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PBL -- MAKING NATURAL RESOURCE EDUCATION REALLY REAL

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ABSTRACT: A major concern in education today is making the student learning experience relevant to facilitate workforce readiness. Problem-Based Learning (PBL) is an instructional format which actively engages students in the learning process by requiring them to solve real-life problems (Arambula-Greenfield 1996, Norman and Schmidt 1992). Often times, however, the real-life experiences used are hypothetical and, as a result, simplify the problem to the point that the realness of the problem no longer exists (Nolan and Nolan 1997). Natural resource educators can make PBL activities real by having students work with local park and natural resource agencies to solve natural resource problems. Through a cooperative agreement with Monocacy National Battlefield in Frederick, Maryland, students master general ecology course content by involvement in projects to develop a natural resources inventory and to prepare a deer environmental impact statement for the Battlefield. These activities are similar to the tasks the students will perform when employed as natural resource managers, thus making the student learning experience really real and they foster the learning of fundamental ecological concepts.

Keys to successful PBL implementation include using ill-structured problems and having a well stocked reference library (Arambula-Greenfield 1996). Ill-structured problems differ from traditionally used learning problems in that there is no one correct solution, the students have insufficient prior information to adequately solve the problem and the problem definition often changes as the students gather and interpret information (Barrows 1990). PBL is an effective learning strategy because it activates prior student learning thereby facilitating new knowledge acquisition, fosters knowledge elaboration thus increasing knowledge retrieval and puts learning in a meaningful context to enhance knowledge recall (Norman and Schmidt 1992). Effective PBL better prepares students for workforce entry by improving their problem solving skills, enhancing concept rather than factual content mastery, increasing intrinsic subject/content interest, promoting self-directed, lifelong learning (Norman and Schmidt 1992) and improving causal recognition (Patel et al. 1991). Major drawbacks to implementing PBL are reeducating faculty to become knowledge acquisition facilitators or academic coaches rather than knowledge dispensers (Arambula-Greenfield 1996, Gallagher *et al.* 1992) and student unwillingness to assume responsibility for and control over their own learning. I describe the theoretical basis for PBL, outline problem solving basics, define student and faculty roles, describe the challenges for implementing PBL and present the results of a PBL activity conducted for the Battlefield. This approach to PBL is applicable across all academic disciplines and can be adapted for use in a variety of course settings

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