QUESTION & REVIEW: Higher Order Questions
Games
First Impressions

- How can I engage students in higher order thinking?
- How can I scaffold students learning so that they move from basic knowledge to deep understanding?
- How can I encourage students to become more autonomous learners?
1. Define higher order questions.
2. Identify the purpose of using higher order questions in the classroom.
3. Identify at least two examples of how to use higher order questions in the classroom.
4. Articulate the benefits of using higher order questions in the classroom.

Instructors often use basic questioning strategies to encourage students to recall what they are directly taught. However, relying solely on this type of questioning neglects the students’ capacity for higher order thinking.

Higher order questions charge students to actively engage with content. As they evaluate, synthesize, analyze, and apply information, students’ understanding of concepts becomes internalized.

Graduating students to higher order questions promotes a deeper understanding of content. A student who has developed these thinking skills will be able to process information, articulate it to others, and synthesize it, all activities illustrated by Bloom’s Revised Taxonomy.

Over time, the consistent use of higher level questions helps students with explaining, defending, analyzing, and evaluating their own perspectives.
Higher order questions...

- elicit responses that go beyond simple information and rote memorization.

- are open-ended and may have many possible "right" answers.

- engage students in higher order thinking skills, such as interpretation and problem-solving.

- require more complex thinking, such as evaluating and justifying opinions and synthesizing ideas.

- develop skills that are used in real life decision making, such as generating and supporting hypotheses.

“Complex, real-life problems often demand complex solutions, which are obtained through higher level thinking processes. Teaching higher order thinking, then, provides students with relevant life skills and offers them an added benefit of helping them improve content knowledge, lower order thinking, and self-esteem” (DeVries & Kohlberg, 1987; McDavitt, 1994; Son & VanSickle, 1993).
**Take a Look**

*How do you utilize higher order questioning throughout a unit?*

Consider the types of questions you ask students to elicit critical thinking during any part of a lesson. Do the questions...

- challenge students to construct a response based on their thoughts rather than basic recall?

- ask students to infer based on textual evidence?

- engage students to give open-ended responses or constructed responses rather than one word answers?

*In what classroom situation would you use higher order questions?*

- Whole group discussion.

- Small group discussion.

- Seminar.

- Tests, both multiple choice and constructed response.

- Study guides.
Revised Bloom’s Taxonomy Activity

Drag the word or phrase to the correlating level of Revised Bloom’s Taxonomy.
How will higher order thinking look in my classroom?

A wealth of strategies exist to engage students in higher order thinking. Most can be modified to accommodate a wide range of age and ability levels.

Watch this short video to see higher order thinking in action.

- Whole class discussions, Socratic seminars, and debates
- Bloom’s Balls
- Question stems
Think About

Consider the concept of a **Paideia Seminar**, a classroom practice that can challenge students to engage in higher order thinking skills in any discipline.

1. Using resources from the **National Paideia Center**, choose the category that most closely fits your discipline.

2. Which text would add to the content of your lesson?

3. After reading through a seminar plan for the text of your choosing, which questions seem to be higher order questions?

4. What types of responses might those questions spark?

5. What questions of your own could you add to either enrich or scaffold the existing questions?

---

**Asking Higher Order Questions**

**Scaffolding** Start with basic skills or information and build up to higher order questions that increase the depth of student cognition.

**Wait Time** Instead of fearing silence, teachers must accept that thinking time is necessary for students to fully process their responses to a question.

**Autonomy** By formulating their own higher order questions, students delve even more deeply into the material. Student-generated questions also allow instructors to observe students’ levels of engagement and understanding.
Question 1 of 2

Which of the following does NOT require students to use a higher order thinking skill?

- **A.** Recall the primary author of the *Declaration of Independence*.

- **B.** Compose a response to the *Declaration of Independence* from the perspective of the British.

- **C.** Compare the *Articles of Confederation* to the *United States Constitution*.

- **D.** Examine the *United States Constitution* to determine which of its features has allowed it to endure as a “living document” that has remained relevant for over 200 years.
Section 3
Benefits

Why use higher order questions?

To encourage depth of understanding. Asking higher order questions compels students to hone their natural abilities to analyze, evaluate, create, and question sources. This effort, in turn, deepens their comprehension of concepts being taught.

To foster engagement with content. Carefully formulated questions are blueprints that demonstrate to students how to connect with material using a variety of higher order thinking skills, from synthesis to application.

To champion students’ investment in their own learning. Higher order questions teach students how to think, rather than what to think. In addition, the personal connections made by higher order thinking establish the relevance and value of learning to the individual student.

To enrich their futures. Students capable of formulating and responding to higher order questions are able to synthesize information and analyze situations that they encounter in their academic and professional life, making them more successful and marketable as 21st century citizens.

Learn More About Higher Order Questions

Teaching Higher Order Thinking
Benefits for At-Risk Students
“H.O.T.” activities for a variety of disciplines.


Resources


Resources


First Impressions

- How can I use games to increase student engagement in the learning process?
- How does game design mirror lesson planning?
- How can I use games to provide feedback and remediation?
Increasing student engagement is a nation-wide imperative. Heightened engagement has been linked with higher academic and literacy achievement, according to the Common Core State Standards and other research.

Using games in an academic setting provides an informal social learning environment that motivates students while increasing focus and participation through competition and teamwork.
Games...

- are activities comprised of competition, engagement, and immediate rewards.
- support academic work when designed in such a way that learning objectives are integral to game play.
- may be used to energize the classroom, increase interest in a topic, and motivate student learning.
- use score-keeping elements or completion prerequisite conditions to encourage students to monitor their own progress.
- promote intrinsic motivation through challenge, curiosity, control and fantasy.
- offer immediate rewards, such as points, descriptive feedback, recognition, or victory.
How can instructors use games to craft curriculum?

When constructing engaging curriculum, educators can utilize those principles that make particular games successful. In fact, many of the interactive and immersive activities used in classrooms already look a lot like games.
Educators interested in creating game-based lessons should ask themselves the following questions:

• What is the final goal of the game? This is the big question in a lesson plan.

• What skills must the player demonstrate to move forward? These are the lesson objectives.

• What are outcomes of success or failure? These are the assessments of the student’s work.

**How are gaming simulations used in the classroom?**

An gaming simulation conveys an experience in which a learner goes through a sequential or non-sequential series of events that models or emulates a real-world scenario. The experience does not represent the entire complexity of a learning experience; however, it highlights the salient parts.

A simulation provides a conceptual structure in which students may model a behavior in order to better understand that behavior. This modeling process highlights relationships between concepts.

Participating in simulations provides students with a concrete format for theoretical information. This helps students develop effective situational strategies and improves critical thinking. When multiple storyline pathways are provided, students are able to test a variety of outcomes in a safe environment.
How will the use of games look in my classroom?

Scavenger hunts, physical activities, board and card games, role playing, video games - educational games abound. A quick search online will yield hundreds of options.

Wheel of Geology

Disaster Dynamics

Scrabble Clubs

Times Table Football
Classroom Examples of Gaming Simulations

The internet connects educators and students with numerous gaming simulations that allow students to virtually confront and solve real world problems in a safe environment.

Civilization V

Who Killed William Robinson

Age of Empires III

Oregon Trail

Making History

Railroad Tycoon II

Sim City 4

Salem: Witchcraft Hysteria

Free online physics, chemistry, biology, earth science, and math simulations

PhET Interactive Simulations
University of Colorado
http://phet.colorado.edu
Think About

Having clearly defined procedures can prevent frustration from both students and teachers during a game in the classroom. Identify procedures for implementing games in your classroom.

1. Have students been taught the procedures?

2. Are the guidelines outlined clearly enough for students to understand?

3. Have students had an opportunity to practice procedures?

4. Have you identified any potential misunderstandings or problem spots?
Why use games?

To improve students’ attitudes towards learning. Integration of games into classroom settings has been associated with student achievement and motivation.

To aid in long term retention. The gamification of classroom instruction provides an opportunity to make connections and transfer existing information to new situations. These connections reinforce information used during game play, making it more memorable.

To provide immediate feedback. Students don’t always recognize when they have failed to learn something. The use of games and simulations in the classroom can provide students with immediate feedback as they test their understanding of the material.
To **provide opportunities for remediation and practice**. For every action or decision made within the framework of a game, there is a reaction. This provides prompt remediation and practice when necessary and redefines failure as an opportunity to improve.

To **scaffold learning**. As players complete tasks, master skills, or acquire points, they move to increasingly difficult levels where they apply and synthesize skills and information learned previously.

---

**Learn More About Games**

- The 10 Best Reasons to Use Classroom Games
- Gamifying Student Engagement
- 100 Great Game Based Learning and Gamification Resources
- Level Up: Video Games Are the New Educational Hack
- Video Games in Learning? These 50 Videos Explain What’s Possible
- What Video Games Have to Teach Us About Learning and Literacy
Section 4
Resources


Resources


Resources


Instructional Strategies

Career & Technical Education

Subject Specific
Per the ISLES Module, question and review is limited to (1) higher level questions that ask for explanations and (2) educational games. While Bloom’s revised taxonomy delineates several categories of thinking skills, for the purposes of this chapter, higher order thinking skills will refer to just the three highest—analyzing, evaluating, and creating.

Higher order questions tend to be open-ended and lead to divergent thinking. Examples of higher order question types include application questions, analytical questions, synthesis questions, interpretive questions and evaluative questions.
Some examples of higher-level questions in the Business and Marketing Education curriculum follow:

**Computer Applications (Analyzing):** What would happen if you removed the ROM memory from this computer?

**Marketing (Creating):** Using your computer, create an advertisement that contains copy, graphics, a headline, a tag line, and company contact information.

**Marketing (Analyzing):** Why was Coca-Cola unable to successfully introduce “New Coke” 25 years ago? Make a PowerPoint that justifies your response.

**E-Commerce (Evaluating):** Given two e-commerce websites, pick the ad that is most successfully promotes its company’s products. Provide support for your choice.
Games

Using games in class can be beneficial when teaching kids to apply learned skills and concepts to real-world scenarios. Virtual simulations games allow students to implement problem solving and critical thinking skills. The following sites and games have been listed according to specific courses, but can be applied to a variety of classroom setting and used in a variety of lessons.

Some examples of when to use games in the classroom:

- When assigning independent work time, allowing students to work on and complete simulations on their own time, whether at home or after completing assignments in class.

- Bell ringers: a great way to get students working from the get-go! Best for quick-to-play games that only take a few minutes to complete.

- Team/Group Activity: Allow students to complete the simulations or challenges together. Sites like Virtual Business actually have built-in challenges that allow the students to work in teams that can either be self-selected or teacher-selected.

- Formative Assessment: to check for students’ understanding concepts. Games allow students to attempt and reattempt completing various challenges in order to master a particular skill.

- Summative Assessment: Give students are particular task to complete in a given amount of time.

Games in Career & Technical Education

Students learn and practice when games are used in a formal education setting, and the flexibility and variety of games means teachers can take into consideration the class climate as well as the learning styles of individual students when they choose or create games. Leadership, innovation, and the ability to adapt and upgrade skills are among the core values of Career and Technical education cited by the Department of Public Instruction Planning Guide, and all can be mastered through the use of games. 21st
century learners should be able to think creatively, work cooperatively, and solve problems; games are a perfect venue for practicing these facilities.

A few reliable online resources for games in the classroom include:

**Quia.com**

Teacher can use activities on Quia for free; however, you must have a subscription, which costs $49/year, to use more advanced features such as creating a roster or original content. Because student features are always free, Quia is best used for students to access on an individual basis to gauge their understanding of material.

**UNCW Educational Games**

The University of North Carolina at Wilmington (UNCW) has gathered an assortment of educational games to meet every need: whole class, individual, PowerPoint-based, Excel-based, and more. The games templates are free of charge, and teachers can download templates and modify them without worrying about copyright and trademark issues. More games are available in the Teacher Pay Teachers store for minimal prices.

**Educade.org**

A collective database of teacher-made educational material, educade.org allows you to refine your search by tool types, platform, grade level, and subject matter to find exactly what you need. The Design & Engineering section and the Business section will prove particularly useful for CTE teachers.
Entrepreneurship

Virtual Business ® requires a paid prescription

Knowledge Matters provides web-based simulations designed for high school curriculum in various areas including Retailing, Sports, Management, Restaurant Management and Personal Finance.

For Entrepreneurship, the Restaurant Management simulation includes lesson plans for the teacher to connect the simulation activities to their specific curriculum. Each lesson requires the students to complete Reading and Math components and to follow the instructions for each of the simulation challenges.

The Lemonade Stand ®

Lemonade Stand Game game is a quick-to-play simulation game that challenges players to make as much money in 30 days as possible. Students utilize skills in sales forecasting, inventory maintenance, analyzing market conditions and customer service.

Just for Clicks Business Game ™

TeachingKidsBusiness.com has created a game that allows students to create their own product and business idea. The game takes kids through the process of starting their own business including naming the business, product development, targeting a market and creating advertising.
Gen I Revolution ©

In this mission-based game players battle the "Murktide" - a pandemic of financial illiteracy. Players scavenge the environment for information, clues and tutorials to help them make the decisions needed to solve the mission. This game covers a broad gamut of financial decisions but specializes in saving, investing and diversifying. This game requires a student to reach educated decisions based upon their understanding of the information presented and therefore it is not easy.

EverFi™

This financial literacy certification program builds on their middle school programs (Vault - Understanding Money, Ignition - Digital Literacy, & Radius - STEM readiness). EverFi has 9 modules with pre and post assessments that cover a variety of topics including banking, insurance, financing higher education and taxes. There are instructional videos throughout the modules and the modules are delivered in a step-by-step method that provides an easy delivery.

Financial Entertainment ©

Celebrity Calamity is one of four games offered on the site. These games are just that: games. They have financial themes that a player will more subtly familiarize themselves with. For example, Celebrity Calamity deals with priorities, debit, and credit limits and interest rates. Students can log in and pick up where they left off, which makes it a good activity for students to do if they complete assignments early. Keep a leader-board in class and encourage achievement but it would be very difficult to create a lesson around these games.
YouAreHere

The Federal Trade Commission brings us this interactive shopping mall to help teach lessons on Advertising & Marketing, Privacy & Identity Theft, Frauds and Scams, and Competition. The website is intended for middle school but the activities and lesson plans provided to coincide with the activities are great starting points to teach some tricky topics in consumer awareness and safety.

Wall Street Survivor ®

There are several stock market games and simulators out there but Wall Street Survivor provides one that is very interactive and engaging and FREE. The stocks prices change with the market, the customization options for the teacher are good, recommendations and Motley Fool advice are at their fingertips. As a bonus there are courses built into the site that cover the stock market and other personal finance topics like buying a car, so a teacher can assign courses and students can earn badges to prove they’ve passed the courses. Students can also see how they match up against classmates, they can continue to enter other leagues and compete on their own, and teachers can play too to show them how it’s done.

Spent

Players are given a dire financial situation: home foreclosure, job layoff, etc., and are given choices to make regarding their financial future. The task is to make it to 30 days with money remaining in your account. This game is very quick to play and allows students to see the impact that certain choices have on their lives.
**Marketing**

**Logo Quiz**

Logo Quiz is an available as an app on your smartphone or tablet. Players guess which company the logo or trade character belongs to. Great as a bell ringer or ice breaker with students.

**MarketPlace**

MarketPlace Live Simulations offers several different simulations suited for various courses. Teachers can select the criteria that best matches their particular course and the site will match their course to the appropriate simulation.
MSITA

Ribbon Heroes

Ribbon Heroes provides the ability for students to learn the various ribbons in an interactive environment.

Sports & Entertainment Marketing

Federal Reserve Bank of Boston: Peanuts & Crackerjacks

Sponsored by the Federal Reserve Bank of Boston, this sports-based scenario teaches economic concepts for everyday life. While focused on sports, the topic is simply a hook to get students interested.
Show Business: Economics of Entertainment

Sponsored by the Federal Reserve Bank of Boston, this activity is based on the entertainment industry. It covered a broad range of economic topics, including some pieces of economic history.
Credits

Creation, development, and editing were provided by the following individuals:

Adu-Gyamfi, Kwaku; Barker, Renea; Berry, Crisianee; Brown, Cindi; Eissing, Jennifer; Finley, Todd; Flinchbaugh, Michael; Garner, Kurt; Guidry, Allen; Harris, Julie; Hodge, Elizabeth; Hutchinson, Ashley; Jenkins, Kristen; Kester, Diane; Knight, Liza; Lewis, Greg; Liu, Yan; Noles, Stephanie; Nunns, Kristen; Passell, Robert; Pearce, Susan; Perkins, Ariel; Phillips, Joy; Phillips-Wagoner, Ashleigh; Ross, Chad; Sawyer, Eric; Smith, Lisa; Smith, Jedediah; Steadman, Shari; Swope, John; Thompson, Tony; Todd, Clinton; Ware, Autumn; Williams, Scott; Zipf, Karen.

Development of the ISLES modules was supported financially by the Teacher Quality Partnership grant program of the U.S. Department of Education, Office of Innovation and Improvement.

Images used with permission.

©2014 East Carolina University