

Up Your Game:

Utilizing the Understanding by Design (UbD) Framework to Maximize the Effectiveness of Cybersecurity Training Programs

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What is Understanding By Design (UbD)?

- Developed in 1998 by nationally recognized educators Grant Wiggins and Jay McTighe, and published by the Association for Supervision and Curriculum Development (ASCD)
- Offers a three-stage curriculum design process anchored by a design template
- Support materials include the original UbD book as well as a handbook, a study guide, and a three-part videotape series
- Over 250,000 books and 30,000 handbooks are in use
- Both the book and the Handbook won separate back-to-back annual awards for adult education from EdPress, the education publishing trade association

Based on 7 Key Tenets

1. Learning is enhanced when teachers think purposefully about curricular planning.
2. The UbD framework helps focus curriculum and teaching on the development and deepening of student understanding and transfer of learning.
3. Understanding is revealed when students autonomously make sense of and transfer their learning through authentic performance.
4. Effective curriculum is planned "backward" from long-term desired results through a three-stage design process (Desired Results, Evidence, Learning Plan).
5. Teachers are coaches of understanding, not mere purveyors of content knowledge, skill, or activity.
6. Regular reviews of units and curriculum against design standards enhances curricular quality and effectiveness, and provides engaging and professional discussions.
7. The UbD framework reflects a continuous improvement approach to achievement.



Target Now Says 70 Million People Hit in Data Breach

By MITCH LIPKA / MONEYWATCH / September 18, 2014, 6:25 PM

TECH 2/28/2015 @ 12:49AM | 4,964 views

Uber Suffers Data Breach Affecting 50,000

56 million accounts at risk in Home Depot hack

Anthem says at least 8.8 million non-customers could be victims in data hack FEBRUARY 24, 2015

FBI Director Comey reveals new details on the Sony hack

By Russell Brandom on January 7, 2015 12:40 pm Email @russellbrandom

Shellshock Bug: 6 Key Facts

The Shellshock bug could do more damage than the recent Heartbleed bug. Here's what you need to know.

HEARTBLEED STILL PREVALENT YEAR AFTER DISCOVERY



Security by Jimmy Nicholls | 04 March 2015

Some 100,000 or more WordPress sites infected by mysterious malware

Infected sites load attack code into webpages viewed by visitors.

Ralph Langner:

Cracking Stuxnet, a 21st-century cyber weapon

TED2011 - 10:40 - Filmed Mar 2011

Internet Explorer bug lets hacker control your PC

University of Maryland hacked; 309,000 Social Security numbers stolen

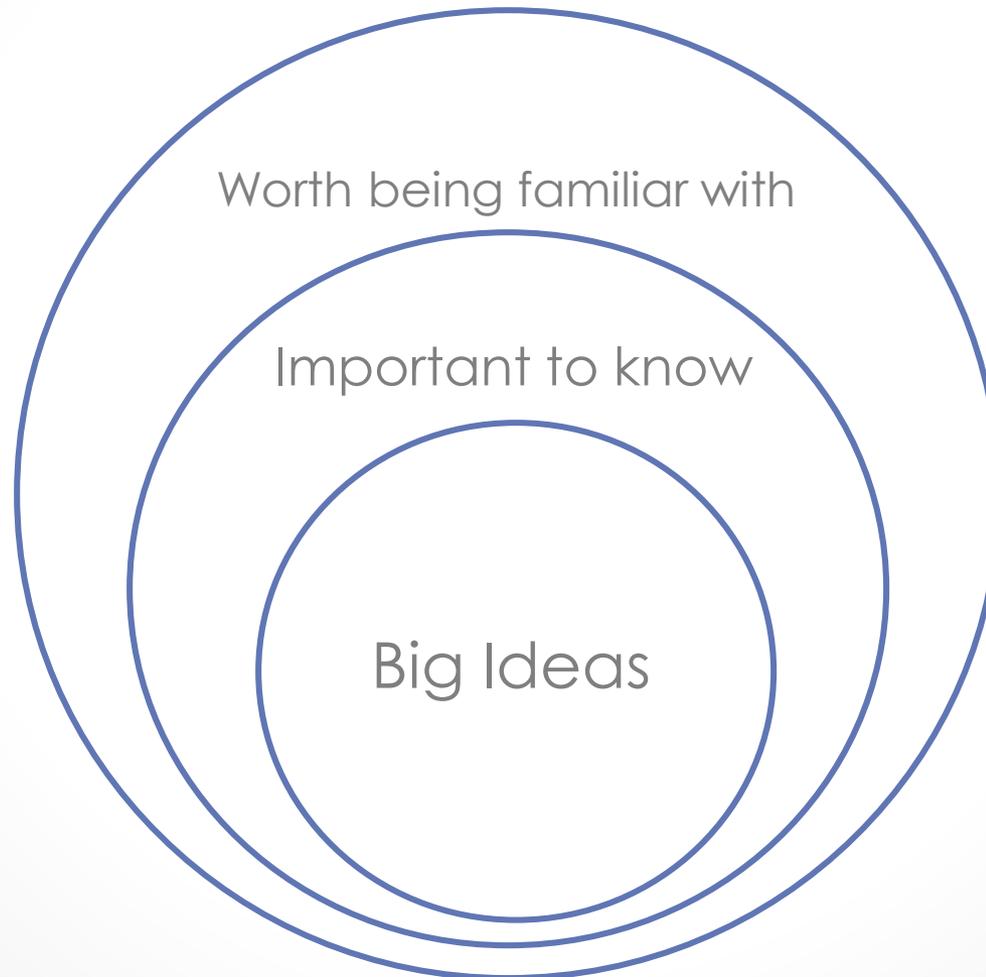
Information Overload

Less is More

...

Big Idea #1

Clarify Content Priorities



What is Important to Know about Understanding By Design (UbD)?

- Purposeful approach to planning
 - Thinking more about what **learners need** in order to achieve desired goals, rather than what instructors want to accomplish
- Backwards Design
 - Instruction is planned '**backwards**' starting with long-term desired results
- Focus on understanding of important ideas and transfer of learning to new situations
 - Instructor is a **coach** of understanding rather than purveyor of facts

Architects have the patience to plan. Builders have the savvy to improvise. Improvisation, however, is not a substitute for planning. The purpose of planning is to achieve predictable results. The purpose of improvising is to maintain work progress.



John McClean

20 Considerations that Help a Project Run Smoothly, 2003

What is a Big Idea?

- Broad and abstract
- Represented by a few words
- Provides a focusing conceptual lens
- Points to ideas at the heart of understanding
- Requires ‘uncoverage’
- Has great transfer value

Big Ideas Lead to Essential Questions

- Stimulate thought
- Provoke inquiry
- Spark more questions
- Not answerable in a brief sentence
- Lead students to uncover deeper meanings
- Promote understanding and transfer of ideas

The End is the Beginning

...

Big Idea #2

To begin with the end in mind means to start with a clear understanding of your destination. It means to know where you're going so that you better understand where you are now so that the steps you take are always in the right direction.



Stephen R. Covey

The 7 Habits of Highly Effective People, 1989

Coverage vs. Uncoverage

- Passive
- Instructor conveys information
- Superficial
- Focus on **remembering**

- Active
- Instructor facilitates learning
- In-depth
- Focus on **understanding**

Any fool can know.
The point is to understand.

• • •

Albert Einstein

(1879 - 1955) Physicist & Nobel Laureate

What does it really mean to Understand?

- Effective use of content
- Ability to handle novelty
- Ability to **transfer** what has been learned in one context to new contexts

Learning is not the goal – it is the means!

Six Facets of Understanding

- Can Explain
- Can Interpret
- Can Apply
- Has Perspective
- Can Empathize
- Has Self-Knowledge



(McTighe & Wiggins, 2004, p. 23)

Target: Transfer

...

Big Idea #3

Fitting the Pieces Together

Big Ideas

Essential Questions

What is Important to Know about UbD

Less is More



How can I use the UbD framework when I develop presentations or training?



Purposeful approach to planning

The End is the Beginning



Have I found the best balance between coverage and uncoverage?



Backwards Design

Target: Transfer



What does it really mean to understand something?



Focus on understanding of important ideas and transfer of learning to new situations

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THE UNDERSTANDING BY DESIGN (UbD) FRAMEWORK FOR FEDERAL INFORMATION SYSTEM SECURITY EDUCATORS

The UbD Template, Version 2.0

Stage 1—Desired Results		
Big Ideas <ul style="list-style-type: none"> • Less is more • The end is the beginning • Target: transfer 	Transfer	
	<i>Students will be able to independently use their learning to . . .</i> <ul style="list-style-type: none"> • Adapt tools and concepts of the UbD framework for use in their instructional design process • Design learning experiences starting with the key understandings that they want students to achieve 	
Established Goals <p>The Federal Information Security Management Act of 2002 (FISMA) requires each federal agency to develop, document, and implement an agency-wide program to provide information security for the information and information systems that support the operations and assets of the agency, including those provided or managed by another agency, contractor, or other source.</p>	Meaning	
	UNDERSTANDINGS <i>Students will understand that . . .</i> <ul style="list-style-type: none"> • Instructional impact can be improved when the design process begins with a focus on desired outcomes • Providing students with opportunities to uncover knowledge on their own promotes understanding • Knowledge of facts is not the same thing as understanding of ideas 	ESSENTIAL QUESTIONS <i>Students will keep considering . . .</i> <ul style="list-style-type: none"> • How can I use the UbD framework when I develop presentations or training? • Have I found the best balance between coverage and uncoverage? • What does it really mean to understand something?
	Acquisition	
	<i>Students will know . . .</i> <ul style="list-style-type: none"> • Information overload and distractions are a challenge for educators • Key concepts of the UbD framework • Potential benefits of designing instruction with the end results in mind • Difference between knowledge and understanding 	<i>Students will be skilled at . . .</i> <ul style="list-style-type: none"> • Designing presentations and training based on desired outcomes • Identifying and utilizing opportunities where students can actively participate in their own learning

© 2011 by Grant Wiggins and Jay McTighe

3 Stages of UbD

Stage 1: Identify Desired Results

- Established Goals
- Understandings
- Essential Questions
- Students will know... and do...

Stage 2: Determine Acceptable Evidence

- Performance Tasks
- Other Evidence

Stage 3: Plan Learning Experiences

- Learning Activities (WHERE TO)

UbD Template with Design Questions

Stage 1—Desired Results	
Established Goals G What relevant goals (e.g., content standards, course or program objectives, learning outcomes) will this design address?	
Understandings U <i>Students will understand that...</i> <ul style="list-style-type: none"> • What are the big ideas? • What specific understandings about them are desired? • What misunderstandings are predictable? 	Essential Questions Q <ul style="list-style-type: none"> • What provocative questions will foster inquiry, understanding, and transfer of learning?
Students will know... K <ul style="list-style-type: none"> • What key knowledge and skills will students acquire as a result of this unit? 	Students will be able to... S <ul style="list-style-type: none"> • What should they eventually be able to do as a result of such knowledge and skill?
Stage 2—Assessment Evidence	
Performance Tasks T <ul style="list-style-type: none"> • Through what authentic performance tasks will students demonstrate the desired understandings? • By what criteria will performances of understanding be judged? 	Other Evidence OE <ul style="list-style-type: none"> • Through what other evidence (e.g., quizzes, tests, academic prompts, observations, homework, journals) will students demonstrate achievement of the desired results? • How will students reflect upon and self-assess their learning?
Stage 3—Learning Plan	
Learning Activities L What learning experiences and instruction will enable students to achieve the desired results? How will the design... W = Help the students know Where the unit is going and What is expected? Help the teacher know Where the students are coming from (prior knowledge, interests)? H = Hook all students and Hold their interest E = Equip students, help them Experience the key ideas and Explore the issues? R = Provide opportunities to Rethink and Revise their understandings and work? E = Allow students to Evaluate their work and its implications? T = Be Tailored (personalized) to the different needs, interests and abilities of learners? O = Be Organized to maximize initial and sustained engagement as well as effective learning?	

Understanding by Design Professional Development Workbook (page 31)

Questions?

References and Resources

Books

McTighe, J. & Wiggins, G. (2006). *Understanding by Design*. Upper Saddle River, NJ: Pearson Education, Inc.

McTighe, J. & Wiggins, G. (2011). *The Understanding by Design Guide to Creating High-Quality Units*. Alexandria, VA: Association for Supervision and Curriculum Development.

Downloadable Templates

<http://jaymctighe.com/resources/downloads/>

<https://grantwiggins.files.wordpress.com>

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