FEATURE

Best Practices in Information & Knowledge Building

Let

It Go

THE POWER OF STUDENT-GENERATED QUESTIONING IN INQUIRY LEARNING

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What happens when students are in charge of the questioning in inquiry learning? While beneficial to student engagement and learning outcomes, student-created research questions require a shift in thinking for the teaching team, which is made up of the school librarian, classroom teacher(s), and other specialists designing the inquiry learning experience. In the Guided Inquiry Design process, an innovative research method detailed in the book *Guided Inquiry Design: A Framework for Inquiry in Your School*, a critical component involves students' writing inquiry questions based on their own interests (Kuhlthau, Maniotes, and Caspari 2012). A significant departure from the traditional research project, this process empowers students to pursue avenues of inquiry that genuinely captivate them. But for librarians leading inquiry learning, this shift can seem difficult to manage. Relinquishing control of research outcomes can cause concern that students will not master the standards a unit is designed to address.

Using student-generated questions does not have to mean losing control of student learning. By thoughtfully designing the culture, resources, and language around questioning and inquiry learning, the teaching team can be empowered to loosen their hold and guide learners to create high-level inquiry questions that spark the excitement of students and teachers alike.

This article outlines four strategies for guiding student questioning:

- developing and maintaining a classroom culture that supports questioning;

- providing students with curated resources that build background knowledge while laying the foundation for inquiry questions that address the content;

- building questions around a framework where questioning is consistently modeled, practiced, and encouraged; and

- enabling students to constantly rewrite, revise, and reimagine their inquiry questions.

This design empowers the teaching team to fully address curriculum and standards while empowering students to be the masters of their own learning. When both teachers and students are empowered, educators see the outcomes they desire, and students have the learning experience they deserve.

Establish a Culture of Inquiry

While the shift to student-generated questions may be an adjustment for teachers and school librarians, it can also be disconcerting for students. It is a sad truth that the testing climate in education fosters students' expectations for black and white, multiple-choice, right and wrong answers. In inquiry learning, not only do students not know the answer right away, but they do not even know the question! To foster open minds and true engagement in the inquiry process, it is critical to establish a culture of inquiry in the classroom before inquiry learning ever begins.

Something that can be done as early as the first day of school is creating an environment in which making mistakes is acceptable. A teaching team can do that by being the first to mess up, sometimes even purposefully, perhaps by doing something as simple as writing the wrong date on the board and allowing students to correct them. It is hard to be vulnerable in front of students, but when teachers and school librarians demand perfection from themselves, students assume it is expected of them too. That is such an intimidating standard that many learners may not even try to reach it. When

students see the teaching team allows themselves to mess up, they understand that their own inevitable mistakes will be accepted as part of the learning process. Mistakes can be a perfect teachable moment, an opportunity to model how to identify an error and to guide the student to a better answer in a way that allows the learning to continue. As relationships grow within a classroom, students will be able to do this for one another as well.

Another way to build a culture of inquiry is to encourage students to pursue their own avenues of questioning as they naturally arise. When a student asks a question that is irrelevant to the subject at hand, it is important to foster their curiosity by providing an outlet for them to explore further. It is easy to redirect students back to the task or ask them to save their questions for another time that almost certainly will not come. While the teaching team may feel compelled to stick to the lesson plan, it is important to think about the message this rigidity sends to the student. To dismiss a question for the sake of curriculum tells learners that the agenda is more important than their curiosity. In inquiry learning, the students' curiosity is the most essential ingredient!

When building a culture of inquiry, it is important to ignite that curiosity rather than extinguish it. Establishing early that students may ask any question that stimulates their curiosity enables them to ask effective research questions when the time comes. Realistically, no educator can allow a class to veer off track any time a student asks a question, but rather than shut down inquiry, think of creative ways to stay on topic while allowing inquisitive students the freedom to pursue their curiosity. If devices are a part of the class environment, ask, "Why don't you take a few minutes to find out more about that, and raise your

hand when you are ready to give an update?" or suggest that a student find more information before the next class period or the next day and come prepared to share with the class. While the teaching team must use their judgment about the degree to which students can handle this kind of responsibility and autonomy, encouraging further discovery validates students' natural curiosity and gives them a chance to become the experts, increasing their confidence and comfort with questioning.

A third way to build a culture of inquiry is for the teaching team to model their own curiosity; in *Guided Inquiry Design*, this modeling is referred to as an inquiry stance (Kuhlthau, Maniotes, and Caspari 2012). Educators with an effective inquiry stance are open to new learning from all perspectives, make connections to that learning from their own lives, and encourage students to make those connections as well. Equally important is educators' willingness to ask questions to which they do not already know the answer. Research cited in the book *Visible Learning for Literacy, Grades K–12* (Fisher, Frey, and Hattie 2016) indicates that a teacher's subject-matter knowledge is not the largest factor in student success. It is okay for teachers and librarians to acknowledge that they do not have all the answers! In an environment of inquiry, they can abandon the need to be the center of all knowledge and embrace not knowing just as inquiry learning asks students to do.

Curate Resources to Guide Thinking

One of the most common concerns about student-created questions is, "If students are asking their own inquiry questions, how do I make sure they are learning what they need to learn?" One highly effective way is

by providing curated resources at the right moment in the inquiry process.

In Guided Inquiry, the eight-phase inquiry design framework used by this article's authors, students participate in the Explore phase just prior to formulating their inquiry questions. No matter what inquiry method you use, there is likely an equivalent step in the process. Exploring requires students to spend time browsing resources to look for interesting ideas and concepts, begin formulating questions, and determine where their own interests lie within the scope of the unit topic. This phase is one of the best places for the teaching team to guide student questioning. By thoughtfully curating the resources students access in the beginning stages of developing research questions, the teaching team can ensure that students remain within the boundaries of the unit concepts, and, therefore, within the prescribed curriculum. For example, students browsing resources on deforestation will likely formulate questions on that topic because the background knowledge required to formulate those questions is acquired as they browse resources.

Using curated resources to guide student questioning is especially effective in elementary and middle school. The younger the students, the less background knowledge they have, and the more likely they are to use the resources provided as a foundation for their inquiry questions. With older students, it may be challenging to use curated resources to contain the range of their questioning, as they have more knowledge and experiences from which to draw. Though it can be daunting to relinquish control, remember that the only important thing is that students remain within the scope of the unit concept. If students do deviate, simply remind them of the concept and help them

redirect their efforts. Trust that students will acquire any critical information during the inquiry process and allow them to pursue the ideas that captivate them; the best inquiry questions are often those the teaching team never considered. One of the many benefits of student-created questions is the students' freedom to connect their own interests to the topic, and they may make connections that exceed expectations.

Provide a Framework

Another strategy used to guide students to develop deep, powerful inquiry questions is providing a framework for questioning. Many types of existing questioning frameworks allow students to structure their thinking and better understand what makes a good inquiry question. For younger students, framing questioning can be as simple as putting it in terms of "thick" and "thin": thin questions are yes-or-no questions or those that require very short, simple answers, while thick require students to dig deeper with their research and provide more complex answers. This simple system helps students begin to understand the differences between basic questions and those that make good inquiry questions. These young students are often the most adept questioners simply because they have lots of practice.

For primary students, the most difficult part of questioning can be starting the question with the right question word. For example, questions that start with "How" or "Why" lead to deeper answers than those that begin with "Who" or "When," and questions that open with "Does" are never good, because they must be answered with a "yes" or a "no." To get off on the right foot, young students may need sentence stems to help them formulate deeper inquiry questions. Starters such as

WHEN DESIGNING INQUIRY LEARNING, IT IS IMPORTANT TO BUILD A TEACHING TEAM TO SUPPORT STUDENT LEARNING. CONSIDER WHO COULD CONTRIBUTE TO YOUR TEAM:

- classroom teachers
- school librarian
- gifted teacher
- special education teacher
- technology integration specialist
- teachers in other content areas
- family or community members

"What might happen if…", "What are the similarities/differences between…", and "How do we know that…" give students the structure they need to ask inquiry questions that lead to deeper learning. These structures also allow the teaching team to guide students toward effective questioning that aligns with the curriculum and helps to avoid that wildly imaginative off-topic questioning small children are prone to!

Structures like these are not necessary only for young students; all students can benefit from a questioning framework, especially if student-created questioning is new to them. For older students, those in intermediate grades through high school, a widely used method for structuring questioning is by means of leveled questions. While there are many varieties of this kind of framework, one effective model is three tiered. Level 1 questions are yes-or-no or very simple questions that can be answered easily and in a few words. Level 2 questions are slightly more complex and have longer answers, but often require students to only report facts, not perform any critical thinking. Finally, Level 3 questions require complex answers, the use of multiple resources, and require students to think critically and synthesize information. Structuring questions in this way provides students the support they need to formulate high-level inquiry questions that lead to deep understanding while allowing them to remain in control of their own learning. Students feel supported, but also have a sense of autonomy.

No matter what structure is employed to facilitate student questioning, the process is most effective when teachers and librarians make time to conference individually with each student about his or her inquiry question. Though this conferencing can be logistically tricky, getting students through this checkpoint allows the rest of the inquiry process to run much more smoothly. Conferences give students the opportunity to reflect on their thinking and articulate why they are interested in a particular line of inquiry. One-on-one conferences also provide the chance for a member of the teaching team to guide students to higher-level thinking with questions like, "What do you expect the answer to this question to look like?", "Where would you look to find the answer to this question?", or "Does this question require you to draw your own conclusions?" This guidance not only helps students create high-level questions but also to learn to examine their thinking throughout the inquiry process.

Let Them Ask the Bad Question

There may be no such thing as a bad question, but not all inquiry questions lead to higher-level learning. All students are not going to fit perfectly into even the most carefully wrought plans. Even if students learn in a

culture of inquiry, are free to make mistakes and chase their own curiosities, and have curated resources and a questioning framework at their disposal, some students seem to lack understanding or willingness to make an effort or simply insist upon asking an inquiry question that will lead nowhere. Other students are unaccustomed to the need for revision and will resist feedback from the teaching team. Often, these students will insist on proceeding with a flawed inquiry question until they see those flaws for themselves. The beauty of inquiry learning is that it allows for students to backtrack, rethink, and revise their questioning before continuing with their research. Allowing them to do so gives them the tools they need to self-correct in the future.

Students might also choose to pursue questions based on incorrect information. This reality is why providing quality curated resources as the basis for student questioning is especially important. In the era of fake news, it can be difficult for students to determine the reliability of information. A powerful learning experience happens when students discover on their own that not all information is credible, a discovery they can make only if they are permitted to ask the bad questions.

Resource availability is also a factor in whether or not a question is right for inquiry learning. Very young students have the most-imaginative questions, but the resources available at their level may not meet their needs. Similarly, secondary students asking more-advanced questions may require resources that are restricted by organizations or paywalls. Frustrating as this experience can be, students will realize on their own that they can answer inquiry questions only when the information is readily available. Resist the urge to redirect too early and allow students the closure that comes with seeing a particular line of inquiry to its natural end.

Students are better equipped to be autonomous learners in the future when they experience the frustration of reaching an inquiry dead end and, with the support of the teacher and school librarian, assess their mistakes and determine what next steps to take to continue their inquiry. Consider why research skills are so prominent in standards across the curriculum: students need those skills to become lifelong, literate learners in the digital age. Allowing them to ask the bad questions, to experience inquiry failure, and to learn from it, moves them closer to that ultimate goal.

Conclusion

Like any new idea implemented in the classroom, student-generated questioning takes practice for both students and educators. Students may be confused or intimidated by the idea of generating their own questions. They may be afraid to fail or frustrated by the constant reflection and revision required to create great inquiry questions, and they may demand to be provided a research topic as they are used to. For their part, classroom teachers and school librarians must dedicate

themselves to the thoughtful design of the classroom environment and each unit to support student questioning, and then prepare themselves to relinquish control and enable their students to take control of both the content and process of inquiry. With time and practice, educators will see a shift in both the attitudes and abilities of their students as they grow to become empowered, autonomous lifelong learners.

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