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"Breaking Barriers in Teaching and Learning" - Using Student-Generated Questions to Promote Learning

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CHAPTER ONE

Using Student-Generated Questions to Promote Learning

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Faculty who teach gifted honors students often ask themselves, “How can I ask questions that foster higher-order thinking?” “How can I get more students to respond?” “How can I ensure that students are learning from question-based discussions?” Another key concern: “How can I get students to begin interacting with each other rather than conducting a discussion much like a ping-pong match where the rapid exchanges occur only between a single student and me and then another student and me?” This last question can lead faculty to a different model of questioning, one in which students generate questions that are then used in creative, interactive ways to provoke meaningful discussions, usually in pairs or small groups.

THE VALUE OF ASKING GOOD QUESTIONS

In their book on using simulations to improve student learning, John P. Hertel and Barbara J. Millis recount the following anecdote:

Isadore Rabbi, a Nobel-prize winning physicist, tells a story of when he was growing up in the Jewish ghetto of New York. When the children came home from school, their mothers would often ask them, “What did you learn in school today?” But Isadore’s mother would ask him, “What good questions did you ask today?” Dr. Rabbi suggests he became a physicist and won the Nobel Prize because he was valued more for the questions he was asking than the answers he was giving. (71–72)

Ken Bain, in a 2008 keynote address, emphasized that students are not “grabbed” by the sometimes arcane questions of their professors; instead, they are intrigued by questions that interest them. The best teachers, he notes, have the ability to begin with questions that students already have on their minds and then move to questions important to the course. As an example, a professor who was teaching in the fall of 2006 had an overarching course question: “What impact did Reconstruction after the Civil War have on [subsequent] political developments and policies?” The question she used to hook students was, “What in the world happened with Katrina?” A follow-up question was, “When did the disaster in New Orleans begin?” To the students’ surprise, the answer was 1866.

If questions are indeed so valuable, it seems strange that faculty members focus so much on their own question-generating abilities (important skills, certainly) and so little on students’ skill levels in this regard. A quick review of the research and best practice books and articles in higher education show that they almost invariably address questioning techniques solely from the faculty perspective. According to Maryellen Weimer, for faculty members to use the more learning-centered approach that honors students need, they can try to involve students in creating—and answering—effective questions.

A USEFUL TOOL TO GENERATE QUESTIONS

Too often when faculty members expect students to submit questions, they offer little or no guidance. Thus, even advanced honors students typically create only “What”-based questions. A far more effective approach rests in using question stems developed and researched by Alison King (“Enhancing,” “Guided,” and “Promoting”), based on the 1956 version of Bloom’s Taxonomy. (See Appendix 1 for numerous examples of useful question stems.) They work in face-to-face, hybrid, and online settings, usually “front-loaded” as out-of-class homework to produce deep learning, as described in an earlier publication (Millis). To simplify the grading process, the resulting questions can be a pass-fail homework assignment with points assigned for each viable question. In addition to making the grading decisions easier, this approach helps faculty determine that students have actually read the assigned materials and are coming to class prepared. (After all, even honors students are not always motivated to keep up with all the work!)

Students use a set of generic question stems or prompts as a guide for formulating their own specific questions about the content material. The list contains some questions more appropriate and challenging to dualistic thinkers, such as “What is the difference between ___ and ___?” Other questions challenge more advanced thinkers, such as “What are the strengths and weaknesses of ___?” The stems prompt all students to think beyond the obvious “What is” questions that students—even honors students—tend to create if left without guidance.

The first time instructors use this approach, they should provide specific examples to help students understand the process of generating effective questions. They can give their honors students, for example, sample questions in their discipline that are based on the stems. I challenged myself to use every single one of these stems to create questions about William Faulkner’s “A Rose for Emily.” To my amazement and delight, I succeeded, managing to come up with questions I had never thought to ask before; thus, the stems can also be a useful tool for faculty members. I shared these questions with

students, knowing that I would be challenging them to write similar questions on the next work of literature.

Instructors should tell students that they do not need to know the answers to the questions they formulate: their purpose is to generate discussion. This caveat usually results in authentic questions, not meaningless ones for which students already hold canned responses. It also encourages honors students to identify relevant concepts, to elaborate on those ideas in their minds, and to think about how the ideas connect to each other and to their own prior knowledge and experiences, key facets of an authentic honors education.

The students can put these questions to use in a number of interactive ways. I encourage faculty members to think about creative ways to use these questions rather than simply offering them for whole-class discussion. Three specific ways to use them—all with online and large-class applications—are (1) Guided Reciprocal Peer Discussion; (2) Game-based Questions, with a focus on “Go Fish”; and (3) Question Shuffles. All three are discussed below.

GUIDED RECIPROCAL PEER DISCUSSION

Based on suggestions by Alison King, I have used this approach in face-to-face interactive discussions within small groups (Millis). It can also be adopted for online use through course management systems that allow faculty members to set up different iterations and variations of small groups, an essential option not available in earlier versions of some systems. For discussion purposes, I will use the face-to-face model.

All honors students do the assigned reading and bring to class a specified number of questions based on King’s question stems. Faculty assign students to small discussion teams, with four to five students in each. As a structure nut, I like to assign specific roles so that students are not left floundering without clear guidance (structure is, according to James L. Cooper, an essential element of effective group work and cooperative learning). For a Guided Reciprocal Peer Discussion, faculty need to identify at least three key roles: Team Discussion Leader, Recorder, and Reporter. In a

face-to-face setting, a Time-Keeper could play a fourth role. I use playing cards (suit symbols and numbers) to identify the roles, but faculty can simply have students number off (1, 2, 3, 4) within the groups so that they can then assign roles to each group member based on the number. Instructors can ask honors students to send the questions to them ahead of time for vetting and for points, if that is a realistic option, particularly if they are using a classroom management system where such submissions are relatively easy.

During class, the Team Discussion Leader is responsible for seeing that all team members pose a question they want discussed, with the stipulation that the questions are based on different question stems. This practice ensures variety and different levels of thinking based on Bloom's Taxonomy. To promote reflective discussion, the questions should not have a single right answer. The Team Discussion Leader encourages equitable participation both in the discussion and in the questions shared, keeping the team focused on an in-depth discussion.

The Recorder captures the gist of each discussion. These notes reinforce the learning and allow for a final synthesis activity. As the final sequenced activity, the team reviews the discussion notes, and the honors students identify the discussion question that produced the most learning or the greatest insights, reinforcing the principles of collaboration and deep learning that are key in honors pedagogy.

The Reporter, working from the Recorder's notes, prepares a synthesis that includes the question and the most salient points made during the discussion. In a small face-to-face class, each group gives a 3–5 minute report of these insights. In an online application, collapsing the Recorder/Reporter roles may make sense. The responsible student posts the final synthesis of the group's best discussion. In large face-to-face classes, teachers can randomly call on students to give the report from their group, producing a small sample of reports. If teams submit the reports electronically, then they can be shared in other ways.

GAME-BASED QUESTIONS FOCUSED ON "GO FISH"

Experienced faculty who relish novelty and risk-taking can use the King question stems for academic games such as "Go Fish" or Bingo (Millis). I use "Go Fish" in my literature classes. The game evolved from a department mandate at a former institution that all English teachers must use literary quotations as a part of their final exams. After reading a quotation, students provide the author, the work of literature, and the person who is speaking. Many students, however, regard some quotations as "picky" or "tricky," and they end up guessing and scrambling for points if they do not recognize them. Aberrations then result, such as identifying "To be or not to be" in *A Farewell to Arms* by Toni Morrison or Emily Dickinson.

Recognizing necessity, I decided to make lemonade from lemons and convert the quotation requirement into a genuine learning experience by playing "Go Fish" as a prelude to the exam. "Go Fish," a children's card game, requires matching four like items (usually numbers in a deck of cards, such as four Aces or four Threes), so it was perfect for this four-part quotation requirement.

On a simple website, students submitted for pass/fail points the quotation, the work it came from, the author of the work, and the speaker. To enhance learning, I added a fifth part, a brief paragraph explaining the significance of the submitted quotation and how it relates to or illuminates the theme of the piece of literature. Using the forum feature of a course management system for the submissions also allows for peer critique. I returned to students without credit any incomplete, inaccurate, or inappropriate submissions. Because I also returned any duplicate quotations, the honors students had to read through the prior submissions before posting, a ploy that reinforced learning. The submission process was ongoing throughout the semester, resulting in rich quotations for virtually every work of literature we read.

Setting up the game required a fair amount of work on my part, which could be reduced with a more sophisticated website that would automatically format the four parts of the quotations. I cut and pasted the four parts (quotation/work/author/speaker) four-to-a-page, and then printed them on card stock. I clipped apart each

quadrant to form large playing cards, which I assembled into a pack of thirteen sets, like a deck of cards. I then dropped fifty-two “quotation cards” in the thirteen sets into large resealable plastic bags to form decks. In each deck, I was careful to balance quotations from different works. Because this exercise was a semester-long project, I ended up with multiple decks of quotation cards, making the game a viable option even for large classes.

As preparation for play, all students had access to all the quotations/works/authors/speakers, plus the paragraph on the quotation’s significance. I renamed the game “Fishing for Quotations.” Besides their own intrinsic motivation, honors students had two incentives to study: preparation for the pending game and knowing that some of these quotations would appear on their final exam.

On the day of play, I divided the students into teams of four and distributed the rules of play, requiring students to share the significance of the quotation with the other team members as they lay down each set of four. (Appendix 2 includes step-by-step instructions for the game.) Play was lively and energetic with plenty of grins after successful gains and many groans as students lost cards. When teams successfully completed the game, I handed them another bag with another deck containing different quotations, and play continued until class ended.

Students rated “Fishing for Quotations” very high on my end-of-class survey, and—best of all!—every student “maxed out” the mandated quotation section on the final exam. As a teacher, I felt good that I had turned a potential “nit-picky” department requirement into a genuine learning experience for my motivated and willing honors students.

Faculty members in other disciplines—particularly ones such as biology, geology, chemistry, math, business, or other content-heavy STEM-related areas—can develop their own versions of “Go Fish” with groups of four as an interactive and creative alternative to traditional lecturing in order to make their classes fit honors pedagogical aims.

QUESTION SHUFFLE

The “Question Shuffle” is ideal for faculty members who require short-answer or essay questions on their exams. The “Question Shuffle” gives students practice in writing short answer/essay responses, similar to those coming up on exams. Once again, the honors students formulate and submit questions after reviewing the materials for the upcoming exam. Each student writes two effective essay questions on an index card. Faculty can coach students on this process and share with them some good questions from prior exams.

On the practice day, the faculty member pairs the students. Each pair reviews the four questions available (two from each) and discusses which two questions are the best of the four. They then re-write those questions on another blank index card. The index cards are then “shuffled” around the room, so that each pair ends up with two questions from another pair. Each pair then discusses the options and decides which of the two is a better question. These decisions occur quickly, so within five minutes of coming to class, each pair is now ready to write answers to carefully vetted questions that have gone through three layers of screening. The screening, of course, is itself a useful process because it leads students to evaluation skills, the highest level of the earlier version of Bloom’s Taxonomy.

Both members of the pair write an answer/essay on the selected question in the same amount of time they will have during the final exam. After the teacher calls “time,” students read their partner’s response, discussing afterwards the relative quality of the two answers and how they might combine them to form a stronger answer. This important step gives honors students an opportunity to see how another student approached the same challenge. Stephen D. Brookfield and others have emphasized that critical thinking depends on identifying and challenging assumptions and subsequently exploring and conceptualizing alternatives. This exchange and the subsequent discussion often lead to “aha” moments when students see different perspectives.

Students can then follow a similar process to answer as many questions, followed by paired discussion, as time permits. Because the “Question Shuffle” has pairs working together with no grading involved, the approach is highly effective in large classes. It is especially useful in promoting learning over grades, a common concern in teaching anxious and task-oriented honors students.

The benefits of a “Question Shuffle” are enormous. Honors students gain expertise in generating and evaluating good questions; they have an opportunity to practice skills under conditions similar to the testing situation; they receive feedback (assessment) from a peer on their efforts; and they often benefit from seeing another perspective on the same topic. Teachers also benefit from the “Question Shuffle.” They gain insights into their students’ levels of learning prior to an examination, and they have at their disposal a large bank of test questions with possible answers. Most faculty use as many viable student-generated questions as possible on the actual exam.

QUESTIONS, DISCUSSIONS, AND HONORS

These three approaches to student-generated questions add novelty to the honors classroom. They also enhance learning through interactive, engaging pedagogical strategies consistent with the characteristics of honors education. James R. Davis emphasizes the value of the questioning process: “Thinking involves asking questions—sometimes new questions about old questions in the search for new answers” (234). Questioning, clearly, is at the core of honors teaching and learning, and the suggestions in this essay can help us lead better discussions in our honors and other courses.

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APPENDIX 1

Guiding Critical Thinking

Generic Questions	Specific Thinking Processes Induced
Explain why _____. (Explain how _____.)	analysis
What would happen if _____?	prediction / hypothesizing
What is the nature of _____?	analysis
What are the strengths and weaknesses of _____?	analysis / inferencing
What is the difference between _____ and _____?	comparison-contrast
Why is _____ happening?	analysis / inferencing
What is a new example of _____?	application
How could _____ be used to _____?	application
What are the implications of _____?	analysis / inferencing
What is _____ analogous to?	identification / creation of analogies and metaphors
How does _____ affect _____?	analysis of relationship (cause-effect)
How does _____ tie in with what we learned before?	activation of prior knowledge
Why is _____ important?	analysis of significance
How are _____ and _____ similar?	comparison-contrast
How does _____ apply to everyday life?	application—to the real world
What is a counter-argument for _____?	rebuttal to argument
What is the best _____, and why?	evaluation and provision of evidence
What is the solution to the problem of _____?	synthesis of ideas
Compare _____ and _____ with regard to _____.	comparison-contrast and evaluation based on criteria
What do you think causes _____? Why?	analysis of relationship (cause-effect)
Do you agree or disagree with this statement: _____? What evidence is there to support your answer?	evaluation and provision of evidence
What is another way to look at _____?	taking other perspectives

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What does ____ mean?	comprehension
Describe ____ in your own words.	comprehension
Summarize ____ in your own words.	comprehension

Adapted from King, "Enhancing," "Guided," and "Promoting."

APPENDIX 2**Fishing for Quotations***Game Rules (similar to the card game "Go Fish")*

- The goal of the game is to collect sets of four cards in which one card is the quotation, one the literary work, one the author, and one the speaker.
- Students should be in groups of three or four with one deck of cards for each group.
- The dealer deals four cards to each student. The remaining cards go into a pile in the middle of the table (face down).
- One player starts by selecting another player and requesting a specific card. For example, Player 1 says to Player 3: "Do you have an "Author, Toni Morrison" card?"
- If the player has the requested card, he or she relinquishes the card to the player who requested it. If not, the player who was asked for the card responds "Go Fish." The player who asked for the card then takes the top card from the pile in the center of the table.
- If a player obtains a complete set of four cards, he or she may place those cards face-up on the table, but may do this only during one's turn. He or she **MUST** explain to fellow players the significance of the quotation, tying it into themes, characterization, etc. Whenever a set of four cards is placed on the table, the other players should check the cards and challenge erroneous sets. If a set of cards is found to be erroneous, the player who placed the cards on the table must put the cards back into his or her hand.
- No discarding takes place.
- Play proceeds in this fashion around the table.
- The game is over when all players are out of cards.
- The winner is the player with the most sets on the table.

"Fishing for Quotations" is an adaptable, enjoyable way of helping students learn specific content information about works of literature during an exchange of cards. For many, the gaming process reinforces prior knowledge. Students share knowledge during this collaborative exercise, engage in active learning, and have fun in the process.

