

Introduction

Bismarck Public Schools must prepare students for their future, not our past. As the U.S. continues to compete in a global economy that demands innovation, we need to ensure that our students have both the right knowledge and skills to become college and career ready.

Schools can help prepare students for college and careers with minds-on, hands-on learning. This is why Bismarck Public Schools is supporting the concept of Project Based Learning (PBL). Through Project Based Learning, students internalize knowledge and improve their comprehension long term.

Rich in significant content and critical skills, PBL is not a new fad or new instructional strategy. Some Bismarck Public School teachers have been using Project Based Learning in their classrooms for years. Our school district is now providing PBL training to more teachers. Some teachers received initial training in 2011. After that, a four-year training cycle was developed and implemented from 2013-2017.

What is Project Based Learning?

- PBL combines the 3 rs of reading, 'riting, and 'rithmetic with the 4 Cs of communication, critical thinking, creativity, and collaboration.
- PBL moves beyond short term learning and memorization to experiences that trigger long term learning and memory.
- PBL is hands-on, applied learning. It is not fun and games; it requires deep content knowledge.
- Students become better thinkers by applying the knowledge they learn to solve problems using complex applications of the curriculum and modern, industry standard tools.
- Students produce authentic, real-world projects which are often presented to the community for review.
- PBL makes learning more relevant and meaningful so students are excited about and engaged in their work.
- PBL builds strong problem-solving skills, creates self-directed learners, hones collaborative abilities, and creates intrinsic interest in learning.

How does Project Based Learning work?

1. Projects focus on a question students will explore or a task they will complete.
2. Students see the need to gain knowledge, understand concepts, and apply skills to engage in the project.
3. Students are allowed to make some choices about the project to be created, how they will work together or alone, and how they will use their time, which creates project buy-in.
4. Students receive teacher/classmate feedback to consider additions or changes to their projects.

5. Students present projects to others besides teachers and classmates, which connects them to the community.

National Research

John Dewey's research in the early 1900s showed the success of "learning by doing". PBL takes learning

FROM teacher centered.....TO student centered.

FROM knowing.....TO applying.

FROM 18th Century.....TO 21st Century.

Research by the Buck Institute for Education found that well-designed, well-implemented Project Based Learning can

1. increase student motivation and engagement in learning;
2. improve student's retention of knowledge over time;
3. improve students' mastery of 21st century skills;
4. be especially effective with lower-achieving students;
5. increase student achievement on state standardized tests.

The Buck Institute (www.bie.org) states:

Project Based Learning's time has come. The experience of thousands of teachers across all grade levels and subject areas, backed by research, confirms that PBL is an effective and enjoyable way to learn. Why are so many educators across the U.S. and around the world interested in this teaching method?

- *In PBL, students are active learners engaging in a project that provides real-world relevance for their learning.*
- *In the 21st century workplace, success requires more than basic knowledge. In PBL, students not only learn content more deeply, but they learn how to take responsibility, build confidence, solve problems, work collaboratively, communicate ideas, and be creative innovators.*
- *Educational standards emphasize real-world application of knowledge and skills, and the development of the 21st century competencies such as critical thinking, communication in a variety of media, and collaboration. PBL provides an effective way to address such standards.*
- *Modern technology, which students use so much in their lives, is a perfect fit with PBL. With technology, teachers and students can connect with experts, partners, and audiences around the world, and use tech tools to find resources and information, create products, and collaborate more effectively.*
- *PBL allows teachers to work more closely with active, engaged students doing high-quality, meaningful work, and in many cases to rediscover the job of learning alongside their students.*
- *Current models of PBL are not like some past examples of "doing projects" in which student learning outcomes are not clear. More rigorous and effective models of PBL have been refined and tested in recent years in a variety of settings, subjects and grade levels.*

The National Association of Colleges & Employers (www.nacweb.org) 2014 Job Outlook Survey of the top 10

transferrable soft skills, known as 21st Century Skills, needed by workers in every job

1. Ability to work in a team structure;
2. Ability to make decisions and solve problems;
3. Ability to plan, organize and prioritize work;
4. Ability to verbally communicate with people inside and outside the organization;
5. Ability to obtain and process information;
6. Ability to analyze quantitative data;
7. Technical knowledge related to the job;
8. Proficiency with computer software programs;
9. Ability to create and/or edit written reports;
10. Ability to sell or influence others.

Local Research

Results of an online Bismarck-Mandan Chamber survey (2012-13) showed local employers want students who

- express ideas and negotiate;
- work with others;
- generate and apply new ideas and solutions;
- evaluate options;
- have direction and initiative;
- have strong and flexible tech skills;
- manage time and meet deadlines;
- are adaptable.

In 2014 Chamber business leaders, legislators, and public school staff determined students need, in order by frequency

Knowledge

- math
- reading
- literature
- basic skills/foundation
- experiential learning
- applied knowledge
- writing
- speaking

Attitude

- curious
- engaged
- responsible
- happy; positive
- confident
- flexible
- self-motivated
- open to change
- open to differing views
- can do attitude
- resilient
- grit
- love of life

Skills

- communication skills
- technology skills
- critical thinking skills
- planning skills
- time management skills
- problem solving skills
- coping skills
- creativity
- how to discern fact from myth
- how to access knowledge & information
- collaboration skills
- relationship skills
- math skills
- analytical/reasoning skills
- transitional skills
- listening skills
- social and life skills
- self-assessment
- financial literacy

Habits

- perseverance (don't just give up or quit)
- strong work ethic
- taking individual ownership of their learning/work
- resourcefulness
- goal-oriented
- service to others
- initiative
- teamwork
- accountability
- punctuality
- physical endurance
- lifelong learner
- conscious of physical/mental health

Bismarck Public School Research

BPS high school teachers identified these student behaviors to achieve success in life, college & careers (2012; 2014)

- Setting goals and making wise choices to reach those goals;
- Thinking critically and creatively to solve problems;
- Making connections from learning to real life;
- Communicating effectively across all content areas;
- Exerting effort and persevering in solving problems or completing tasks;
- Collaborating, cooperating and accepting others;
- Asking and answering questions;
- Being active, engaged, excited, and internally motivated to learn;
- Reflecting on learning, self-assess, and correct or refine own work;
- Using technology as a tool to advance and/or demonstrate learning;
- Being responsible to self, school, and community.

BPS high school teachers also identified these teacher behaviors to help students reach goals (2012)

- Communicating expectations;
- Providing meaningful feedback;
- Utilizing effective cooperative learning strategies;

- Using effective questioning techniques;
- Using and present critical thinking skills;
- Facilitating real-life learning and making connections;
- Creating engaging lessons;
- Using techniques of differentiated instruction;
- Collaborating and planning to ensure students' learning, achievement, and positive experiences;
- Building relationships; knowing students;
- Modeling desired student actions (how to learn and how to love learning).

According to focus group data gathered in 2012-13, BPS students want

- more movement;
- more hands-on through creation, performance, experimentation;
- more control of and independence in learning;
- more choice;
- more surprises and excitement;
- to feel connected and respected.

According to focus group data collected in 2012-13, BPS elementary teachers want

- to think and do things in multiple ways;
- to be empowered and self-motivated;
- to make choices;
- to apply learning through projects;
- to be creative, engaged and passionate;
- to think globally;
- to connect across the curriculum;
- multi-age groups and more movement;
- technology skills and application;
- technology tools (online content vs. all textbook);
- to work through student interests;
- to experiment, create and apply;
- to implement non-traditional scheduling and hours.

BPS Vision for Project Based Learning:

- Bismarck Public Schools (BPS) is committed to ensuring academic excellence for every child through a focus on 21st century teaching and learning.

- Project Based Learning (PBL) is a vehicle that inspires a passion for learning and promotes discovery as we aim to ensure academic excellence for all students.
- Through PBL students will be provided authentic opportunities to develop the academic, social and personal skills to be career, college, and community ready.

Roles by Group:

School Board members should

- be familiar with Project Based Learning and why it's being implemented;
- be responsible for providing resources to train teachers in PBL 101;
- witness some projects and share their own interest in PBL with others in the community.

Principals will

- learn about Project Based Learning to help teachers, students, parents, etc. understand PBL;
- let Central Office know what they need to successfully implement PBL;
- help build excitement for PBL among staff, students, parents and others.

Teachers will

- be trained in PBL 101 by the end of the 2017 school year; a training schedule has been developed;
- register for courses at <http://student.moodle.bismarckschools.org/course/view.php?id=5944>;
- know that PBL is the "how" not the "what" of instruction. PBL complements structures Bismarck Schools already has in place, such as local and state standards, Standards Based Grading, Daily 5, Writers Workshop, Café, etc.;
- be able to use PBL to meet the needs of students, improve their motivation to learn, make learning more relevant and meaningful, promote civic participation and global awareness, teach content standards, and include opportunities to integrate technology in education;
- will be energized by increased student engagement and supported by their peers, students, parents, etc.;
- talk to their building principal if they have questions about PBL.

Students will

- become focused and disciplined when doing projects that cement their knowledge and learning;
- make sense of what they learn through revision of and reflection on their work;
- apply complex curriculum (individually and in groups) that involves collecting and applying evidence based information and problem solving;
- be motivated to use personal, group and technology resources to solve real world problems and create products that audiences can review and respond to.

Parents, Business Leaders, Community will

- have opportunities to serve as resources, view projects, and observe students who are excited and engaged in questioning and learning.;
- see PBL motivate and create meaningful learning opportunities for students;
- feel that graduates are ready to be excellent employees and problem solvers.