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A Better Lesson Begins (and Ends) with Language

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In the 21st century, teacher educators need to think in new and innovative ways as they develop and guide teachers who implement lessons that support English acquisition and the development of content knowledge. We believe project-based learning (PBL) is the ideal vehicle for this. The discussion which follows is based on the work of a specialized team within Arizona State University's Mary Lou Fulton Teachers College. iTeachELLs is working to prepare all teachers to support and meet the needs of English Language Learners (ELLs) in their classrooms.

The iTeachELLs project has four main goals:

- implement key reforms so graduates will be measurably more successful in understanding and implementing strategies for teaching students who are identified as ELL;
- design methods courses that promote the development of academic language and literacy skills;
- use PBL pedagogy and design principle skills to establish the knowledge and skills teachers can apply in real world settings;
- integrate an understanding of evidence-based practice and scientifically validated research in support of teaching students identified as ELL.

Problem-based Learning and the Connection to Language

Historically, language development has been relegated to the study of formal language, such as sentence patterns, grammatical rules, and parts of speech. These elements of language are often seen as separate from content. However, the Common Core State Standards and Next Generation Science Standards (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010) require that our students be able to do more. They must "produce and use evidence to justify their views," solve mathematical problems that are "language rich," and use the "language of science" to convey information. These rigorous language skills can be challenging for students and, in particular, ELLs. An ELL is a student whose primary home language is one other than English. ELL students tend to struggle to communicate in English. ELLs have been identified as the fastest growing student sub-population in the United States, comprising nearly 10% or approximately 4.8 million students in our nation's public schools (National Center for Education Statistics, 2014).

Recent perspectives on language view it as an important element of learning and researchers recommend that content areas should have a deliberate and focused emphasis on language development. One of the pedagogies we have identified that can most benefit from this shift is problem-based Learning (PBL). PBL is an instructional practice in which students learn content through an open ended, student-centered experience (Mills, Bonner & Francis, 2006; Moshman, 2017). Effective PBL experiences begin with a meaningful problem that is relevant to the student population, grounded and evaluated based on state and/or national standards. PBL requires students to work collaboratively,

researching the problem and developing potential solutions. Using books, articles, Web resources, interviews, hands-on experiences, and other research methods, students seek, identify, and share solutions with an authentic audience.

Our unique approach to problem-based learning takes the established foundations of PBL discussed above and enhances the student experience by supporting and developing specific language skills (BIE, 2014). Within this learning environment students use language collaboratively to access prior knowledge, research new topics, brainstorm and discuss potential solutions, and present their findings to an audience. This instructional approach specifically addresses the needs of ELLs by ensuring students have access to both content and language learning. This is accomplished by providing opportunities for students to read, write, speak, and listen throughout the PBL experience, putting in place scaffolds and supports. This structure ensures that language is no longer just content-specific vocabulary, but rather a way for students of all language abilities to communicate understanding and engage in math, science, or social studies discourses.

Language in Research

In PBL, the student's role as a learner shifts from being the receiver of information to the creator of knowledge. Students gather the information needed to solve a meaningful problem. The teacher structures the learning environment to make certain that students have the skills and supports they need to be successful. Whether students are gathering new information through articles, books and documentaries, or conducting expert interviews and experiments, they use language to attain, process, and share this newly discovered information. By intentionally planning for language, the teacher helps ensure that all students find success throughout

this process. Planning for language starts by identifying the language function that best supports the meaningful problem. For example, students working together on the meaningful problem of climate change might use the language function of argumentation to explain and support their ideas. In this example, the PBL teacher models and defines the language function of argumentation and supports its use through tools such as sentence stems, group work, or graphic organizers. In order for all students, regardless of level of language acquisition, to experience success, PBL teachers must also see themselves as language teachers.

> In Action

Ms. Heagney and her fourth grade class wanted to study the effects of monsoons and make recommendations to their friends and family on ways to stay safe during these storms. Students began the research process by rotating through a series of research stations. Ms. Heagney provided her students with a note-taking guide that supported them in organizing their research. Rotating around the room, students were asked to:

- watch a teacher-selected video and answer the question: "What would you do in this scenario?"
- examine teacher-selected photographs and answer the question: "What would you do if you were in this situation?"
- study a poor example and answer the question: "What should these people have done in this situation?"
- read articles and answer the question: "What would you do if you were in this location and a monsoon happened?"

Students recorded their responses to the above questions on their note-taking guide.

Language in Collaborative Work

Within a PBL experience, students work collaboratively to gather new information and develop a solution to share with one another or a public audience. The reciprocal nature of their collaborations don't necessarily come naturally and must be developed and supported so that students experience productive and meaningful interactions. Students use academic conversation skills such as disagreeing appropriately, clarifying their ideas with data from research, or elaborating on an idea that is unclear (Zwiers & Crawford, 2011). These conversation skills must be explicitly taught and modelled with students before and throughout the PBL experience.

When students interact with one another, teachers should allow them to use language that is most accessible (i.e., home language and social language). As well, teachers should use graphic, sensory, and interactive supports to scaffold the students' experience (i.e., sentence stems, graphic organizers, and purposeful pairing based on language proficiency). Students' collaborative work should be scaffolded and supported throughout the PBL experience to ensure that all students are given the opportunity to contribute their ideas and new learning.

> In Action

As Ms. Heagney's fourth grade students worked to gather new information and develop solutions, the language of justification was introduced. Students worked collaboratively to use the note-taking guide and began organizing the responses they developed at each research station. Students used the following sentence stems to justify their positions on each question:

- I believe _____ because…
- My primary reason for this thinking so is…
- Perhaps the most convincing reason for this is…

Next, students self-selected into small groups and worked to develop a presentation that addressed the following prompts:

- how to prepare for a monsoon in a specific location (i.e., home or school);
- what to do during a monsoon in that specific location;
- how to deal with the effects of a monsoon in that specific location.

Language in Solution Sharing

As students develop a solution to a meaningful problem, they assume the role of a scientist, mathematician, historian, or publisher etc. Together they utilize a shared language function such as the language of justification, argumentation, or summarization to develop and share their solution and the data or information which supports it. Solutions are developed collaboratively as a whole class or in small groups.

Students' collaborative work should be scaffolded and supported throughout the PBL experience to ensure that all students are given the opportunity to contribute their ideas and new learning.

The language function utilized in the PBL experience can be explicitly taught early in the process or as students prepare to share their new learning with an audience. Students utilize technologies such as presentation software, blogs, or video to share their solutions. Alternatively, they develop in-person presentations. Solution development and sharing presents an opportunity for students to build language and communication skills. In preparation for a meaningful

presentation, students develop and practice oral and/or written presentation skills and develop their abilities to respond to questions and/or resistance to their ideas. Mini-lessons, in which students practice skills with reference to non-academic topics that are easier or more comfortable for them, or through correct/incorrect examples presented by the teacher, are often successful in building these skills. The most important thing is to be explicit about the skills students need to gain in order to present their solutions, providing opportunities for them to develop those skills.

> In Action

In their small groups, Ms. Heagney's students utilized flow maps to outline their presentations which explained why and how people should prepare and respond to monsoons in various locations. Students created slides utilizing the language of justification. Students created and shared slides that sounded like:

- "If you are in your car when a monsoon happens, you should pull off to the side of the road and turn your lights off. We believe this is the safest thing to do because the cars behind you will not think that you are still driving."
- "We believe that if you are at school when a monsoon happens, you should follow the directions of your teacher. Our primary reason for thinking this is because they may have important information to share that will keep you and your friends safe."

Language in Evaluation

One of the biggest decisions in planning and preparing for a PBL experience is deciding how to evaluate student learning. By pre-identifying both content and language objectives, the teacher is able to seamlessly align and develop what will be

assessed. Whether a teacher is the instructor for a specific subject area or teaches all subjects, PBL creates a valuable opportunity to connect content to language learning.

Identify the language function that best supports the meaningful problem and recognize that language is the tool students use to process and share new learning and that it should be explicitly taught and modeled in all learning experiences.

Students are evaluated on many factors, such as: communication, collaboration, creativity, content learning, inquiry skills, problem solving, and research skills. Additionally, students are evaluated on their use of content-specific academic language which is identified as an essential principle within PBL. Teachers should leverage rubrics or self and/or group evaluations to assess students' use of collaborative skills during the information gathering and solution development stages of the lesson. Additionally, teachers can measure content knowledge and the use of academic language through anecdotal notes throughout the PBL process and through the class's summative experiences.

> In Action

Ms. Heagney's content-language objective for the lesson highlighted throughout this monograph was: *Students will be able to use the language of justification to explain how citizens should respond or prepare for the effects of a monsoon using pictures, videos, language stems, graphic organizers, and small group interaction*. Ms. Heagney determined that she would assess her students throughout the process using short formative assessments which monitor how students incorporate the language of justification within their groups. Students were also summatively assessed via a content assessment on monsoons and a final check to ensure that they utilized the language of justification during their presentations.

Conclusion

Supporting and developing specific language skills through problem-based learning has the potential to enhance all students' classroom experiences. Intentional planning for language in a problem-based learning environment is challenging. (The change cannot be expected to take hold in a classroom overnight.) From the use of language in gathering new information, to the development of student-to-student collaborative skills, to the language necessary to present to an authentic audience - these skills will be developed over time. We challenge educators to start with these two key components: 1) Identify the language function that best supports the meaningful problem; and 2) Recognize that language is the tool students use to process and share new learning and that it should be explicitly taught and modeled in all learning experiences.

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Discussion Questions

1. Mills, Bonner, & Francis (2006) conceptualize PBL as an instructional practice in which students learn content through open ended, student-centered experiences. What additional benefits do you see for English language learners with a PBL focus? What potential difficulties might one encounter in implementing a PBL lesson for this particular population of students?

2. The authors assert that "PBL teachers must also see themselves as *language teachers*." How does one promote and enable teachers to internalize this in their dispositions towards both teaching and instructional practices?

3. Using language, creating opportunities for practice, and working with collaborative groupings was emphasized in this monograph as an approach to enhancing PBL lessons. When have you used these techniques most effectively in your classroom? What were some of the specific benefits? What challenges did you experience?

4. How do current policies either promote or detract from supporting English language learners in your educational context?