Empowering Students With Special Needs to Help Others: How Problem Based Learning Made it Possible

Samantha S. Kincaid
Sue E. Jackson

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Abstract

This article describes a project that will make a positive impact in today's special education classroom. Teachers will learn how to use Problem Based Learning (PBL) units as a tool to empower students with special needs to become more confident, independent, successful students. It will also shatter the stereotype that students with special needs are not capable of being leaders in classrooms. Students flourish with the PBL classroom setting where many learning styles are actively used to engage all students. Students learn to become life-long learners and productive community members. This PBL unit gives students with special needs an opportunity to shine as classroom leaders. The unit also promotes character building skills that students will take with them throughout their academic careers and into adulthood.

Keywords
problem based learning, accessibility

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Uneven and missing sidewalk sections interfere with mobility

Grass has overtaken our sidewalks

It was a beautiful spring day, and the Physical Education teacher was preparing to take the middle school Adaptive Physical Education class for a walk. The students enjoyed the first block of their walk, seeing the swaying trees and colorful flowers, feeling the warm sunshine and smelling the freshly cut grass. However, their enjoyment was short-lived. The students soon encountered several problems for their classmates who depended on wheelchairs for mobility. Sidewalks in all directions from the school were broken by large, knotted tree roots jutting through them; grass and weeds covered large sections of the sidewalk; and bushes and parked vehicles intruded over the pathways. This quickly ended the excitement for the students who had looked forward to being outside on the first nice spring day.

Both teachers and students began questioning why the sidewalks were so inaccessible. Upon returning to school, students wanted to know who to call to fix the problems. Questions arose, like, “Who do we call to complain?”, “Who is responsible for fixing sidewalks in front of houses?”, “How much would it cost to fix them?”, and “What can we do to help?” They quickly learned that the teachers did not have the answers they wanted.

To find solutions to these questions, three unique classes were combined as one. The first class was comprised of students with moderate to severe mental and physical disabilities, their special education teacher, and two teacher paraprofessionals. The second class was made up of students with mild disabilities, their special education teacher, and one teacher paraprofessional. Finally, the third class consisted of students with emotional disabilities and learning disabilities and their special education teacher. This combined class set out to find the answers to their questions through the problem-based learning process.

The essence of Problem Based Learning (PBL) is taking a real problem and finding a solution. An expanded definition of a PBL unit would be taking an unstructured, real-world problem and allowing students to immerse themselves in the problem to discover solutions (Torp & Sage, 2002). The sidewalk crisis in Crawfordsville lent itself perfectly to such a unit.

We were fortunate to be familiar with the PBL process because of a Technology Innovation Challenge Grant awarded to our school corporation. PBL training sessions were given to all faculty members in the school corporation. All three teachers in-

volved in this accessibility PBL unit had previous individual classroom experience developing and implementing PBL units.

To find additional examples of PBL units and the Technology Innovation Challenge Grant go to: **http://research.soe.purdue.edu/challenge/**

Key elements of a successful PBL unit include developing cooperative learning groups, transitioning teachers to take on the role of model and coach rather than instructor, and encouraging the students to become independent learners. The combination of these elements encourages long-term learning, enhances problem-solving strategies, and inspires students to take on the responsibility for their own learning. Real life is often unstructured (not the typical sterile classroom environment) and students benefit from adding these real life learning situations to their traditional classroom learning. The goal of a PBL unit is to enable students to solve real-life problems outside of the classroom, a skill that will enable students to be successful in their careers and personal lives.

Walkable Community

A Walkable Community encourages people to use its sidewalks and trail systems for enjoyment, recreation, and daily tasks.

Key factors in a Walkable Community:

- Sidewalks give you room to walk
- It is easy to cross the street
- Drivers behave well (following rules)
- It is easy to follow safety rules (for adults and children)
- Walking is pleasant

(Pedestrian and Bicycle Information Center, n.d.)

The Unit at a Glance

The PBL was developed during a summer workshop hosted by Purdue University instructors and the Technology Innovation Challenge Grant director. This is when the lessons were developed in the form of a WebQuest, a time frame for the project was set, a rubric was developed, and responsibilities of each teacher were determined.

The PBL unit opened with the driving question, "Crawfordsville, Indiana…How Walkable Are You?" The students were given the job of being Walkable Community Detectives to solve the case (problem). They worked in pairs and small groups to achieve this goal. The WebQuest was structured to allow success for the students as they worked independently.

Printable checklists were included that gave clear expectations, procedures, and points assigned to each task. This left no room for confusion for students and teachers when evaluating.

For examples of the WebQuest and checklists, you can see them at http://research.soe.purdue.edu/challenge/pbl/04_05/accessibility.html

This PBL unit was unique because of the group of learners involved. The students ranged from those with emotional disabilities, learning disabilities, mild mental disabilities, and moderate to severe mental and physical disabilities. Many of these students have relied on the help of others for much of their lives. For example, students with special needs have received academic assistance, social–emotional counseling, and in some cases, personal care assistance from an early age. This PBL unit enabled the students involved

to actually help others. Throughout the PBL process, they gained problem-solving skills, confidence, and pride.

There are stereotypes of students with special needs as not being capable of taking the lead role in academic projects. These stereotypes were successfully shattered during this project. The students took on the roles of researchers, writers, photographers, reporters, and community activists. Teachers took on the role of facilitators.

Previously, many of the students never saw themselves as proficient enough to take on these professional roles. We found that when we raised expectations, students rose to meet them. This is true for all students, including those with special needs. For example, one student had the following comment to share when asked how PBL has affected her performance in school:

> [I've done] pretty good. I've raised my grades up a lot since I was in PBL.… doing projects in front of class, like Power Points and stuff, I'm not as scared as I used to be after I have done PBL. I used to be really scared to get up in front of people.

The PBL project resulted in several positive outcomes to our traditional classroom. Some challenges we faced before even beginning the project were poor attendance, low motivation, heavy reliance on teacher instruction, and poor student attitude. During the PBL process, improvements were seen in each of these areas. PBL classes were held first period on Wednesdays for the first two trimesters of the school year and attendance improved. For example, students who had a history of poor attendance would ask on Tuesday afternoon if the PBL unit was tomorrow. They didn't want to miss a session. We also saw an increase in motivation from all of the students. They enjoyed the freedom the PBL unit lessons allowed them. This was evident when the students entered the classroom on time, set up their computers without delay, and quickly started working where they had left off the week before.

Students with Oppositional Defiance Disorder who had a history of problems with authority figures did very well in the PBL setting and even took on leadership roles. Two specific students with emotional disabilities took the students with severe and profound disabilities under their wings. They made sure a seat was open for them, greeted them at the door with a smile, asked for their input, and encouraged them with kind words throughout the unit. As one student explained:

> It's a good opportunity to help the other kids learn and everything. It's good because you get to know people more and work with them more and make new friends. I like helping them too. Like when I go in the hallways, they smack my hand. We're really good friends now, after we've done the PBL.

We saw a definite increase in positive attitudes. Several students had a generally poor attitude towards school. This attitude changed on PBL learning days. There was an increase in the number of positive comments and a lack of complaints. A combination of freedom from a traditional classroom, working in cooperative groups, and being in charge of their own learning were all factors in the students' improved disposition.

Academic benefits were seen in addition to behavioral benefits because of the PBL unit. Every student involved in the PBL unit completed the required elements of the project. Each student was responsible for re-

search, field trip participation, questionnaires, checklists, and developing a group PowerPoint. A rubric was developed to assess their involvement. Students met every goal they were given. Past classroom experience had shown that many of these students performed less than average on group activities. That was not true with PBL. The students' final grades were well above average on this project.

A goal of special education is to teach students to become more independent in their academic endeavors. This is a natural process in a PBL classroom. Teachers assume a guiding role that allows and encourages students to take the lead in their learning. Our job as teachers was to take the problem the students discovered and put it into a PBL unit form that was workable for our group of learners.

Lessons Learned

As in any project, there are lessons to be learned. Initial obstacles were finding funding for field trips and teacher training. We were fortunate to be given a one week planning session in the summer through Tech-Know-Build, a Technology Innovation Challenge Grant, which allowed Purdue University instructors to work individually with our teachers while developing this unit. This opportunity was invaluable for the success of our PBL unit. Other obstacles we overcame during the actual implementation of the unit were students' time on task and the realization that an optional plan (Plan B) should have been ready to implement when unforeseen problems arose. Keeping the topic narrow rather than too broad was another challenge. We prevailed by giving extra responsibilities for students who completed their work sooner than their classmates. In addition, we developed alternate plans (e.g. hard copies) for days that the technology decided not to cooperate. And finally, we put our PBL unit into a WebQuest model which was helpful in keeping the students on task and within the parameters of our specific problem. We found it necessary to give the kids a clear beginning and end point from the first time the PBL groups met. Another factor that proved beneficial to the project was having a checklist that the kids could follow independently. Many of our students had attention deficits, short and long term memory deficits, and organizational difficulties. The checklist allowed them to see the large project in smaller, more "doable" pieces. It also was a model for good organization and time management.

Positive Outcomes

We were happy to discover some very positive outcomes from this PBL unit. Initially, we set aside one period a week for our PBL unit to accommodate our schedule as teachers. However, this format provided unexpected benefits for our students. They looked forward to the weekly PBL class time, and their interest stayed high because they weren't saturated with the project for long periods of time. They enjoyed leaving their classrooms to meet as a large group in a different classroom. For the teachers involved, an added benefit was pooling our resources. Meeting in one location allowed three teachers and four paraprofessionals to work with our twenty-three students, a very strong adult-to-student ratio for this type of project. Another benefit to our group of learners was the fact that many learning styles were incorporated in this project. Many traditional classrooms accommodate students who learn well from listening to lectures, writing notes, and taking paper and pencil tests. This is not ideal for all learners (not to mention students with

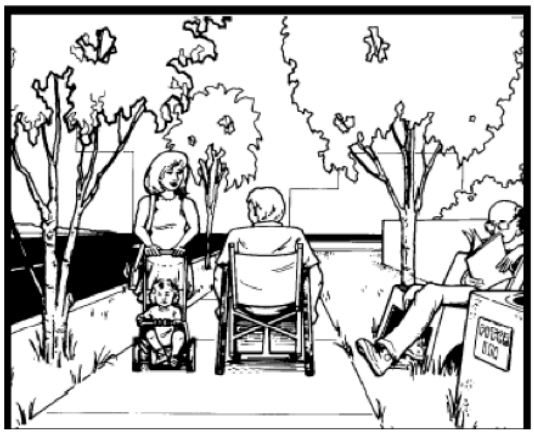

Figure 1. Sidewalk Accessibility Sketch

Used with permission from www.dot.state.fl.us/safety

This picture was taken by a student on one of our community field trips. The student used a digital camera to capture the image. Students used a city map to locate their designated walking path before beginning their trip. They recorded the data using a Walkability Checklist which asked them to rate five specific areas which needed to be assessed. Information was collected and brought back to school and shared with the other groups involved in the project.

special needs). This PBL unit used visual, auditory, kinesthetic, logical, social, and solitary learning opportunities (Advanogy.com, 2003). The combination of taking community field trips, using audiovisual equipment, researching on the computer, sharing in interpersonal groups, and working on solitary activities within the groups allowed all learners to work in their comfort zones and even venture out of their comfort zones at times.

The students felt great pride in the fact that they were making a positive difference to their classmates and community. One student noted, “We tried to help people. Usually we don’t go out trying to find problems in the community that can help people in wheelchairs. It’s good to help others.”

When we talked to our students regarding how they felt about the PBL unit, there were common themes expressed. One of these themes was that they now felt empathetic towards individuals who had physical disabilities. One student noted that he was not aware of the difficulty in pushing and/or maneuvering a wheelchair. Another student said he had never thought much about sidewalks before this project. Several students said they used to like the cracks in the sidewalks because they could jump and ramp their skateboards and bicycles on the big cracks and uneven pavements, and now they no longer thought that way. One student explained, “We learned about how the sidewalks were all cracked up and everything, and that we couldn’t get wheelchairs through parts of the sidewalks, and the ramps, and the trees that were growing into the sidewalks.”

At the end of the PBL unit, the common feeling among the class was that they wanted everyone in town to know what they had learned and do something to fix the problem. They felt a need to continue making a difference. This is a passion that arose in them because of the PBL project.

As teachers we measured the effectiveness of the PBL experience in a variety of

ways. First, the enthusiasm of the students involved was important to the project. The students' attendance and positive attitude toward the problem of inadequate sidewalks was evidence of their enthusiasm. The other component we used as a measure was the academic grade the students earned. All students involved received an above average score on the rubric developed for the project. The rubric combined many academic areas including writing, problem solving, and computer skills.

As special education teachers, why do we recommend you implement a PBL unit into your classroom? It was an extremely satisfying experience for all involved. Students who always had a passive role in their education became leaders. Students who had histories of problem behaviors and hostile personalities became caring and compassionate classmates. Students who normally had poor academic performances were given a chance to shine under the admiration of classmates whose challenges were more severe than theirs. All teachers involved had moments of awe and inspiration as they witnessed students performing tasks they thought impossible. The PBL process made this all possible for us, and it can for you too.

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About the authors:

Samantha Kincaid is a Special Education teacher at Joseph F. Tuttle Middle School in Crawfordsville, IN.

Sue Jackson is a Special Education teacher at Joseph F. Tuttle Middle School in Crawfordsville, IN.