

Difficulty vs. Complexity: What's the Difference?

Along with rigor, education is calling for us educators to increase the complexity in the questions we pose, the problems we present, and the tasks we provide to our students. We educators are told we need to work our students *smarter*, not *harder* in order for them to develop the deeper knowledge, understanding, and awareness of what they are learning.

Now we educators are facing another either-or situation – to teach and learn for difficulty *AND* complexity. However, as with rigor, the distinction between difficulty and complexity is unclear and often misinterpreted, which can prevent students from demonstrating and communicating the depth of knowledge, understanding, thinking, and awareness of what is being taught and learned.

DIFFICULTY ≠ COMPLEXITY	
DIFFICULTY	COMPLEXITY
<p>How much effort is needed to answer a question, address a problem, or accomplish a task?</p> <p>How many people can answer a question, address a problem, or accomplish a task correctly or successfully?</p> <p>Easy or Hard</p>	<p>What kind of thinking, action, or knowledge must be demonstrated and communicated to answer a question, address a problem, or accomplish a task?</p> <p>How many different ways can a question be answered, a problem be addressed, or a task be accomplished?</p> <p>Simple or Complex</p>

Difficulty vs. Complexity

Difficulty is based upon *amount of effort needed* to answer a question, solve a problem, or complete a task. Such questions, problems, or tasks are defined as *easy* or *hard* and are determined by how many people can answer the question, address the problem, or accomplish the task correctly or successfully. For example, it is *hard* -- or *difficult* – to remember who has served as President of the United States. It is even *harder* or *more*

difficult s to list the Presidents in order of their years of service, identify their political party, and name their Vice-President.

Complexity relates to the kind of thinking, action, and knowledge needed in order to answer a question, solve a problem, or complete a task and how many different ways are there to do this. Complex questions, problems, and tasks often challenge and engage students to demonstrate thinking at the higher levels of Bloom's Taxonomy and communicate strategic and extended thinking, which are at the higher levels of Webb's Depth of Knowledge.

For example, asking, *Which President of the United States had the greatest impact on the growth and development of our nation?* is more complex than difficult because it challenges and engages students to think critically – or *evaluate* – the impact of each President's actions and decisions and establish – or *create* – an argument that defends or justifies their choices supported by facts and information.

Difficult questions generally have one final, specific answer, outcome, solution, or end result that is either correct or incorrect. Complex questions, problems, or tasks may not have a simple, straightforward, or succinct answer, solution, or outcome. Complex questions may have more than one possible response. Complex problems may have more than one possible resolution. Complex tasks may have more than one possible result.

Complex questions, problems, and tasks also allow students to delve deeper into the content, concepts, ideas, subjects, and topics being taught and learned. Instead of merely learning what things are and how things work, complex questions, problems, and tasks engage students to establish and examine relationships, explore causes and effects, and consider options and possibilities.

These questions vary on their level of difficulty and complexity. The first two questions are difficult, requiring the ability to *remember* and *understand* the water cycle process.

The third question is more complex because it asks the student to *analyze* how the water cycle affects the world's water supply, establishing and examining the relationship between two areas. It also challenges students to develop deeper conceptual knowledge about the world's water supply by engaging them to determine - or *analyze* - what exactly is meant by usable water.

The final two questions increase in complexity because they have the student examine and explore the water cycle deeper by *evaluating* the impact of human interference on the water cycle and the world's usable water supply and to develop -- or *create* -- ideas and suggestions on how to prevent the water cycle being affected human interference.

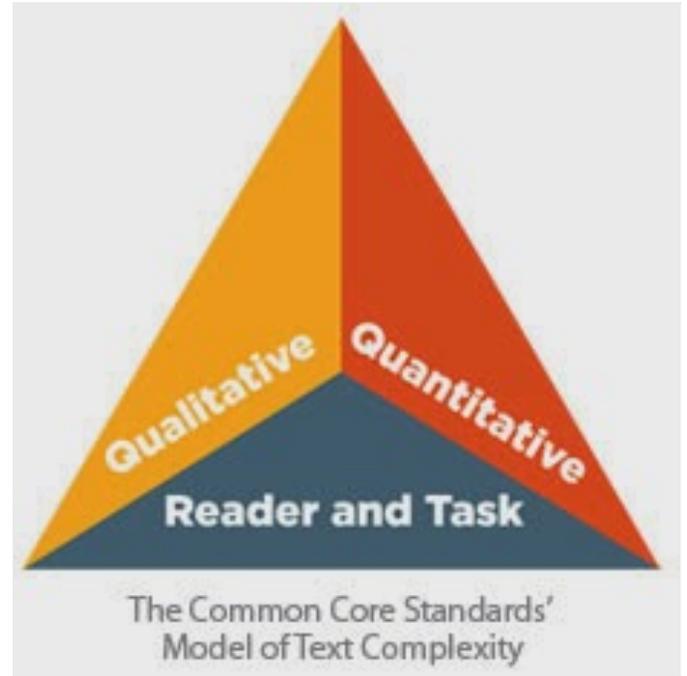
Is this a difficult task? Certainly. However, the difficulty lies in the *amount of effort* needed to be exerted in order to answer all the questions -- the research, the investigation, the coming up with an idea or plan to preserve and protect the water cycle and the world's usable water. The most difficult questions out of these five are the first two because they require the student to make the effort to memorize -- or *remember* and *understand* -- the factual and procedural information about the water cycle.

Should we pose questions, present problems, and provide tasks that are more complex than difficult? It depends on what exactly our students need to know, understand, and be able to do to demonstrate and communicate their knowledge, understanding, thinking, and awareness of what is being taught and learned.

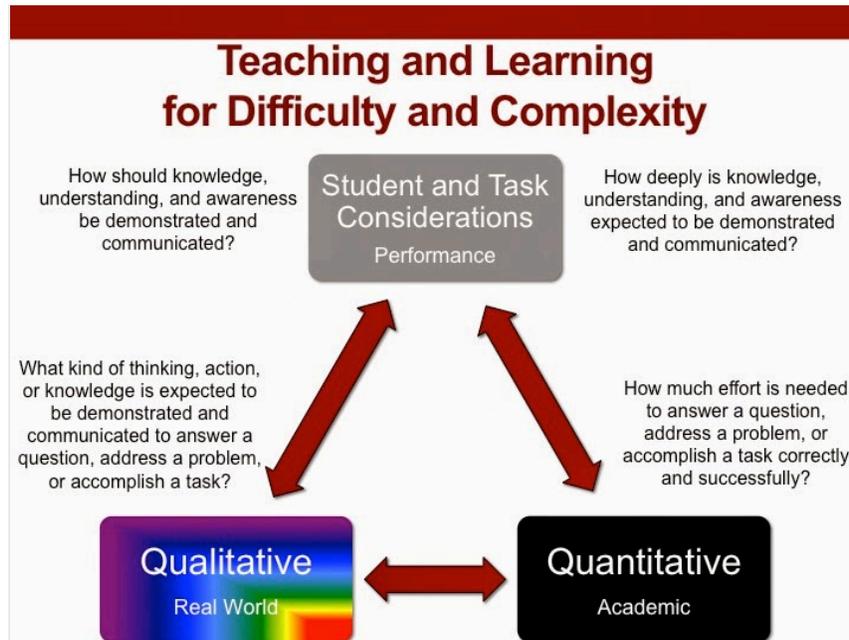
Do we want students to work *hard* in their learning? Of course. Answering difficult questions, addressing difficult problems, and accomplishing difficult tasks correctly and successfully are not only intellectually beneficial but also personally rewarding. Such experiences strengthen students' character by building their confidence in their abilities and developing a positive attitude about work. However, we also want our students to *think deeply* as well as *work hard*.

So how can we develop and provide challenging and engaging learning experiences that

varies in difficulty and complexity? The Common Core State Standards for English Language Arts and Literacy provides a framework we educators can use to determine the grade level appropriateness of literary fiction using qualitative measures (contextually-based), quantitative measures (metrics-based), and reader and task considerations (student interest and professional judgment). The three dimensions also function interdependently and may refute the evidence provided by another dimension. For example, though the Lexile level of *The Grapes of Wrath* is 680L, which is equivalent to the complexity level for text that can be read proficiently by students in Grades 3-4, the structure and message of the story - addressing the plight of the working man during the Great Depression - makes the book too complex to be understood as deeply as needed.



However, this framework can be modified - or innovated - into a measure for teaching and learning with difficulty and complexity.



Measure for Teaching and Learning with Difficulty and Complexity

Similar to the Common Core Standards Model of Text Complexity, the **Measure for Teaching and Learning with Difficulty and Complexity** consists of three dimensions:

- **Qualitative:** *What kind of thinking, action, and knowledge is expected to be demonstrated to answer a question, address a problem, or accomplish a task?*
- **Quantitative:** *How much effort is needed to answer a question, address a problem, or accomplish a task correctly and successfully?*
- **Student and Task Considerations:** *How should knowledge, understanding, and awareness be demonstrated and communicated? How deeply is knowledge, understanding, and awareness expected to be demonstrated and communicated?*

This measure is more student-centered in that the measure is more student-centered than teacher-led (**quantitative**) or content-driven (**qualitative**). As with rigor, difficulty and complexity are determined by the professional judgment of the teacher and the interest and need for the student to develop the knowledge, understanding, and awareness they are expected to demonstrate and communicate.

Use this measure when considering what exactly should your students need to know, understand, and be able to do and how should they demonstrate and communicate their learning.

- E.M.F.