P³BL:
Problems,
Phenomena,
Passions

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As a child, I remember being asked one specific question more than any other, "What do you want to be when you grow up?" At age five, I wanted to be a Power Ranger. I could not wait until Saturday morning to watch the Power Ranger television show. I conquered evil with my action figures, and I slept in red Power Ranger pajamas. A few years later, my parents took me to SeaWorld in Orlando, Florida. After rubbing the slippery backs of cownose rays and witnessing the choreography of a five-ton orca, I desired to become a marine biologist. When I got older, I wanted to understand more about my mother's role as a physician by shadowing her at work. With one glance of a bloody cut finger, I knew medicine would not be my next career choice. Eventually, I became a librarian because of my love of literature and aptitude for using the latest technology.

Are you starting to see a trend? My interests and my career ambitions were heavily influenced by what I had experienced. Perhaps if I had had the opportunity to investigate aerodynamics, I may have wanted to become a pilot. If I had been exposed to coding, I might now be a computer programmer. People tend to seek professions to which they have been exposed. Are we giving our students the exposure needed to discover what may really interest them? Students' levels of exposure to the world rely on many factors such as location, access to information, and socioeconomic status. As educators, we can create a level playing field for all. Authentic learning experiences will multiply the paths that lay at students' feet as they embark on this magnificent journey called life.

Humans are naturally curious. My first-graders remind me of this every day. They wonder why things happen—from the tiny (Why do we have library class only once a week?) to the mighty (Why are people all different colors?). Students question because they have been exposed, and they want to know. Educators must find ways to embrace students' curiosities. Inquiry-based learning is an ideal approach.

Inquiry is so important that it is the first Shared Foundation of the *AASL Standards Framework for Learners* (AASL 2018). Through inquiry, students build new knowledge by questioning, investigating, and thinking critically (MacKenzie and Bathurst-Hunt 2018). Inquiry-based learning is a type of instruction that initiates by posing questions, problems, or scenarios—rather than simply presenting facts or prescribing a specific path to knowledge.

Inquiry-based learning fosters students' exploration of new ideas to gain understanding, to generate solutions, and to demonstrate mastery in a visible way. Figure 1 is from the "School Librarians Take a Starring Role in the Common Core State Standards: Be a Star in Inquiry" infographic (AASL 2014). Developed as part of AASL's *Common Core State Standards Implementation Assistance Toolkit*, figure 1 outlines learning strategies for each phase of the inquiry process. Through investigative research and product design, students do more than master learning standards; they find their voice by connecting the dots of desire, skill, and opportunity.

My professional quest to understand and implement inquiry-based instruction led me on a once-in-a-lifetime physical journey to Finland. From January to April of 2018, I resided in Helsinki as a Fulbright Teacher to study best practices of inquiry-based learning. My research investigated how Finnish schools use inquiry-based teaching to enrich several core principles of librarianship: research, strategic use of technology, interdisciplinary education, cooperative learning, and product development. My goals were attainable thanks to the Fulbright Distinguished Awards in Teaching Program. The program is an inter-

national exchange and professional development program sponsored by the U.S. Department of State's Bureau of Educational and Cultural Affairs and administered by the Institute of International Education (Fulbright 2018). As a Fulbright Distinguished Teacher, I was given the opportunity to study international best practices in education and share my professional expertise with teachers and students in Finland.

Why Finland?

Finland routinely tops rankings of global education systems. Not bad for a nation that mandates just one standardized exam at the end of twelfth grade. Despite the Finnish education system's success, in 2016 the country modified its national curriculum even further to keep it relevant. Now, more than ever, Finnish schools embrace students' use of informational text and technology to develop 21st-century skills and global competence.

Finland's new curriculum calls for phenomenon-based learning in which students interact around real-world issues to solve a problem or explore a curiosity. Phenomenon-based learning is an inquiry-based instructional approach. Students study phenomena as complete entities in their real context, and the information and skills related to them are studied by crossing the boundaries between subjects (Silander 2015). Finnish students use this hands-on approach to explore themes ranging from entrepreneurship to space exploration. With all inquiry-based learning styles, students' motivation and critical-thinking skills skyrocket.

Meanings of P in P³BL

My classroom observations and research efforts in Finland helped me formulate an understanding of the instructional strategies and innovative resources that support a student-centered classroom. I quickly realized that inquiry serves as a catalyst for authentic learning activities.

What I discovered was that inquiry-based learning does not always demand a solution. Sometimes tackling a real-world problem can be a daunting task for an educator and students. Instead, students can apply the elements of inquiry to the exploration of an authentic topic like a phenomenon (ecosystems, natural disasters, space travel) or a passion (sports, hobbies, technology). Hence the term P³BL for project-based learning focused on problems, phenomena, passions.

Regardless of the project's topic, students become empowered creators who engage in collaboration, critical thinking, and creativity. No matter what term you assign the "P" in P³BL, students gain more than a mastery of content knowledge; they develop 21st-century skills and a love for learning.

P³BL encompasses the categories that I would argue all educators deem essential: interdisciplinary teaching, student-led instruction, collaborative learning, digital citizenship, and the development of global competencies. P³BL gives teachers the opportunity to employ a variety of instructional strategies and modifications so that all students can reach learning goals. Instead of casually listening to teacher lectures, students work to uncover understandings. Inquiry teaching anchors academic concepts in practical situations, making content come to life.

My students here in the U.S. engaged in a P³BL unit during which they targeted an environmental issue facing our school: poor drainage around the building. Students conducted research and performed

Inquiry Phases	Learning and Research Strategies
Motivate/Connect	Inspire-connect to prior knowledge and interests Ask essential questions Wonder
Question – Plan	Develop and refine inquiry questions Identify resources
Investigate	Read closely and locate evidence Explore differing viewpoints
Construct	Synthesize meaning and viewpoints Write
Present	Develop new knowledge Present knowledge product
Evaluate/Reflect	Measure growth and plan for the future Evaluate product

Figure 1. Learning strategies for each phase of the inquiry process.

MY PROFESSIONAL QUEST TO UNDERSTAND AND IMPLEMENT INQUIRY-BASED INSTRUCTION LED ME ON A ONCE-IN-A-LIFETIME PHYSICAL JOURNEY TO FINLAND.

experiments. By working with the Kentucky Geographic Alliance on the use of a geographic information system (GIS) from Esri, a supplier of GISs, students were able to display the topography of the watershed in which our school resides. Students used data from the GIS to create 3-D models of our school's watershed. Students collaborated with our local conservation office to develop a sustainable watershed that will reduce storm water standing on school grounds. Students presented their findings and recommendations to the school board. As with all P3BL activities, the students' project followed the inquiry process.

Begin at the End

What matters most at the end of an instructional unit is students'

learning, not the final product. When designing P3BL, it is important to identify the skills, concepts, and knowledge students need to learn. Look at curriculum standards from different disciplines, and involve students in the planning process by having them write objectives in their own words.

Establishing goals in the beginning gives classroom teachers and school librarians time to plan assessments, modify expectations for deliverables, and gather resources to support the project. Plan early to free your time during P3BL to be able to differentiate instruction and meet each student's needs.

Seek Support

P3BL is a collaborative effort that extends beyond student-led

groups. Teachers must collaborate with others as well. Outside of the classroom walls, support awaits. There are colleagues inside your building, specialists throughout the school district, individuals in the community, and families in students' homes that want to help your project succeed. They are waiting to be asked. Keep your P3BL support team informed as you identify learning goals, determine a topic, and plan instruction. Use multiple methods of communication—from flyers to e-mails to social media. Your support team is vital to make your P3BL dreams a reality.

Choose a Topic

In P3BL, students work together to solve real-world problems, explore phenomena, or pursue passions.

IN P³BL, STUDENTS WORK TOGETHER TO SOLVE REAL-WORLD PROBLEMS, EXPLORE PHENOMENA, OR PURSUE PASSIONS. THE POTENTIAL OF SEEING A REAL IMPACT BECOMES THE MOTIVATION FOR LEARNING.

The potential of seeing a real impact becomes the motivation for learning. A suitable project idea can be found in a number of ways. The best project ideas are those that are sparked by observation, discourse, and reflection. A compelling topic should cover academic standards, connect to the learning community, and provide opportunities for each student to do meaningful research. Most importantly, inquiry teaching empowers students to take ownership in their learning. They have a voice in the focus of their projects.

Craft a Driving Question

A driving question (DQ) is a P³BL must-have. A DQ is an open-ended inquiry that guides students' thinking and learning. It is what students should be working to answer or explore. A DQ challenges students to explore multiple facets of the topic, investigate new developments, seek different ways of thinking, and design a thoughtful final presentation. Every project differs, so there is no perfect formula for creating a DQ. The DQ should provide clarity around the project's purpose, audience, and product (Perkins 2016).

Use Meaningful Instructional Strategies

P³BL is an approach that welcomes a variety of instructional strategies. Multiple best teaching practices are involved when helping students answer the DQ. For example, educators will deliver direct instruction, ask high-level questions, plan mini-lessons, and devote time to students' mastery of skills via notetaking and guided practice.

As if constructing a building, begin with a strong foundation. Students need clear expectations. They must understand the learning goals, topic, driving question, available resources, and other key elements of your P³BL design. As a construction crew adds new levels to a building, a lot must be taken into consideration. The same is true for each phase of P³BL.

Students will make decisions as to the tools and methods that will best accomplish certain tasks. Many times, students will discover better alternatives and make revisions accordingly. Usually, no two buildings on a given street are the same. Similarly, no two P³BL units will be the same. Regardless of the project, thoughtful and innovative strategies will sustain students' inquiry and enhance the entire learning experience.

Integrate Innovative Resources

Resources for the P³BL classroom should extend beyond the computer screen. They do not have to be all digital. Every student should learn how to use multiple literacies' strategies. Give students access to a diverse set of resources during P³BL. Information can come from virtually anywhere, such as personal experiences, books, articles, expert opinions, videos, and podcasts. During P³BL students analyze a number of sources and express their own understandings in different ways. The future

holds new information, different formats, and technological advancements. Never stop searching and be prepared to be amazed.

Prioritize Presentations

A major piece of P³BL is presenting findings and products to an authentic audience. This piece of the project can be accomplished in a number of ways. Students might deliver presentations at a special event, display technology products to peers, give demonstrations to friends and family, pitch ideas to a panel of community members, or publish work online for the world to see.

A digital presentation is a great supplement if a student plans to give a demonstration or create a product. Plus, technology products can be shared with more than just the audience in the room. Students and teachers can upload work to a classroom website, to social media accounts, to YouTube, and to other networking platforms. Posting research and presentations online could gain so much attention that people reach out to students to learn more about their projects. Students' projects do not have to go viral to bring about change. Sometimes appealing to the right person in the right position leads to action.

Assess, Reflect, and Reflect Some More

Assessments can be embedded quite seamlessly throughout P³BL. Thoughtful and intentional assessment methods will help you measure students' understanding and plan instruction. Criteria on which students will be evaluated should be established and reviewed at the beginning of the project. These evaluation indicators let students know what exemplary work looks like.

As students' projects progress, formative assessments provide feedback and stimulate adjustments to ongoing teaching and learning. Students should have opportunities to improve and refine their work before they share it with others. Like any journey, there will be twists and bends during P³BL. Formative assessments, such as rubrics, checklists, self-assessments, peer reviews, and conferencing, will help students get back on track as they pursue their learning goals.

Benefits for Students

In a 21st-century classroom, students take the driver's seat. P³BL gives students the green light to pursue their passions and explore the world. The road map spans many contexts, subject areas, and competences. Learners develop digital literacy skills as they navigate the information highway. Students no longer come to a screeching halt when they make a mistake. They learn from their failures and start again. Learners see detours as problems not yet solved. Twenty-first-century students do more than steer their learning toward a final goal. They question the current system and design new methods that improve the journey. Give students the wheel by fostering inquiry-based learning with the help of P³BL.

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