape, distance, and direction

Political Science:
- Democratic governments must balance the rights of individuals with the common good
- Different political systems vary in their tolerance and encouragement of innovation

History:
- History involves interpretation; historians can and do disagree
- Historical interpretation is influenced by one's perspective (e.g., freedom fighters vs. terrorists)

Literature:
- An effective story engages the reader by setting up questions—tensions, mystery, dilemmas, or uncertainty
- Everybody is entitled to an opinion about what a text means, but the text supports some interpretations more than others

Chemistry:
- The energy of a reaction relates to the gain or loss of heat to the environment. During any chemical reaction, heat is either gained from or lost to its environment
- Physical change can occur in a substance without altering its identity, while a chemical change implies a change in identity

Science:
- Correlation does not ensure causality
- Scientific claims must be verified by independent investigations

Mathematics:
- Statistical analysis and data display often reveal patterns that may not be obvious
- Sometimes the "correct" mathematical answer is not the best solution to real-world problems

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Examples: Wiggins & McTighe (2005)

EXHIBIT 3: Examples of four Categories of Critical Thinking Barriers

Dimensions of Critical Thinking			
Intellectual Development Epistemological Beliefs	**Habits of Mind**	**Learned Misconceptions**	**Complex Reasoning**
Dualism: - Knowledge is objective. - There is always a right & wrong answer. - Learning is acquiring information. Multiplicity: - Knowledge is subjective. - Definitive knowledge has not yet been found everywhere. - Therefore, knowledge is mere opinion.	1. Intellectual Humility 2. Intellectual Courage 3. Intellectual Empathy 4. Intellectual Integrity 5. Intellectual Perseverance 6. Intellectual Autonomy	1. Inappropriate analogies 2. Simplistic (e.g. either/or) explanations 3. Naïve folk theories 4. Assumption of teleological tendencies 5. Coherence bias	1. What are the issues? 2. What are the contexts and who are the stakeholders? 3. Which different perspectives do exist? 4. What are the underlying assumptions? 5. How good is the evidence? 6. What possible implications do the proposed solutions have?
Contemporary Examples of Barriers to Critical Thinking			
Dysfunctional Epist. Beliefs	**Bad Habits of Mind**	**Misconceptions in Psychology**	**Poor Reasoning**
Dualism: - Learning is separate from writing. - Reading is for remembering, not for understanding. - Learning is rote memorization. - Academic success is based on inborn intelligence. - Therefore, learning happens fast or not at all. - Learning is either fun & easy or hard & boring. Multiplicity: - Reflective papers are merely personal opinions. - One learns nothing in student groups. because students lack expertise	1. I know I am exceptional because people have always praised me. 2. When it comes to sensitive issues like race or religion, it is better to stick with politically-correct responses. 3. Why should I be slowed down by working with other students?! 4. If they become burdensome, I will ignore my standards & obligations. 5. I avoid challenging tasks so as not to risk making mistakes. 6. It is the instructor's job to tell me what to do.	1. Like any other science, psychology is after discovery of objective laws. 2. People can be divided into introverts & extroverts, intrinsically & extrinsically motivated, Type A & Type B personalities, etc. 3. Emotions are biological and cannot be controlled. 4. Over one's lifespan, human development always progresses to higher stages. 5. Adolescents share a set of unique characteristics that distinguishes them from adults.	1. Reacting only to symptoms without considering the underlying issues 2. Ignoring the contexts and stakeholders influencing a problem 3. Assuming there is only one "right" way of addressing the issue 4. Taking statements as value-neutral and a matter of "common sense" 5. Confusing "rhetoric" with evidence 6. Looking at a problem in isolation, i.e. not seeing that the current problem is connected with other situations

EXHIBIT 4:
Examples of Authentic Performance Tasks

Earth Science
The Nature Conservancy is contracting research teams to compile environmental and economic evidence about several locations. Groups of students act as members of a research team and will develop a case study for one of the seven sites across the country. The case study will include recently published newspaper articles with analysis, community statements and comments, scientific data, and an analysis of key economic developments, a timeline of events, and a recommended decision-making model.
Research Topics: Development of Eastgate Mall, golf course development, East Ridge house on the flood plain, Flood of 1971. What happens to water and asphalt? What are our choices? How much clean water is enough? (McTighe & Wiggins, 2004, p. 32)

Economics
Congress is considering amending the Fair Labor Standards Act of 1938 to raise the minimum wage to $8.00 per hour from its current level of $7.50 per hour. You are an aide to Congresswoman Thompson, who has not taken an economics course since 1982. She must, therefore, delegate economic analyses to you. Bear in mind that she is concerned with advocating policies that improve economic growth, efficiency, employment, price stability, and equity. You are told to analyze the proposal using economic theory and data. You must decide whether Congresswoman Thompson should support or oppose the proposal and justify your position in a report addressed to her. This report should contain the following elements: (a) an executive summary, (b) a definition of the criteria you are using to assess the implications of the change in minimum wage, (c) a theoretical analysis that supports your position, and (d) an analysis of economic data that support your position. (B. Walvoord & V. Johnson Anderson, 1998, p. 40/1)

Geography
You are an intern at the Regional Office of Tourism that has been asked to prepare a four-day trip for a group of nine foreign visitors (who speak English). Plan the tour, including a budget, so that the visitors are shown sites that help them understand the key historic, geographic, and economic features of our region. Explain why each site was selected and how it will help the visitors understand those important features of our region. (UbD-Wrkbk:171)

History
Students role-play being members of LBJ's Kerner Commission to determine the cause of urban rioting in the '60s. Their goal is to determine why the urban riots happened. They must report to the president and the country on why the violence happened and what can be done about it. As a group, students produce a collective report that must be thoughtful, thorough, and clearly presented. Their personal contribution will be judged through journal entries, observations of work and discussion, and sections of writing they produce. (McTighe & Wiggins, 2004, p.44)

Psychology
- Design a behavioral intervention for the out-of-seat behavior of a student with ADD.
- Develop and execute a behavior-modification program for an "addiction" (overeating, drinking too much soda pop, watching too much TV, etc.) that you yourself struggle with.
- Develop and conduct a small research study that compares consumers' preferences for a particular product.
- Analyze a work environment, e.g. a campus department's front office, and propose improvements in work procedures (IO-Psych).
- Do some volunteer work at a retirement home and prepare an informal, unobtrusive assessment of the mental health of the people who live there.

EXHIBIT 5:
Examples of Categories of Needed Competencies

Analytical Thinking
(from C.A. Tomlinson, a.o., 2002, p.57-60)
Making observations
Comparing & contrasting
Classifying
Seeing relationships
Determining cause & effect

Critical Thinking
Identifying points of view
Determining bias
Identifying fact and opinion
Identifying missing information
Judging the accuracy of information
Judging the credibility of a source

Creative Thinking
Generating novel alternatives
Visualizing a situation or object
Listing attributes & systematically considering
their modifications
Brainstorming with others
Elaborating on a problem with new details

Executive Processes
Summarizing
Formulating questions
Developing hypotheses
Generalizing
Planning
Reflecting upon one's own thinking

Social Processes
Appropriate turn-taking in discussions
Active listening
Leading a group discussion
Giving and receiving criticism constructively
Writing up group discussions and decisions

Technical Thinking
Reading/understanding maps, graphs, etc.
Trouble-shooting technical systems or lab
processes

Scheduling tasks
Plan/implement information search strategies

Habits of Mind
(from R. Paul & L. Elder, 2001)
Intellectual humility
Intellectual courage
Intellectual empathy
Intellectual integrity
Intellectual perseverance
Confidence in reason
Intellectual autonomy

EXHIBIT 6: Course Design Document – Description of Elements

Big Ideas	Enduring Under-standings	Learning Outcomes	Common Misconceptions	Essential Questions	Guiding Concepts	Authentic Performance Tasks	Performance Criteria	Needed Competencies
Big Ideas are the glue that holds a field together, the truly important meta-concepts and theories that function as "conceptual lenses" for whole knowledge domains. In the natural sciences, the Scientific Method is one such Big Idea that actually cuts across more than one discipline. Make sure to focus on only a few such ideas (maybe 2-4), because each one will typically generate multiple Enduring Understandings, which in turn can generate multiple Learning Outcomes.	Enduring Understandings are more specific derivations from these Big Ideas: key elements of their definitions, applications, or implications. They are generalizations that are central to a discipline and transferable to new situations. They are what students should understand and be able to use several years after the class is over.	Learning Outcomes address some key aspects of the Enduring Understandings. They need to incorporate the following characteristics: 1. What will the student be able to do by the end of the course? 2. How will this foster the students' higher order thinking skills? 3. How can these learning outcomes be measured? 4. How concrete does it need to be in order to be measurable? What action verbs might make it sufficiently concrete?	After years of experiences with specific student populations, faculty have developed a sense for what may cause the biggest problems to students' con-ceptual under-standing. Some barriers come from inadequate reason-ing capabilities; others come from (bad) intellectual habits that get in the way of perseverance, bias awareness, or tolerance of am-biguity. A third category are sys-tematic misconceptions students bring to a discipline (e.g. overly simplistic models or stereotypes).	Often derived from miscon-ceptions, good Essent. Questions are the scaffold of the course. They cause relevant inquiry into the Big Ideas and core content. They stimulate ongoing re-thinking of prior lessons. When it comes to building a syllabus with a sequence of weekly activities, Essent. Questions are key to de-termining the logic of the course flow. An effective course is built as a continuum of questions that help learners unpack the meaning of the course content for themselves.	Guiding Concepts are the link between the course content and the Enduring Understandings (more so than the Learning Outcomes and Big Ideas). They are not just topics or facts. Topics and facts are course specific; concepts cut across course segments, whole courses, even disciplines. Facts are the building blocks for knowledge; concepts are the building blocks for understanding.	In-depth understanding is hard to assess with multiple-choice or even essay tests. True understanding is best revealed by students performing a realistic task from the discipline. For a task to be realistic (authentic), it should fulfill the following criteria: 1. Be realistically contextualized; 2. Require judgment and innovation; 3. Ask the student to "do" the subject; 4. Replicate challenging situations from the profession; 5. Assess the student's ability to use a repertoire of knowledge and skill.	Authentic performance tasks are based on or similar to real-live problems that practitioners in the field might encounter. The criteria for judging students' performance at the tasks will therefore be related to broad domains like: 1. Cognitive skills (critical & creative thinking, and problem solving, 2. Aesthetic appreciation, 3. Social interaction, and 4. Oral and written communication.	The authentic performance task is a guide post for determining what abilities students need to complete such a task. Complex performances require a host of sometimes hidden abilities that need to be identified and taught. Effective instructors break down complex tasks into specific modes of thinking and provide opportunities for students to practice these. Scoring rubrics for the performance task are helpful in pin-pointing needed abilities.

EXHIBIT 7: Design Document for Psychology 109, The Pursuit of Happiness

Big Ideas	Enduring Understandings	Learning Outcomes	Learning Barriers & Misconceptions	Essential Questions	Guiding Concepts	Authentic Performance Task	Performance Criteria	Required Competencies
Learning Skills	Effective learning requires cognitive, attitudinal, & organizational skills	Assess own strengths & weaknesses in those skills	-Unrealistic self-concept -Instructor should tell me what to do	-How can you improve on the skills at which you are weak? -What are the responsibilities of student v. instructor?	-Multiple intelligen. -Active learning -Learning styles -Metacognition -Self-esteem -Habits of mind	Reflective journaling about their own learning skills and behaviors	-Describes own current practices in target skill -Describes insights gained about new strategies -Explains what may not work for self	-Close reading that extracts main ideas from text -Visualize how learn. strategies will work -Willingness to question own strategies -Ability to set realistic targets for change
	Learning skills are acquired through a cycle of practice, feedback, & reflection	Develop routines for acad. reading, note-taking, test preparation, etc.	-Lack of time management -Doing homework is optional -Reflection seen as mere opinion	-How to increase time-on-task? -What's the purpose of reflection?	-Time managemnt -Learng strategies -Commitment to change -Reflection -Learned Helpless.			
Teamwork	We need to learn to collaborate if we want to solve our problems	Recognize benefits and pitfalls of group decision making	-One learns nothing in groups b/c students lack expertise	-When do groups perform better than individuals?	-Intrinsic v. extrinsic motivation -Social loafing	Experience the effectiveness of collaborative test-taking, & give per-formance feedback to group members	-Distinguishes dimensions of: attitude, listening skills, cooperative-ness, and preparedness	-Active listening -Aware of non-verbal behavior -Courage to critique others
		Acquire basic skills for effective communication in teams	-Critiquing others is rude	-How to give and receive constructive feedback?	-Assertiveness -Conflict resolution -Cultural difference			
Creativity	Greater creativity breeds greater happiness	Cultivate a curiosity for new experiences and skills	-People are born creative or not -If it requires hard work, it can't be creative	-Does happiness exist without creativity? -Can you learn to be (more) creative?	-"Flow" -Intrinsic reward -Optimal challenge -Energy -Curiosity -Openness to experience -Maslow's hierarchy of needs	Doing a creative audio-visual presentation on their personal "happy place" in Chicago	-Detects concepts in real situation -Looks at things with new eyes -Understands connected concepts -Seeks out new experiences	-Defines a location -Identifies personal priorities -Describes feelings -Identifies needs -Observes inter-actions -Interviews others -Creates PPT pres.
Happiness	Happiness is a journey, not a destination	Recognize the joy of the *process* of their personal development, not just the end results	-Society rewards results, not process -Happiness is sth. that happens to you	-What's the purpose of psychology? -Are human characteri-stics ever permanent?	-Positive psychol. -Attachment -Personality traits -Happiness archetypes	Planning what lifestyle choices they might make to lead a happy life in the future	-Assesses own strengths, skills, interests, needs, desires -Summarizes previous course reflections -Integrates these to design plan for own future	-Make sense of psych. inventories -Accept (for now) personal limitations -Synthesize info from diff. sources -Translate conclusions into a view of own future
		Become aware of the importance of place as it relates to being happy	Happiness is a state of mind unrelated to physical environments	-What are the preconditions for people to be happy? -Contributions of other disciplines?	-Sense of purpose -Intrinsic meaning -Pleasure -Peak performance -Social relationships			