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Interpersonal Intelligence and Problem-Based Learning

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Interpersonal Intelligence and Problem-Based Learning

Abstract

This study examined the relationship between problem-based learning and interpersonal intelligence. The primary goal of this study was to see if using problem-based learning in the classroom would increase one's interpersonal intelligence. After conducting this study, the researcher found the interpersonal intelligence of the class of twenty-one seventh grade students, as a whole, increased from an average of 59.04 points out of 70 points possible to an average of 59.47 points out of a possible 70 points; a less than one percent increase, indicating a weak relationship between interpersonal intelligence and problem-based learning.

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Comments

Action Research Report Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Education

Interpersonal Intelligence and Problem-Based Learning

By

Denise M. deNevers

B.A. Dordt College, 2007

Action Research Report
Submitted in Partial Fulfillment
of the Requirements for the
Degree of Master of Education

Department of Education
Dordt College
Sioux Center, Iowa
April 2014

Interpersonal Intelligence and Problem-Based Learning

By

Denise M. deNevers

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Date

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Abstract

This study examined the relationship between problem-based learning and interpersonal intelligence. The primary goal of this study was to see if using problem-based learning in the classroom would increase one's interpersonal intelligence. After conducting this study, the researcher found the interpersonal intelligence of the class of twenty-one seventh grade students, as a whole, increased from an average of 59.04 points out of 70 points possible to an average of 59.47 points out of a possible 70 points; a less than one percent increase, indicating a weak relationship between interpersonal intelligence and problem-based learning.

Educating students in the 21st century requires a different approach, a deviation from the traditionally accepted forms of teaching and learning information. Students of the 21st century are living and learning in a world with ever-changing and increasing technology. With the constant access to technology, teens are changing how they are communicating with people around them; teenagers are sending text messages, #twitter updates, Facebook messages and Snapchat, to name a few. Together with the ever-changing world students live in, education must change in order to meet the demands students face in the world outside of school.

The 21st century skills students "need to know" are not new; however, the importance placed upon these skills has increased (Rohterham & Willingham, 2009). Going beyond the traditional reading, writing, and arithmetic mastery students are expected to have upon graduating from high school, there are three 21st century skills today's students need to have: (1) creativity and innovation, (2) critical thinking and problem solving (including knowing how and where to find information) and (3) communication and collaboration (Partnership for 21st Century Skills, 2002).

Becoming critical thinkers and analyzers of information is one of the 21st century skills students need to master before graduating from high school. These skills are not new; teachers use and teach these skills. However, these skills came to attention through the work of Dr. Gardner and his theory of multiple intelligences. In his multiple intelligence theory, Gardner indicated that the more active educators make the learning and receiving of information, the better students will remember the information after the test ("Big Thinkers," 1997). Allowing students to be more than just passive recipients of information in the learning process provides them with the opportunity to use their personal learning style(s), and permits students to retain

the information better. One of the intelligences in Gardner's theory is interpersonal intelligence, or the ability to work with and communicate with other people (Smith, 2008).

Gardner's interpersonal intelligence connects well with the 21st century learning goals of communication and collaboration as well as critical thinking and problem solving. One way of incorporating the goals of 21st century learning with interpersonal intelligence is to adapt pre-existing curriculum with problem-based learning. Using problem-based learning in the classroom provides teachers with a way to teach students how to find and critically analyze information. Using problem-based learning in the classroom provides students with the needed opportunities to improve their problem solving skills as well as improving their interpersonal intelligences. Through problem-based learning scenarios, students are able to improve their interpersonal intelligence using small group discussions and relying on group members to help solve the problem.

Problem Statement

God has created each student in His image. Every student learns in a slightly different way. The skills established for the 21st century strive to help students learn information in a variety of ways. Gardner's theory of multiple intelligences blends well with most of the goals of 21st century learning skills. The purpose of this study is to determine whether using problem-based learning, combined with the learning skills of the 21st century, will improve interpersonal intelligence.

Research Question

Will using problem-based learning, while incorporating the goals of 21st century learning, in the social studies classroom improve students' interpersonal intelligence?

Definitions

For the purpose of this study, the following definitions will be used. Unless otherwise stated, the definitions are those of the author.

Differentiated Instruction: "Differentiation is responsive teaching rather than one size fits all teaching" (Tomlinson, 2005, para., 1).

fMRI (Functional Magnetic Resonance Imaging): Images the sight, smell, sound, touch and taste regions of the brain. Used in cognitive science to "map" the brain (Functional Magnetic Resonance Imaging Lab, n.d., para., 1).

Intrapersonal Intelligence: The ability to understand one's self.

Intelligence: The ability to learn and understand new ideas and/or concepts.

Interpersonal Intelligence: The ability to communicate and connect with other people on a personal level.

Intrinsic Motivation: A person's ability to be self-motivated.

Problem-Based Learning (PBL): "An instructional (and curricular) learner-centered approach that empowers learners to conduct research, integrate theory and practice, and apply knowledge and skills to develop a viable solution to a defined problem" (Savery, 2006, para. 1).

Literature Review

When most people hear the world "intelligence," they associate the word with someone who is smart. However, the word "intelligence" goes beyond having a 4.0 grade point average in the traditional school system. Understanding how the brain works plays a role in understanding how educators understand the term "intelligence."

PET (Positron Emission Tomography) and fMRI scans help scientists understand how a healthy and a fit brain allows people to learn and retain information better (Haier & Jung, 2008).

A healthy brain is a more intelligent brain; however, a healthy brain does not necessarily mean the brain will learn and retain information the exact same way as another healthy brain. It is important for educators to remember no two brains learn and retain information in the same manner (Feinstein, 2009; Haier & Jung, 2008).

According to Gardner's theory of multiple intelligences, there are nine different ways people learn information (verbal, logical, visual, kinesthetic, musical, intrapersonal, interpersonal, naturalist and existential) (McKenzie, 2005). Today's traditional schools most often use seven of the nine different multiple intelligences. The seven widely used multiple intelligences are used in core classes with very little overlapping of learning styles (McKenzie, 2005). Although some multiple intelligences are used heavily used in core classes, students still have the ability to use the other multiple intelligences in all of their classes. God has given people a variety of intelligences, and people have the ability to display their God-given intelligence in many different ways.

Neurobiologists and geneticists agree there is a biological and genetic element to intelligence (Haier & Jung, 2008). People often associate intelligence with intelligence tests (IQ). When an IQ test is given, these tests will examine a person's general intelligence (g factor). When examining a person's g factor, the test is looking at a person's ability to use deductive reasoning (problem-solving skills), his or her ability to think "outside of the box," one's ability to use analogies, synthesize information and then apply the acquired information into different aspects of his or her life (Kanazawa, 2010).

Gardner proposed his theory of multiple intelligence in 1983 as an alternative viewpoint to g factor…there is more than one way to learn, and more than one way to be categorized as "intelligent" (Klein, 1997). Gardner realized intelligence goes beyond being able to learn and

retain information, which is why he added interpersonal and intrapersonal intelligences to his

original seven intelligences (Gardner, 2002). Gardner's multiple intelligence theory helps to

support the belief that "every individual possesses every single one of the intelligences, but to

different extents, and it is through education that each of these intelligences can be nurtured and

developed" (Mokhtar, Majid, & Foo, 2008, p. 96). In the theory of multiple intelligences,

Gardner attempted to prove the notion of multiple intelligences. Through his research, Gardner

recognized that intelligence is not fixed, nor is it static. People are able to fit their learning styles

into more than just one of his multiple intelligence categories (Morgan, 1996).

      According to Gardner, "Interpersonal intelligence is concerned with the capacity to

understand the intentions, motivations and desires of other people. It allows people to work

effectively with others" (Smith, 2008, p.7). Another way of thinking of interpersonal

intelligence, especially in students, according to Zimmerman (2002) is to think of students as

self-regulated learners. Self-regulated learners "continuously adjust their goals and choices of

strategies in response to changing intrapersonal, interpersonal, and contextual conditions"

(Sungur & Tekkaya, 2006, p. 307).

      Interpersonal intelligence is important and needed in daily life, from relating with family

members at home, to classmates and teachers at school to working with others in a person's

career (Kanazawa, 2010). Being able to relate to other people and effectively communicate with

them happens on a daily basis, inside and outside of school. Interpersonal intelligence is a life

skill, and many educators purposefully teach this skill to their students (Klein, 1997).

      In the classroom, teachers can increase students' interpersonal intelligence using

problem-based learning. This, however, is not the only form of interpersonal intelligence

educators are able to use in the classroom. Helping students develop interpersonal intelligence

can happen through the use of plays, debates, small and whole class discussions, or, making a

video with a small group are just a few ways to incorporate other elements of interpersonal

intelligence into the classroom ("How do I apply," 2004).

When applying Gardner's theory, teachers have the ability to differentiate instruction.

Problem-based learning is just one way to differentiate instruction and use interpersonal

intelligence along with meeting the goals for learning in the 21st century. When using problem-

based learning (PBL) in the classroom, teachers will begin to see student communication and

problem-solving skills increase (Sungur, & Tekkaya, 2006).

The use of problem-based learning in the classroom began approximately forty years ago

in Canada. Canadian medical universities used problem-based learning to determine if it would

help medical students retain information better. The Canadian professors who used PBL

activities in their classroom noticed an improvement in class participation; fewer students were

falling asleep in class and the attendance rate also increased (Mierson, 2000). In addition to

seeing an improvement in student class participation and increased attendance, Canadian medical

professors also saw the medical students were learning how to become better at conflict

resolution, and at the same time increase their interpersonal intelligence (Mierson, 2000).

Learning how to handle and solve problems requires people to communicate directly with the

person with whom they are in conflict. Additionally, problem solving helps people to improve

their ability to read body language; all of these are aspects of improving one's interpersonal

intelligence (Smith, 2008).

Using problem-based learning as an instructional tool, educators will begin to notice an

improvement in their students' ability to construct knowledge and then combine their knowledge

with the knowledge of their group members (Hmelo-Silver, 2004). Teachers who use problem-

based learning in the classroom have discovered three things. First, students actively participate

in the learning process. Second, students take responsibility for their learning, and lastly,

students become better learners. Teachers notice their students becoming better learners when

students are observed in their "time-management skills, and ability to define topics, access

different resources, and evaluate the validity of these resources" (Sungur, & Tekkaya, 2006, p.

308). The biggest discovery researchers found with using problem-based learning in the

classroom is it "appears to improve critical thinking, communication, mutual respect, teamwork,

and interpersonal skills and increase students' interest in a course" (Sungur, & Tekkaya, 2006, p.

308). PBL activities take student passivity out of the learning equation (Mierson, 2000).

Students are actively communicating with the group, looking for information needed to help

solve the problem, as well as communicating different ways in which the problem can be solved.

When using PBL activities, learning is active and allows students to use their God-given

interpersonal intelligence. Using problem-based learning activities in the classroom allows

teachers and students to meet the goals of 21st century learning.

     Researchers have examined the effect of problem-based learning on students' abilities to

effectively communicate ideas and research potential solutions to the problem. Barron (2003) in

her research on using problem-based learning in the classroom with 48 sixth grade students

found a correlation between students' ability to effectively communicate and solve problems.

The researcher found that when small math groups worked cooperatively together in order to

solve a common problem, they were able to effectively discuss different ways to solve the math

problem. Students in Barron's study also were able to distinguish between realistic and non-

realistic solutions to the problem (Barron, 2003). The researcher also found the more successful

groups were able to ask other group members leading and clarify questions that allowed all of the

members of the group to understand how the other member arrived at his or her idea and possible solution. Barron also noted the groups who were better at communicating with each other were also able to distinguish between realistic and unrealistic ideas and methods on how to solve the problem. Groups who were not successful in communicating with each other struggled with getting rid of unrealistic solutions (Barron, 2003).

When Barron complied her research data, she found that out of her 16 groups, half were successful in solving the problem. Out of the eight successful groups, five groups were all boy groups and three groups of all girls were successful in solving the unstated problem (Barron, 2003). Barron hypothesized that the "more successful groups were more talkative than less successful groups" (Barron, 2003, p. 321).

Sungur and Tekkaya (2006) also completed a study on using problem-based learning in the classroom. These researchers found in their study of the 61 high school students (39 boys and 22 girls), that there was a learning improvement in the experimental group. Sungur and Tekkaya (2006) used a high school biology class (45 minute class periods) with two sections taught by the same teacher, covering the same six-week unit. The control group received content instruction through lectures and daily course work, while the experimental group received instruction on how to work through a PBL activity on the same topic as the control group. For the students in the experimental group, this was their first exposure to problem-based learning activities.

In their study, Sungur and Tekkaya (2006) also had students take the Motivated Strategies for Learning Questionnaire (MSLQ) as the pre-and-post tests to assess their self-reported motivation as well as their self-reported learning strategies. Based on the results from the MSLQ pre-test, the students in the experimental group were placed in heterogeneous groups

for the PBL activity.   Upon the completion of the PBL activity, the researchers found the control

group and the experimental group has similar data results for student motivation to learn new

information. The experimental group had an improvement in the over-all test scores on the

subject matter as well as an improvement in the students' relationships with peers (Sungur &

Tekkaya, 2006). While the experimental group was working on the PBL activity, Sungur and

Tekkaya (2006) noted the "PBL students, more than the control group students, tended to

participate in a task for reasons such as challenge, curiosity, and mastery, and they appeared to

perceive biology as interesting, important and useful" (p. 315). The researchers also found that

in the experimental and as well as in the control group, there was an improvement in the students'

ability to be critical thinkers (Sungur & Tekkaya, 2006).

  Tosun and Senocak (2013) conducted a study on the relationship between problem-based

learning and metacognition. In their study, Tosun and Senocak's study included 70 first year

undergraduate students from two different state universities. Tosun and Senocak's participants

took a pre and posttest survey of metacognitive awareness inventory. In their study, the

researchers found a weak correlation between the students' ability to effectively solve problems

and the students' enjoyment level when learning chemistry (Tosun & Senocak, 2013). When

Tosun and Senocak (2013) analyzed the data, "it was observed that PBL had a positive effect on

increasing metacognitive awareness of who had a weak science background; however, PBL did

not have a positive effect on the metacognitive awareness levels of students who had a strong

science background" (p. 69).

  Hmelo-Silver (2004) conducted a study on problem-based learning and transfer of

knowledge in the classroom. The researcher found students in the undergraduate and graduate

courses who participated in the study created more accurate hypotheses and were able to transfer

knowledge across curricula better than the students at the same colleges and universities who did

not participate in problem-based learning (Hmelo-Silver, 2004). "This suggests that the PBL

students were constructing knowledge that they could bring to bear in accurately solving

problems. Their science knowledge was flexible in that they were able to transfer it to new

problem situations" (Hmelo-Silver, 2004, p. 250). Students in Hmelo-Silver's study were able to

transfer knowledge across curricula because PBL activities are collaborative. Students have the

ability to learn from the others in the group and take what they know and apply their group

members' knowledge to the problem the group is attempting to solve.

Research studies have shown problem-based learning to work well in the post-secondary

school setting, but there is not a lot of research on the use of problem-based learning in the

primary and secondary school setting.

Methodology

Participants

The participants in this research study comprised of 21 seventh grade students (12 males

and 9 female) from a rural Christian school in Western Washington. This rural Christian school

has one seventh grade class, and the students, along with the researcher, participated in this study

during the early winter of 2014. The participants make up a homogeneous population in terms of

age, and socioeconomic status. Of the 21 students participating in this research study, 19 are

Caucasian, one student's mother is of American-European descent and this student's father is of

African-American descent. Another student is of Hispanic descent.

Research Methods

The class spent two, forty-five minute class periods becoming familiar with the concept

of problem-based learning (PBL). The researcher introduced and explained to the participants

the different steps of PBL activity. Students received a handout outlining the steps in order to help them complete the PBL activity (Appendix C). The class spent five class periods (a total of 315 minutes), working on the PBL activity (Appendix D). The PBL activity, created by the researcher, consisted of some historical background information on Meriwether Lewis and William Clark's journey to the Pacific Ocean in 1803, a scenario (how to get to the Pacific Ocean without causing wars with local Indian tribes), tasking (avoid starting a war with the Teton-Sioux Indians), and some resources to help start the research process. During the five class periods, the groups spent the class time working through and researching a solution to a historical PBL activity designed by the researcher. Upon the completion of the PBL activity, the seven groups presented to the class their group's problem statement as well as the solution to the problem statement.

Materials

The researcher created the needed materials for this research study. The participants took a Likert-type scale survey (Appendix B) that self-assessed their personal communication skills before starting the PBL activity. Upon the completion of the PBL activity, students took the same Likert-type scale survey.

Procedure

The researcher chose a survey research design to gather descriptive statistics in her attempt to respond to the research question of whether the use of problem-based learning would improve students' interpersonal intelligence. The researcher wanted to see if there was a change in the mean scores of students' self-assessment of their personal intelligence as measured by the survey on communication skills. The independent variable was the teaching and learning strategy, problem-based learning. The dependent variable was the mean score measurement on

the Likert-type scale survey. Prior to the treatment, the researcher gave the survey, asking the

participants to rate his or her communication and group work skills using a Likert-type scale.

Participants had the ability to select both positive and negative answers. The Likert-type scale

survey used both positive scoring and reverse scoring for student answers. After completing the

PBL activity, the participants completed the same Likert-type scale survey.

During the study, the researcher placed the participants in pre-assigned groups. The pre-

assigned groups were determined based on the scores students gave him or herself on the Likert-

type scale survey (Appendix F). Students who had similar or the same mean scores on the first

Likert-type scale survey were placed in the same small group. Each pre-assigned group had three

students with a mix of male and female students.

Results

The purpose of this study was to see if using problem-based learning in the social studies

classroom would improve students' interpersonal intelligence as measured by students' self-

assessment of their communication skills. Based on the data gathered from the pre- and post-

Likert-type scale survey (Appendix E & Figure 1), the researcher saw very little growth in

student interpersonal intelligence using problem-based learning. Based on the data gathered, a

significant change in means scores was not found.

Before starting the PBL activity, the class had a Likert-type scale survey average of

59.047 points out of a possible 70 points, and after the PBL activity was completed, the class

average on the Likert-type scale survey was 59.476 points out of a possible 70 points. The

difference in the mean results translates into a population difference of .428 points (less than a

one percent increase).

Figure 1

Likert-type Scale Survey Results

Likert-type Scale Survey Results
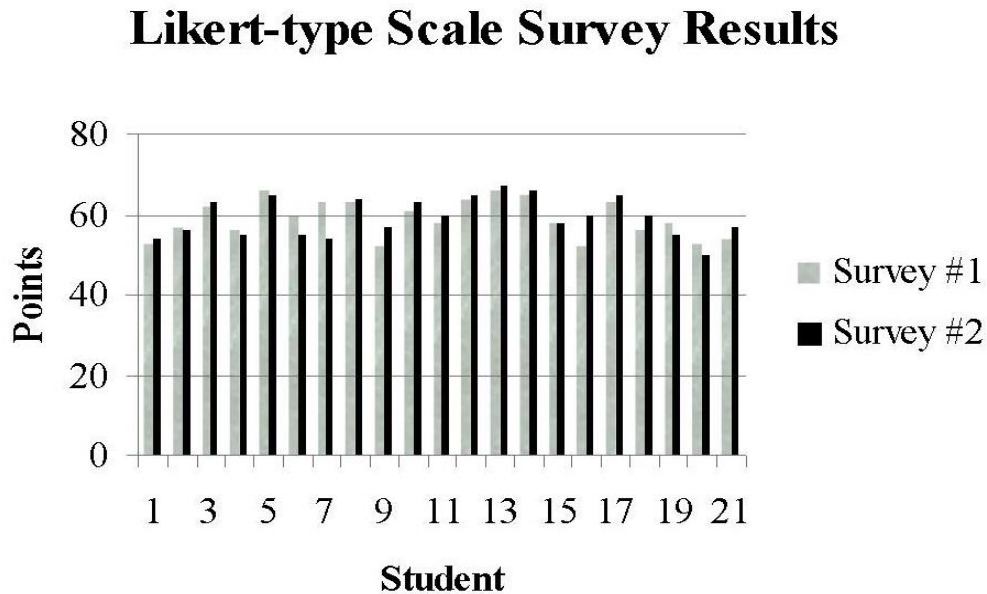
Discussion

While the data did not support the researcher's hypothesis that problem-based learning would have a significant effect on students' interpersonal intelligence, some students did show improvement. One student, Student P, saw an improvement in his or her interpersonal intelligence, going from a mean score of 52 points out of 70 points in the first Likert-type scale survey to 60 points out of 70 points in the second Likert-type scale survey. Not every student had an improvement in his or her interpersonal intelligence with the problem-based learning activity. Students F and G decreased five and nine points respectively from the pre and post Likert-type scale survey. Student F was in a group in which one of the two group members was home sick with the flu and only able to work with the group on the last in-class research workday. In the perception of the researcher, the other member of this group, Student S, had low intrinsic motivation and Student F felt forced to carry the group. For Student G's group, the other two members of the group saw an improvement from the first Likert-type scale survey to the second

survey. Student G, similar to Student F, had to carry the group in order to have the PBL activity completed in time for the class presentation. Unlike Student F's group, Student G's group was unable to finish their project in the allotted class time.

Limitations

A limitation to this study is student interest in the assigned historical topic. Students who were not interested in the historical problem-based learning scenario may not have been highly motivated to work to the best of his or her God-given abilities, and therefore not work on developing his or her interpersonal intelligence. An additional limitation to the improvement of interpersonal intelligence of this particular seventh grade class could be the unfamiliarity with the concept of problem-based learning. Another limitation to the improvement of the interpersonal intelligence of this group of seventh grade students could be to two class periods (90 minutes total) was not a sufficient amount of time to fully understand the how and why of problem-based learning. Other possible limitations to this study include: the assessment tool utilized, which was research created and not standardized; whether the teaching strategy chosen, problem-based learning is shown to have an effect on interpersonal intelligence.

Further studies are need in order to determine whether continuing to use problem-based learning in the classroom will continue to increase the interpersonal intelligence of students, as well as using different research methods; using standardized assessment tools will help to avoid research biases. Continued research on whether using problem-based learning activities throughout the school year, rather than just once, will increase student interpersonal intelligence. Studies on whether gender plays a role in the effectiveness of problem-based learning and interpersonal intelligence should also be conducted. In order to determine whether gender plays

a role in increasing interpersonal intelligence using problem-based learning, researchers should

set-up their research so that students are grouped in same gender groups.

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Appendix A

Letter to the parents

Dear Seventh Grade Parents:

As some of you may know, I am currently working on my thesis for my master's degree in education from Dordt College (Sioux Center, IA). Part of my thesis involves action research on my hypothesis. I would appreciate your permission to allow your son or daughter to participate in the study.

The purpose of my study is to determine whether or not using problem-based learning in the classroom will improve student's interpersonal intelligence. During this study, the class will be working on a problem-based learning activity in United States History that ties in directly with what we are studying in class, as well as answering two short surveys. The surveys the students will answer deal with how students view how well he or she is able to solve problems and communicate with his or her classmates. From start to finish, the research will take nine class periods. Mr. Adeline and Mr. Droog have approved this study.

It is completely up to you and your child whether or not he or she participates in this study. There will be no harm or risk for your child. The answers given in the survey by your child will be **completely anonymous**.

If you have any questions regarding this study, please feel free to contact me at 360-424-9157 ext. 213 or e-mail me at ddenevers@mountvernonchristian.org. If you have any questions in general about the ethics of the study, feel free to contact Dr. Kathleen VanTol, Chair of the Dordt College Institutional Review Board, at 712-722-6266 or e-mail her at Kathleen.VanTol@dordt.edu.

If you have decided to let your child participate in the study, please read the statement below with your child's name along with both of your signatures.

Thank you,

D. deNevers
_____

I understand the information on this page and am willing to allow my child to participate in this study. **Please have your child return this form to Mrs. deNevers no later than January 23.**

_____   _____   _____
Printed name of child   Printed name of parent   Date

_____   _____   _____
Signature of child   Signature of parent   Date

Appendix B

Likert-type Scale Survey

Name: _____

Key:

1= strongly disagree

2 = slightly disagree

3 = unsure

4 = slightly agree

5 = strongly agree

	1	2	3	4	5
On a scale of one to five, I think there should be more group work in school.					
On a scale of one to five, I consider myself a good group partner.					
On a scale of one to five, I enjoy group work.					
On a scale of one to five, I am able to communicate effectively to my group members my vision for the group project.					
On a scale of one to five, how much do you enjoy group work?					
On a scale of one to five, I consider myself open to including other people's ideas in a group project.					
On a scale of one to five, I understand other people's viewpoints and emotions.					
On a scale of one to five, I know what empathy means and try to see things through someone else's eyes and feel what they feel.					
On a scale of one to five, I am always prepared.					
On a scale of one to five, I follow a schedule.					
On a scale of one to five, I like order.					
On a scale of one to five, I pay attention to details.					
On a scale of one to five, I get chores done right away.					
On a scale of one to five, I get my homework done right away.					

Appendix C

Problem-Based Learning Worksheet For Students

PBL STEPS:
1. Read and analyze the problem scenario.
2. List hypothesis, ideas, or hunches.
3. List what you ALREADY know.
4. List the unknown. Prepare a list of questions.
5. Plan the investigation.
6. Gather information.
7. Present the findings.

Understanding the problem:

HYPOTHESIS:

WHAT DO I ALREADY KNOW?

WHAT IS UNKNOWN? (Make a list of questions)

GATHERING INFORMATION: (What facts did you find out to help you make your decision(s)?)

Appendix D

PBL Activity Used

Corps of Discovery

Scenario:

In the spring of 1803, President Thomas Jefferson purchased Louisiana Territory from France. After the United States finalized the purchase of Louisiana Territory, President Jefferson hired Meriwether Lewis and William Clark along with 55 other men to explore and map the newly acquired land.

On December 8, 1803, Lewis and Clark set up camp at Camp River Dubois, just north of present day St. Louis, Missouri. Second Lieutenant Clark trained his 55 men, while Lewis learned as much scientific, geographic, medical, and historic knowledge as he can in order to prepare for the voyage. The Corps of Discovery stay at Camp River Dubois until mid-summer 1804.

As Lewis, Clark, and the Corps of Discovery journeyed westward, they ventured into areas only trappers and traders have been before. On September 25, 1804, the Corps of Discovery journeyed into the Teton Sioux Indian Territory. The Teton Sioux "occupied two villages near present-day Pierre, South Dakota. One village was located on the Missouri River, while the other was situated off a tributary, the Bad River. Among French and Canadian traders, as well as other neighboring tribes, the Tetons were known for aggressiveness and power. Intent on controlling traffic through their portion of the river, they would demand large gifts from passing merchants. Sometimes, they even used more violent tactics" ("Teton Sioux Indians").

Tasking:

Your job is to find a way to keep the Corps of Discovery on the primary mission from President Jefferson. The primary mission as stated by President Jefferson is to locate the most direct water route to the Pacific Ocean without causing aggressive attacks by local Indians.

Student Resources:
- o http://www.lewisandclarkexhibit.org/4_0_0/4_1_0_supportingdocs/4_1_4_1/read_L3_9-24-1804.pdf
- o http://www.lewisandclarkexhibit.org/4_0_0/4_1_0_supportingdocs/4_1_4_1/read_L3_9-25-1804.pdf
- o http://www.lewisandclarkexhibit.org/4_0_0/4_1_0_supportingdocs/4_1_4_1/read_L3_9-26-1804.pdf
- o http://www.lewisandclarkexhibit.org/4_0_0/4_1_0_supportingdocs/4_1_4_1/read_L3_9-27-1804.pdf

Teacher Resource:

"Teton Sioux Indians." PBS, n.d. Web. 11 Jan. 2014.
<http://www.pbs.org/lewisandclark/native/tet.html>.

Appendix E

Data Results

Student Name	Survey #1	Survey #2	Results: +/- Growth
Student A	53	54	+1
Student B	57	56	-1
Student C	62	63	+1
Student D	56	55	-1
Student E	66	65	-1
Student F	60	55	-5
Student G	63	54	-9
Student H	63	64	+1
Student I	52	57	+5
Student J	61	63	+2
Student K	58	60	+2
Student L	64	65	+1
Student M	66	67	+1
Student N	65	66	+1
Student O[*]	58	58	0
Student P	52	60	+8
Student Q	63	65	+2
Student R	56	60	+4
Student S	58	55	-3
Student T	53	50	-3
Student U	54	57	+3
Class Results	1240	1249	+9
Class Average	59.047	59.476	.428
Total Points Possible: 70			

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[*] Student O was sick and only able to work with the group for one of the research days.

Appendix F

Group Configurations

Group 1

Student	Likert-type scale survey score #1
Student I	52
Student P	52
Student T	53

Group 2

Student	Likert-type scale survey score #1
Student A	53
Student U	54
Student R	56

Group 3

Student	Likert-type scale survey score #1
Student D	56
Student B	57
Student K	58

Group 4

Student	Likert-type scale survey score #1
Student O	58
Student S	58
Student F	60

Group 5

Student	Likert-type scale survey score #1
Student J	61
Student C	62
Student G	63

Group 6

Student	Likert-type scale survey score #1
Student H	63
Student Q	63
Student L	64

Group 7

Student	Likert-type scale survey score #1
Student N	65
Student M	66
Student E	66

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Education

M.A Teacher Leadership, Dordt College (2014)

B.A. Secondary Education, History: American & World, Dordt College (2007)
        Endorsement: American Government

Academic Employment

Teacher (5th Grade), Mount Vernon Christian School, Mount Vernon, WA (2013-Present)
- Planned and taught lessons on United States Social Studies.
- Planned lessons and taught grammar and creative writing skills.
- Integrated a variety of multimedia resources and instructional technology.

Teacher (7-8 Grade), Mount Vernon Christian School, Mount Vernon, WA (2007-Present)
- Planned and taught 7th grade United States History, Literature, Writing Skills, and Old Testament Bible.
- Planned and taught 8th grade World Geography, Pacific Northwest History, Literature, and Writing.
- Integrated a variety of multimedia resources and instructional technology.

Chapel Coordinator, Mount Vernon Christian School, Mount Vernon, WA (2008-Present)
- Planned and coordinated chapel for middle school.
- Planned the praise and worship for middle school.

Middle School Volleyball Coach, Mount Vernon Christian School, Mount Vernon, WA (2007-2012)
- Coached 7th grade girls volleyball for six years.

Teacher (High School), Mount Vernon Christian School, Mount Vernon, WA (2007-2008)
- Planned and taught Basic Christianity to Freshmen.
- Planned and taught World Geography to upper classmen.
- Integrated a variety of multimedia resources and instructional technology.

Academic Awards

Dordt College Honors Scholarship (2003-2007)

Future Educators Scholarship (2003-2004)

Presentations

"The Giver – A Christian Perspective" – professional development workshop for Northwest Christian Schools International and Christian Teachers Association of British Columbia Convention (October 2013)

"Surviving Your First Years" – professional development workshop for Northwest Christian Schools International and Christian Teachers Association of British Columbia Convention (October 2008)

Professional Membership
Northwest Christian Schools International