

# Preface

**P**reparing middle school students for high school and high school students for what awaits them after graduation presents a host of challenges long recognized by teachers, parents, and administrators. There are issues around academic development, noncognitive skills development, and social maturity development. Now add issues of career choice, information bombardment, and newly experienced expectations from teachers and parents. It is of little wonder that so much is written about strategies to manage these school and life transitions for middle and high school students. The categories seem almost as endless as the issues themselves. There are the transitions from elementary to middle school, from middle school to high school, from high school to college, from high school to the world of work or from high school to the widest ever range of postsecondary educational opportunities. There are online education, distance education, and virtual classrooms in addition to the more traditional community college or 4-year university setting.

Students today need a set of skills not only for managing these transitions but for decision making, problem solving, and self-direction as they have never needed them before this century. It is a seemingly full-time proposition to prepare students with a skill set just to meet these kinds of demands. Yet, in today's accountability-driven culture, there is hardly time to address the basic issues of content coverage and curricular objectives. How can a teacher feel that the instruction provided

can adequately address content issues, process issues, and social development issues?

Let's first consider the dilemmas faced by many high school students as they graduate. Too many students leave high school without the skills to succeed in the workplace or in postsecondary institutions. These students will, sadly, find themselves unprepared for the rigor of college courses, the expectations of employers, and the need to self-direct a significant portion of their learning, whether on the job or in the classroom.

In an article titled "Ticket to Nowhere" (Haycock, 1999), the state of unpreparedness among high school graduates is underscored: "Currently about three-quarters of high school graduates will go to college within two years of graduation. If present growth rates continue, more than 80% of today's sixth graders will end up in college. But unless the secondary school experience of these young sixth graders differs radically from that of the students who preceded them, many of them will arrive utterly unprepared for college-level work and will spend their first year or more taking high school level courses." This unfortunate prediction may have even more serious implications for students who arrive at colleges and universities with innovative courses and programs such as problem-based learning and who have had no experience with this or similar challenging methodologies.

Likewise, middle school students who have either just arrived at middle school or are nearer to the high school transition often find themselves ill equipped for the new challenges they are facing. Their academic course work is more demanding than their previous experiences in elementary school, they are required to work more independently than ever, and they are faced with more choices. At the same time, their physical and social development is occurring at its most accelerated rate, and friends have become a significant influence in decision-making processes. Unfortunately, these students are rarely skilled at decision making, determining best choices, or working in collaboration with peers who may not be in their circle of friends. Middle school students have usually not developed a process for dealing with so many shifts and demands because it has not been necessary to do so.

## *What to Do? Why to Do It?*

Problem-based learning (PBL) is a teaching and learning style that addresses many of the deficient elements in these kinds of scenarios. In the PBL approach, students are presented with an ill-structured problem and instructed to work in small groups to arrive at some resolution to the problem. The teacher is no longer the focus of all that happens, although the teacher plays a crucial role in selecting the problem and facilitating the student groups. Rather, students start to develop self-directed learning skills as they determine the kind of content learning required to move forward, the resources to use, and how new information is synthesized toward resolution. Students must work interdependently, determine multiple possible solutions, and test their ideas for viability. As a result, the students are an active part of their own learning, create their own direction as driven by the problem scenario, and continuously respond and react to each other as well as to the teacher and to the new content information they encounter.

PBL enlarges the scope of learning opportunities for students at all levels of education. Though PBL originated in medical schools, there are various organized movements nationwide to integrate the methodology in K-12 classrooms. PBL is becoming well established as a valuable addition to traditional teaching methods and has moved beyond the “flavor-of-the-month” trend so often seen in educational reform attempts.

There are currently very active initiatives to implement PBL in K-12 classrooms. These initiatives are largely grounded in the notion that PBL greatly enhances comprehension, social skill development, content retention, student motivation, and abilities to self-direct, and it engenders positive attitudes toward lifelong learning. The success of these experiences, from the kindergarten level through the high school grades, is promising and exciting.

One example of a plan to use PBL in education reform is in the mission of the Center of Excellence for Research, Teaching, and Learning (CERTL) at Wake Forest University School of Medicine. Its mission includes providing intensive and continuous professional development for K-12 educators in PBL and sponsoring enrichment programs anchored in PBL activities for

K-12 students. The CERTL has also sponsored the development of PBL instructional materials by teachers for teachers and manages the dissemination of those materials for classroom use. Examples of these classroom materials are found throughout this book.

Another example of educators' extensive interest in PBL is the participation of nearly 400 college faculty at an international PBL 2002 conference hosted by the University of Delaware. Twenty-four countries and 43 states were represented. Without question, at least several thousand schools and colleges are interested in including PBL in their teaching repertoire. In the past 10 years, several hundred U.S. schools have included PBL in their repertoire, and several books on PBL in K-12 education and teacher training have been published (see References).

This book is designed to familiarize educators with the philosophy of PBL, to show its intended benefits, and to present many classroom examples. The focus is on the use of PBL in middle and high school classrooms. Examples of PBL problem scenarios and the ways they are used by experienced PBL teachers are provided. The experiences of these PBL teachers will demonstrate the variety of possibilities for integrating PBL into current teaching strategies.

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