

**PROJECT-BASED LEARNING AS A FACILITATOR
OF SELF-REGULATION IN A MIDDLE
SCHOOL CURRICULUM**

by

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Submitted to the Graduate Faculty of
School of Education in partial fulfillment
of the requirements for the degree of
Doctor of Education

University of Pittsburgh

2008

UNIVERSITY OF PITTSBURGH

SCHOOL OF EDUCATION

Project-Based Learning as a Facilitator
of Self-Regulation in a Middle School Curriculum

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University of Pittsburgh, 2008

This study examined 56 middle school students' self-reflections and self-regulatory behavioral development in a project-based learning experience. Both qualitative and quantitative data were collected providing a more comprehensive evaluation of 1) students' perceptions of their self-regulatory behaviors in the project-based learning experience and 2) both the teacher's and students' perceptions of what aspects of the project-based learning experience were beneficial in facilitating students' self-regulatory behaviors.

The overall findings in this study suggest that students had success in using metacognitive processes to self-monitor the development of their self-regulatory skills. The self-monitoring process was a deliberate approach used to teach students to self-identify their weaknesses and strengths in terms of three self-regulatory skills: learning strategy use, goal setting and time management. These skills are instrumental in students' achieving success by independently completing a project. The outcomes of the study imply that students need scaffolding support in project-based learning in order to facilitate the development of self-regulatory skills. As students completed the social studies class project, they required careful guidance to learn to sift through and to synthesize information from a variety of resources. It was important to design a collaborative learning environment where students were encouraged to share in the decision-making process of the project outcomes and the curriculum.

Students used the Student Weekly Reflection Form (SWRF) to engage in self-reflection throughout the project. NUD*IST N6 was used to quantify and analyze the data obtained from the SWRF.

Students' pre- and post-test scores on the Goal Orientation Index (GOI) (Atman, 1986) showed a significant increase in the Reflecting and Planning Subscales at the .01 level of significance using a one-tailed t-test. The Bandura Self-Efficacy for Self-Regulated Learning Scale (as cited in Pajares and Urdan, 2006) was used to measure students' perceptions of their self-regulatory abilities to complete goals. There was no significant difference between the students' pre- and post-test scores as measured by a one-tailed t-test.

This study adds to existing social cognitive understanding. In order for students to identify and develop self-regulatory skills in this project, they first had to experience the opportunity to participate as managers in their own learning.

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ACKNOWLEDGEMENTS

The completion of my dissertation has been an intriguing, scholarly and extraordinary journey. My educational process at the University of Pittsburgh has provided me with many enriching opportunities.

I first thank my advisors, Dr. Kay Atman and Dr. Maureen Porter. My sincere gratitude, Kay, for the many years we have discussed my interest and passion in the exploration of best teaching practices. You have tirelessly supported my efforts in researching concepts, and you have generously shared your time to engage in flourishing, constructive conversations. You continually kindle a motivating, inspirational spirit in me. To my co-advisor, Maureen, thank you for your levity and unwavering ability to improve the process of this dissertation. I truly appreciate your offering your time and expertise amidst your busy schedule. I admire your love of nature, your strong values, most of all, your global humanitarian work. Thank you for encouraging me to develop individuality in my work. I also express my gratitude to Dr. Mary Kay Stein. Your careful observations and generous expertise added to the quality of this dissertation. I appreciate your time and confidence in me. I am grateful to Dr. John Myers for being a member of my committee. John, I appreciate your honest, practical and amiable feedback. You provided insightful commentary throughout this lengthy dissertation process.

I wish to thank many people who contributed to the process of completing my study. Barbara Murphy and Suzanne Flynn, you are resourceful, cheerful librarians with a remarkable

ability to fashion a user-friendly, efficient, middle-school library. Your assistance in facilitating students' utilization of library materials was invaluable.

I sincerely thank all of the living historians who graciously worked with me to design an enriching curriculum for my students. I particularly thank Tom Vecchio, "Welethetowaco," for your discriminating sense of Native American history. Your natural style of bringing history to life is fascinating.

I owe a multitude of thanks to those individuals who helped me with the technological aspects of producing this dissertation. These folks shared their resourcefulness and eased my uncertainty about how to implement the myriad of computer programs. First, thank you to my twin sister and fellow educator, Debbie, who expeditiously and efficiently assisted me in deciphering computer programs at any given time. Many thanks to Dana Scherle for your consistently pleasant demeanor as you assisted me in the formulation of graphs and charts. Special gratitude is expressed to Kari Peyton who patiently helped me with tedious revisions and consultation on the electronic format of the dissertation.

I express appreciation to Dr. Carol Baker for your valuable assistance with data analysis. Regardless of the time of day, you were always there to lend a helping hand.

I am always reminded of my childhood art teacher, Mr. Fitzpatrick, and his mantra at the Carnegie Museum's Tam O'Shanter art classes every Saturday morning. You inspired me to be observant, responsible and confident in creatively capturing the aesthetic value of my surroundings; because of you, I am inspired to view my pedagogy through a mindful, critical lens. Thank you, Mr. Fitzpatrick.

I express my sincere gratitude to Dr. Barry Zimmerman for his enlightening conversation about my research and students' development of self-regulation. I am very thankful to Dr.

Frank Pajares who shared many resourceful articles for me to peruse for my research. Your prompt response to any questions that arose about self-efficacy was invaluable. Thank you to Dr. Jean Lave who graciously shared two afternoons filled with thought-provoking conversations which provided a unique perspective on the purpose of my pedagogy.

Many thanks to my students who enthusiastically participated in the study. It was a privilege for me to work with such a wonderful group of seventh grade students each day of the study and throughout the entire school year.

I especially want to thank my family. We have balanced many activities in our lives, and your enduring patience is immeasurable. My daughter, Laura, and my son, Rich, have been my inspiration and motivation in exploring students' learning for the future. Thank you for your reassurance and understanding throughout the years. To my husband and friend, Chuck, you have been a mainstay in supporting my endeavors. Thanks for helping to edit my work. We will always be partners in sharing life's joyous experiences and new journeys. Thank you for being there with me.

Lastly, I owe my deepest thanks to my parents for encouraging me to utilize and share my creativity in projects with others. Throughout my life, you've always advocated that reaching goals are hard work, but satisfying and rewarding. My father's uncanny ability to architect memorable landscapes inspired me to reflect on the artistic beauty in nature and render these reflections into constructive projects.

Do not go where the path may lead, go instead where there is no path and leave a trail.
- Ralph Waldo Emerson

1.0 INTRODUCTION

As middle school students face greater academic demands, they must develop self-regulatory skills and achieve self-efficacy in order to become successful learners. The development of these behaviors can prove to be a challenging task for some students. According to Eccles & Midgley (as cited in Anderman and Midgley, 1998), motivation decreases as students move from elementary school to middle school. While some scholars attribute this decline to the changing psychological and physiological needs of adolescents, research challenges this reasoning by demonstrating that motivational change in middle school students stems from the characteristics of a students' learning environment. Adolescents need a developmental curriculum as opposed to the traditional teacher-directed curriculum (Gibbons, 2002; Belfiore and Hornyak, as cited in Schunk and Zimmerman, Eds., 1998; Zimmerman, Bonner, and Kovach, 1996). Students in this age level are drawn to a curriculum that addresses their needs and allows them to seek solutions that apply to their real-life situations.

The traditional teacher-directed method of instructing adolescents resembles a “cookie-cutter” method of conveying information. All too often in classrooms with traditional instruction, the curriculum becomes a “one size fits all” approach to teaching an abundant amount of information in a foreshortened amount of time. However, an adolescent's reaction to this method of instruction may be to “tune out” rather than to “tune in” to the teacher. Consequently, students do not self-generate a desire to learn. The teacher-directed method of

instruction also impedes the students' development of unique skills that will enable them to become independent learners who self-regulate their time, motivation, study skills and problem-solving strategies to accomplish their academic as well as personal goals.

It is important for students to become aware of their potential and capabilities in completing tasks. Project-based learning offers one teaching strategy which not only allows students to independently set and accomplish goals, but also provides them with an avenue in which to explore their choices when completing both personal and academic goals. An essential element for project-based learning is a child's ability to set goals for him/herself and to become self-motivated to complete these goals. Middle school students in particular are metacognitively ready to set goals for themselves by independently monitoring and assessing their own learning by using a variety of study tools to prepare themselves for tests (Rafoth, 1999, p. 22). A project-based learning experience creates a classroom environment that supports the development of students' self-regulatory behavior.

My experience in implementing project-based learning in my classroom over the past fifteen years has led me to recognize the importance of students' developing metacognitive skills that enable them to understand how they perceive their learning skills in a social context. This teaching strategy has also provided students the opportunity to further examine the processes in which they engage to develop self-regulatory and self-motivational behaviors that facilitate their educational achievement.

It is imperative for a teacher to create a strong concept of community within the classroom, to be aware of students' maturity levels, and to develop an environment of mutual respect (Caine, Caine, and McClintic, 2002). In order for students to feel that they are a part of a community in a classroom, it is also essential for the teacher to encourage self-reflection, have

the students participate in group work, and allow students to make decisions in the classroom (Caine, Caine, and McClintic, 2002).

1.1 GOAL OF THE STUDY

The goal of this study is to examine project-based learning as a potentially viable means of promoting self-regulatory behavior in middle school students.

Teaching strategies today must reflect society's demand for flexible, competent, and resourceful individuals. Educators should reflect on classrooms as communities of practice (Lave and Wenger, 1991) in which students have the opportunities to practice their decision-making skills, express their thoughts, and share their experiences about the curriculum in an open-minded forum with their peers and teachers. Students need to develop tolerance and create a repertoire of resources that they can utilize in problem-solving situations not only in the classroom but also in their own personal lives. These resources include guidance and mentoring by, or apprenticeships with, more experienced individuals such as teachers and members of the community. Resources such as guest speakers are invaluable as they cannot be found in a classroom textbook.

Wenger reinforces the importance of "negotiating meaning" in communities. Wenger (1998) reiterates that learning is constantly evolving as new ideas are emerging and meaning is negotiated within a community. In essence, learning is not static; instead, it is continually absorbing new resources as the learners incorporate new fresh perspectives into their realm of knowledge.

To address the need for self-regulatory behavior in adolescent students, this study

examines socio-cognitive theories pertaining to the process of learning, Specifically, this study examines how project-based learning can serve as a framework for creating a well-defined, nurturing environment in which the student feels comfortable to participate within a group of peers. This framework defines project-based learning as a community in which the students engage in learning; it considers learning as a social phenomenon that evolves from participation with others.

1.2 OUTCOME OF STUDY

Within the context of a social studies class, students investigated ideas important to them in their lives, and it was anticipated that they would be motivated to engage in the process of learning. The success of project-based learning requires involvement that includes cognitive, metacognitive, and collaborative factors. These factors define self-regulated learning. It has been demonstrated (Zimmerman, Bandura, and Martinez-Pons, 1992) that a “significant causal path exists between self-efficacy for self-regulated learning, efficacy for academic achievement, and academic attainment” (p. 674). As a result, it was predicted that students develop and utilize self-regulatory skills and become autonomous managers of their own learning as they accomplish their project goals.

1.3 STATEMENT OF THE PROBLEM

Considering all of the imposed, regulated academic standards in educational institutions today, teachers face the challenge of covering a defined curriculum within a specific timeframe. Subsequently, teachers are presumed to seek the best instructional practices to convey content to their students. This selection process must consider alternative methods of presenting content to students. Equally important, the method of harnessing the students' personal experience of understanding and relating to the content must be reviewed. In this study, self-regulation skill development was examined as the means to bring together the students' motivational and knowledge acquisition needs using project-based learning as the skill/content vehicle.

1.4 SIGNIFICANCE OF THE STUDY

In order to understand how adolescents effectively achieve self-regulatory behaviors in a project-based learning experience, an examination of how students learn in a social context within their educational setting was undertaken.

In addition, educators need to focus on how facilitating successful student personal learning strategy developments such as self-regulation, will enable the students to develop consistent, appropriate use of academic learning strategies in classroom settings. This creates a critical challenge for middle school students who are in the process of maturational development as they cultivate effective, long-lasting regulatory skills (Blakemore and Frith, 2005).

Various studies have concentrated on self-regulation; however, it appears that an

exploration of adolescent self-regulatory skill development within a project-based setting has been neglected. Results of this study will contribute to an understanding of the link between project-based learning experience and self-regulatory skill development.

There is a need to study the daily routine of students' beliefs of how they regulate their learning on specific tasks within various subjects. (Wigfield, as cited in Schunk and Zimmerman, Eds., 1994). Research is also needed in finding ways to “enhance children’s valuing of the important educational tasks they face” so that educators can understand how students will be “more likely to regulate their learning in positive ways” (Wigfield, as cited in Schunk and Zimmerman, Eds., 1994, p. 117). This study proposed to examine the teacher-intended curricular activities that students find most helpful in developing self-regulatory skills in a project-based experience.

This study will also further educators’ understanding of their role in developing self-reflection skills in idle school students as they listen to students’ voices describe their self-reflective and self-monitoring processes. Boekaerts, Pintrich, and Zeidner (2000) recognize that self-reflective practice is a “critical component of self-regulated learning” and that more research is necessary to understand students’ engagement in this process.

1.5 HYPOTHESES

The hypotheses in this study were structured as qualitative and quantitative. Relationships between the concepts in this mixed method approach were examined as a cohesive whole.

1.5.1 Hypotheses for Qualitative Analysis

Two important aspects of students becoming self-regulated is their increasing ability to reflect on their learning strategies and to process constructive feedback they receive from others as they work toward the completion of their goals. The feedback process is an integral component of project-based learning. This process gives students the opportunity to check the success of their progress at various intervals and, thus, to determine whether they need to adjust their learning strategies to achieve their goals. This study examines the following qualitative hypotheses:

1. Teaching strategies will emerge that have an impact on students' self-regulatory behavior as demonstrated by students' responses on the Student Weekly Reflection Forms, teacher-student interviews and the Teacher's Daily Log.
2. Students will identify which learning strategy, goal-setting, or time management skills contributed to their overall capacity for self-regulation as demonstrated by students' responses on the Student Weekly Reflection Forms, teacher-student interviews and the Teacher's Daily Log.
3. Both the teacher and the student will identify curricular activities of the project-based learning experience that helped students accomplish their goals as demonstrated by the students' responses on the Student Weekly Reflection Forms.

1.5.2 Hypotheses for Quantitative Analysis

Instrumentation was used to gather data on students' perceptions of their goal-setting strategies and these findings were based on the following quantitative hypotheses:

4. Null hypothesis: There will be no change from the beginning to the end of the project-based

learning experience in students' mean scores on the Bandura Self-Efficacy for Self-Regulated Learning Scale using a one-tailed t-test.

5. Null hypothesis: There will be no change from the beginning to the end of the project-based learning experience in students' pre/post mean scores on the Bandura Self-Efficacy for Self-Regulated Learning Scale for students who scored high (the top 20%) on the pretest using a one-tailed t-test.
6. Null hypothesis: There will be no change from the beginning to the end of the project-based learning experience in students' pre/post mean scores on the Bandura Self-Efficacy for Self-Regulated Learning Scale for students who scored low (the bottom 20%) on the pretest using a one-tailed t-test.
7. There will be an increase from the beginning to the end of the project-based learning experience in students' goal accomplishment style mean scores on the Goal Orientation Index (GOI) Part 1: the subscales (Acting, Planning, and Reflecting) and Part 2: the twelve goal-oriented behaviors using a one-tailed t-test.
8. There will be an increase from the beginning to the end of the project-based learning experience in students' pre/post goal accomplishment style mean scores on the Goal Orientation Index (GOI) who scored high (the top 20%) on the GOI Reflecting Subscale pretest using a one-tailed t-test.
9. There will be an increase from the beginning to the end of the project-based learning experience in students' pre/post goal accomplishment style mean scores on the Goal Orientation Index (GOI) who scored low (the bottom 20%) on the GOI Reflecting Subscale pretest using a one-tailed t-test.
10. There will be a positive correlation between the students' post-test scores on the Bandura

Self-Efficacy for Self-Regulated Learning Scale and the Goal Orientation Index using a one-tailed t-test.

1.6 RESEARCH QUESTIONS

This study posed the following research questions to investigate specific self-regulatory skills: effective learning strategies, goal setting, and time management, independently used by middle school students to accomplish project outcomes:

1. Which teaching strategies emerge as having had an impact on students' development of self-regulated behavior?
2. Which learning strategy, goal setting, or time management skills as reported by the students contributed to their overall capacity for self-regulation?
3. What curricular activities of the project-based learning experience are identified by both the teacher and the students as being helpful in accomplishing the students' goals?
4. Is there a significant increase from the beginning to the end of the project-based learning experience in students' Bandura Self-Efficacy for Self-Regulated Learning Scale mean scores?
5. Is there a significant increase from the beginning to the end of the project-based learning experience in the mean scores of students who scored high (the top 20%) on the Bandura Self-Efficacy for Self-Regulated Learning Scale on the pretest?

6. Is there a significant increase from the beginning to the end of the project-based learning experience in the mean scores of students who scored low (the bottom 20%) on the Bandura Self-Efficacy for Self-Regulated Learning Scale on the pretest?
7. Is there a significant increase from the beginning to the end of the project-based learning experience in students' goal accomplishment style mean scores on the Goal Orientation Index (GOI) subscales, Part 1 (Acting, Planning, and Reflecting) and the twelve goal-oriented behaviors, Part 2?
8. Is there a significant increase from the beginning to the end of the project-based learning experience in the goal accomplishment style mean scores of students who scored high (the top 20%) on the pretest Reflecting Subscale of the GOI Subscales?
9. Is there a significant increase from the beginning to the end of the project-based learning experience in the goal accomplishment style mean scores of students who scored low (the bottom 20%) on the pretest Reflecting Subscale of the GOI Subscales?
10. Is there a positive correlation between the students' total post-test scores on the Bandura Self-Efficacy for Self-Regulated Learning Scale and the students' post-test scores on the Goal Orientation Index?

1.7 DELIMITATIONS OF THE STUDY

The delimitations of the study were parameters set by the researcher. These were as follow:

1. The data for this study was collected from two seventh grade classes in a suburban middle school.

2. This study was established on a project-based learning experience that incorporated two units in a seventh grade social studies curriculum: the French and Indian War and the Revolutionary War.

1.8 LIMITATIONS OF THE STUDY

1. The instructor had no control of the placement of the students in the classroom.
2. The researcher assumed that students' self-reported responses on the Student Weekly Reflection Forms (SWRFs) reflected the students' accurate account of a) their work and b) their reported peer feedback.
3. The SWRF may not represent students' complete documentation of what occurred in the project-based learning experience.
4. Feedback (either positive or negative) from peers may not be consistent across small groups.
5. Since only two classes participated in the study, generalizability of the results may be limited.

1.9 DEFINITION OF TERMS

1. Academic Self-Regulation

Academic self-regulation is not a mental ability, such as intelligence, or an academic skill, such as reading proficiency; rather, it is the self-directive process through which learners transform their mental abilities into academic skills (Zimmerman, 1998, p. 2).

2. Conation

For the purposes of this study, conation is defined as “Aspect of mental processes or behavior directed toward action or change and including impulse, desire, volition, and striving” (American Heritage Dictionary of the English Language, 1971).

3. Self-Efficacy

According to Bandura (1997), “perceived self-efficacy refers to beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 3).

4. Self-Management

Students are capable of mastering such skills as self-monitoring, self-instruction, self-evaluation, and self-reinforcement. These intellectual skills are attributes of self-management (Belfiore and Hornyak, as cited in Schunk and Zimmerman, 1998).

5. Empowerment

According to Bandura (1997), empowerment is “gained through development of personal efficacy that enables people to take advantage of opportunities and to remove environmental constraints guarded by those who interests are served by them” (p. 477).

6. Metacognition

Flavell, Miller, and Miller (2002) refer to metacognition as “cognition about cognition.” Children not only think when solving a problem, but they also learn to think about thinking and about tasks, strategies, and the process of solving a problem (p. 164).

7. Instantiation

A concept is represented by a concrete example (G. & C. Merriam Co., 1974).

8. Project-Based Learning

Project-based learning is derived from a teaching/learning model that empowers students to be more creative and more receptive to becoming independent thinkers and problem solvers. Markham, Larmer, and Ravitz (2003) of The Buck Institute for Education (BIE) define “standards-focused project-based learning as a systematic teaching method that engages students in learning knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks” (p. 4).

9. Self-Regulation

Self-regulation “refers to students’ self-generated thoughts, feelings, and actions, which are systematically oriented toward attainment of their goals” (Zimmerman, 1994, p. ix).

10. Goal Accomplishment Style

This is the profile of goal-oriented behaviors derived from the Goal Orientation Index (Atman, 1986).

2.0 REVIEW OF LITERATURE

Two questions frame the review of literature in this study:

1. What is the level of viability of project-based learning as an educational teaching/learning model at the middle school level?
2. What theories can inform current educational practices directed toward self-motivation and self-regulation in a project-based learning experience?

In order to understand how a middle school teacher's pedagogy can promote students' self-regulated behavior, various socio-cognitive theories analyze features of project-based learning. These theories provide a structure for understanding the value of developing and implementing self-regulatory behavior in order for students to become independent managers of their learning.

Students can prepare themselves for the increasing rigor of the middle and high school curricula as well as the personal requirements of the world, the work force, or higher education by developing independent learning skills which exemplify self-regulatory behavior.

The Review of Literature is organized into sections which are analogous to supporting structures of a building. Similar to an architect's attending to the details of a building, mindful of its purpose to fulfill both the aesthetic and functional needs of its inhabitants, a teacher

presumably designs a classroom environment that is conducive to students' positive association with learning. Therefore, the Review of Literature sections present "construction materials" intended to support a collaborative learning environment that promotes the self-regulatory skill development of its occupants, the students. The sections examine the following "building materials": the need for effective teaching strategies in the 21st century; project-based learning; self-motivation; the theoretical underpinnings of project-based learning--socialization aspects within this pedagogy which may contribute to cognitive development; the engagement of students in the curriculum; the importance of a relevant curriculum; the inclusion/recognition of students' voices in a curriculum; the development of student autonomy and the promotion of student self-regulatory behavior. Observations of previous work done under similar conditions over the past 15 years will be referenced.

2.1 A NEW DIRECTION

Caine, Caine, and McClintic (2002) suggest that all individuals are born with an innate drive to understand the world around them—to make meaning of their experiences. This type of learning is constructivist in nature; according to Fleming (2000), project-based learning is often associated with the constructivist theory of learning (p. 4).

In addition to the concept of individuals constructing meaning from their experiences, individuals are motivated by their desires to satisfy their needs. Glasser (1986) has identified the psychological and physical needs of individuals, including the need for power, freedom, self-expression, and choice. In his concept of Choice Theory, Glasser (1988) recognizes the demand to satisfy these needs. Prensky (2001) observes the importance of understanding how

individuals' needs are satisfied from the standpoint of basically why or why not individuals want to learn. He primarily attributes this to one reason: motivation. Prensky (2001) has observed that basic human motivators can be categorized as either some form of fear or a desire to fulfill the need for love, greed, power, lust, anticipation, ego-gratification, winning, and pleasure or fun (p. 101).

Today's educational systems must consider students' needs and experiences if teachers intend to engage students in the learning process. With the multitude of technology, resources, and cultural experiences accessible to young individuals, teaching and learning strategies in the classroom have to be relevant to students' lives. Traditional classroom teaching practices compete with technology-driven, multi-resource, stimulating teaching strategies available outside the classroom today. Prensky (2001) comments, "If our training or school is boring to our students, it is entirely our fault as educators" (p. 68). Prensky (2001) continues:

Today's learners are truly different, and training and education have not kept pace with them. Moreover, training and education are largely nonmotivating or demotivating to the Games Generation. (a new generation of learners who use computers as a second language) So, we should ask, how *can* we motivate today's learners? ...What will cause them to learn the things that we need them to learn? Why do we need to bother? Can't they just motivate themselves? Can't training and learning be intrinsically motivating?...The primary reason we need to provide motivation is because learning takes effort. (p.100)

Researchers have an increased interest in student motivation as a way to determine what teaching strategies can be employed in the classroom to ensure that every student connects with and is motivated by the curriculum (Zimmerman, Bandura, and Martinez-Pons, 1992; Flavell, 1987; Weinert and Kluwe, 1987).

Gentilucci (2004) observes that after decades of objectivist research, educators still do not understand why students learn well or poorly; further research is needed to ascertain the

students' perspectives on learning (p. 133). He continues to stress the importance of listening to students' voices: "Students are powerful determiners of the learning that occurs in their classrooms" (Gentilucci, 2004, p. 133). Gentilucci, realizing that researchers, teachers, and school reformers should use subjectivist research to provide answers to these questions, completed a study of students' perspectives on learning (Gentilucci, 2004, p. 134). As a result of his study, he offers the following insights:

...effective reform and improvement efforts must take into consideration students' perspectives on schooling and learning. Without a clear understanding of the subjective meanings students assign to their behavior, future research may continue to be plagued by the fallacy of objectivism...a significant number of current studies are looking everywhere but the classroom and considering everything but the student perspective to explain why school children learn well or poorly. As long as research continues to ignore or marginalize the student perspective and remains focused on issues outside the walls of the classroom and beyond the control of schools and teachers, the prospects for developing truly effective learning interventions and reforms may remain dim indeed. (Gentilucci, 2004, pp. 142-143)

It is necessary to understand students' reflections on their learning practices and how motivation is a determinant of their accomplishment of goals. This process is reflective of metacognition in which "Children not only think when solving a problem, but they also learn to think about thinking and about tasks, strategies, and the process of solving a problem," (Flavell, Miller, and Miller, 2002, p. 32). Due to many unanswered questions about learning behavior and motivation, Weinert and Kluwe (1987) believe that "these questions illustrate the importance of coordinating studies of the cognitive, metacognitive, and motivational determinants of learning behavior and performance" (p. 13). Specifically, research needs to emphasize the similarities among diverse theories of motivation in various learning situations. Weinert and Kluwe (1987) elaborate on this thought:

There are good reasons to establish connections between research efforts in metacognition, achievement motivation, and learning, areas that have been relatively isolated...Cognition, metacognition, procedural skills, and motivational factors are important determinants of learning activity, but they must be differentially weighted depending on task types. An integration of the different research approaches is also necessary if one wants to study and measure phenomena of learning by doing, and doing to learn. (p. 13)

A link must be established between what the student does in a learning experience and the student's reflection of what he/she has learned. Moreover, the student needs to reflect on how he/she will apply newly formed concepts in various learning situations.

2.1.1 Project-Based Learning as an Effective Teaching Strategy

I believe motivational determinants of students—the opportunity for students to make choices in their curriculum, the use of relevant curriculum, the sharing of decision-making in the classroom, the creation of a dynamic classroom environment, and the encouragement of student autonomy are integral in project-based learning experiences. This study focuses on the means of implementing this combined pedagogy in a middle school classroom. Self-motivation is an axiom of the completion of goals that students set for themselves. Project-based learning has proven to increase student's motivation by allowing them to do the following: “own the questions” and explore their individual/unique talents or interests; have a choice in their learning process; increase their ability to become self-directed learners; increase achievement by giving them the opportunity to practice higher levels of thinking; and accommodate different intelligences, learning preferences, and learning styles (Fleming, 2000, pp. 1-6). Many researchers have been interested in why students disengage themselves from the classroom. In my teaching experience, I have found that this can be attributed to students feeling a lack of

voice in their education—namely, the inability to make choices in their curriculum which contributes to their perception that the curriculum is irrelevant in their lives. Students express this dissatisfaction with questions such as “Why is this important?” or “Why will I ever need to know this again?”

Project-based learning is a teaching/learning model that allows students to create a connection between what occurs in their classroom to real life opportunities in the outside world. Csikszentmihalyi (2002) notes the relevancy of constructing effective learning strategies for students so that they can create this connection, especially with today’s standards-based, traditional teaching strategies:

To educate means to lead out. And we don’t lead kids out. We kind of stop them. To educate is to expose kids to many possibilities until they find a connection between what’s really important to them and the world out there. And then we must nurture and cultivate that connection. (p. 17)

Project-based teaching and learning reflect John Dewey’s concept of “learning by doing” as the curriculum incorporates the students’ needs and the students’ engagement in learning that interest them. Dewey (1962) emphasized that if teachers want to find out what makes education successful, then we need “to go to the experiences of children where learning is a necessity, and not to the practices of the schools where it is largely an adornment, a superfluity and even an unwelcome imposition” (p. 2). The project-based teaching/learning model has proven to be successful since students show more interest in working on projects whose activities they perceive as relevant to their lives (Curtis, 2002; Kozminsky and Kozminsky, 2003; Caine, Caine, and McClintic, 2002; Zimmerman, Bandura, and Martinez-Pons, 1992; Fleming, 2000.)

Dewey (1962) explains the concept of the philosophy of “learning by doing”:

What are pupils to do in order to learn?...The children must have activities which have some educative content, that is, which reproduce the conditions of real life. This is true whether they are studying about things that happened hundreds of years ago or whether they are doing problems in arithmetic or learning to plane a board. When a pupil learns by doing he is reliving both mentally and physically some experience which has proved important to the human race; he goes through the same mental processes as those who originally did these things. Because he has done them he knows the value of the result, that is, the fact. Where children are fed only on book knowledge, one “fact” is as good as another; they have no standards of judgment or belief. (p. 210)

In my work with students, I have found that this method of learning has afforded my students a unique opportunity to share their accumulated knowledge and personal educational experiences with their peers and other individuals. This teaching and learning strategy is conducive to an open, comfortable learning environment in which students can communicate individual perspectives, develop a voice in their curriculum, and empower themselves to become self-motivated, goal-directed, and independent learners. When students engage in this type of learning, they potentially gain a sense of self-efficacy. They also become “resourceful” learners in that they acquire skills to tap into various types of resources that provide valuable information to help them in the process of completing their projects.

One aspect of project-based learning that empowers students is the opportunity to work in teams to achieve a common goal. Through cooperative learning, students gain a sense of power (Glasser, 1990, p. 13). Glasser (1990) compares students working in cooperative learning groups inside the classroom with the workforce in which lead managers support cooperative groups to give workers a sense of power which increases their motivation to work (p. 13). He (1990) further contends that in schools today, this type of “lead management” is more effective because it will encourage and motivate students to do well in school and produce quality work, “Teachers are people managers, and most everyone will agree that students as workers seem to be most

resistant of all to being managed” (p. 16). The psychological and physical needs of students are driving factors in motivating students to satisfy goals, both in and out of school. Effective teachers manage and utilize their classrooms to satisfy their students’ needs so that the students will become more interested in completing schoolwork.

2.1.2 Defining Project-Based Learning

Project-based learning is derived from a teaching/learning model that empowers students to be more creative and more receptive to becoming independent thinkers and problem solvers. This approach to teaching is a change from traditional teaching practices as it provides students with the opportunity to establish self-motivational capabilities, maintain their own learning process, and set goals for their performance or task/activity completion which eventually leads to a strong sense of self-efficacy. In comparison to learning basic skills by memorization and recitation in a traditional curriculum, project work depends on intrinsic motivation (Katz and Chard, 1989, p. 11). Katz and Chard (1989) further support this principle:

When children are intrinsically motivated, they respond in ways that encourage their disposition to work independently of the teacher, for example by helping one another. They can determine for themselves what they want to find out from books, reference materials, adults at home, and other children. By experimenting, children can determine the most appropriate methods of inquiry and sources of information. (p. 12)

Diane Curtis (2002) of the George Lucas Educational Foundation, a nonprofit organization responsible for distributing information about outstanding school programs, states that research has proven that those students given the choice to pursue topics that interest them are more motivated to learn (p. 51). Curtis (2002) elaborates that through problem-based learning, students retain and apply their knowledge to “real-world problems” and have fewer

absences and discipline problems in school (p. 51). In Newsome Park Elementary School in Newport News, Virginia, one of the schools in which the George Lucas Educational Foundation observed project-based learning, a student expressed his interest in project-based learning:

Doing projects teaches you more because you get to experiment and understand how things work. If you can experiment and see how things work, it will be stored in your brain longer. And if it's funner, you'll learn faster. (Curtis, 2002, p. 52)

Children involved in project work require certain training. They need to be taught how to participate in activities with other children and how to become socially cognizant of the way individuals work together (Katz and Chard, 1989; Dewey, 1938; Lave and Wenger, 1991; Johnson, Johnson, and Holubec, 1994).

Educators understand that students find it tedious to learn by repetitively reading and reiterating facts from a textbook. Therefore, many teachers now involve their students in challenging, hands-on-activities that supplement the curriculum. These teachers know how valuable an engaging activity can be in stimulating the minds of students. Katz and Chard (1989) believe that the project-based learning approach develops a child's mind in the fullest sense—it includes not only knowledge and skills but emotional, moral, and aesthetic sensibilities as well (Katz and Chard, 1989). If this type of learning strategy is implemented in early childhood, its framework can include the following: 1) a curriculum that engages children's minds in ways that deepen their understanding of their own experiences and environment; 2) a project-based learning setting that strengthens children's knowledge and skills; 3) curriculum that includes experiences from the students' lives; 4) a classroom that can become viewed as a community. A "community ethos is created when all of the children are expected and encouraged to contribute to the life of the whole group, even though they may do so in different

ways”; the teacher must realize the challenge of continually seeking creative and refreshing approaches of instructing his/her students (Katz and Chard, 1989, pp. 4-8).

2.1.3 Project-Based Learning Compared to Problem-Based Learning

Project-based learning and problem-based learning share similar characteristics, particularly the students’ development of problem-solving skills in order to achieve self-efficacy. However, Kain (2003) identifies a key difference between the two. In problem-based learning, students focus on the process of inquiry rather than on producing a product (p. 3). Kain (2003) notes that in a problem-based learning experience, the students basically use resources to provide a solution to a problem:

At a more formal level, problem based learning has roots in the “project method” of William Kilpatrick (1918). Kilpatrick argued that students don’t so much need to be provided with answers as with experiences in learning to pose the questions and to work out solutions. (pp. 2-3)

Problem-based learning is a method which enhances traditional teaching practices. Students use their prior knowledge, investigate resources that unfold new knowledge, and synthesize both forms of data in the context of the problem. Both project-based and problem-based learning involve a driving question that requires reaching a conclusion or creating a solution through an educational journey or inquiry process. The philosophy embedded in both project and problem-based learning is that students learn more by applying knowledge that is familiar to them as well as new information toward resolving a problem.

2.1.4 Evolution of Project-Based Learning

Project-based learning was adopted as a teaching strategy in early childhood in England in the 1920's. It was implemented in America's education system through the philosophies of John Dewey and William H. Kilpatrick (Katz and Chard, 1989, p. 8; Kain, 2003, p. 2).

According to Thomas, Mergendoller, and Michaelson (1999) of the Buck Institute of Learning (BIE), a California research center for project- and problem-based learning, project-based learning has evolved because of two major developments. Research has shown that learning is a "social activity" that draws on a child's "culture, community, and past experiences" (Thomas et al., 1999, p. 2). Children construct knowledge not only through feedback but also by utilizing past personal experiences to interpret and understand new information and situations. In addition, the workforce now plays a role in education. While recent cognitive and behavioral psychology research that explains how individuals learn, workforce causes schools to think about effectively improving instruction to better prepare students for the "outside world." Today, students have to be able to communicate and work cooperatively within a team to solve problems creatively and achieve common goals. They have to be prepared to understand how to interpret and respect other individuals' perspectives in a multicultural setting. Thomas et al. (1999) emphasize this concept:

...the need for education to adapt to a changing world is the primary reason Problem Based Learning is increasingly popular. Project Based Learning is an attempt to create new instructional practices that reflect the environment in which children now live and learn. And, as the world continues to change, so does our definition of Project Based Learning". (p. 2)

Thomas et al. (1999), who recognize that problem-based learning is often associated

with inquiry-based or experiential learning, see project-based learning as incorporating some of the characteristics of these two methods of learning and addressing the need for students to assess their work. Because of new demands in the field of education for higher test scores and accountability of educators, project-based learning is a beneficial and effective educational tool to deal with these challenges (Thomas et al., 1999).

Markham, Larmer, and Ravitz (2003) of the Buck Institute for Education indicate that project-based learning is “still in the developmental stage” (p. 5). They elaborate:

...there is not sufficient research or empirical data to state that Project Based Learning is a proven alternative to other forms of instruction. Based on evidence gathered over the past ten years, Project Based Learning appears to be an equivalent or slightly better model for producing gains in academic achievement, although results vary with the quality of the project and the level of student engagement. (pp. 5-6)

Markham et al. (2003) distinguish the term “project” from “activities” associated with curriculum. According to Markham et al. (2003), project-based learning incorporates the following attributes:

...students’ inherent drive to learn; project work is central rather than peripheral to the curriculum; in-depth exploration of authentic and important topics; essential tools and skills, including technology, for learning; products that solve problems, explain dilemmas, or present information generated through investigation, research, or reasoning; multiple products that permit frequent feedback and consistent opportunities for students to learn from experience; performance-based assessments; and collaboration. (pp. 4-5)

Fleming (2000) defines project-based learning as intensive experiences “that engage students in activities that are interesting to them and important to the course(s) of study” (p. 1). Fleming (2000) adds that two to eight week projects can involve community members and the display of students’ products.

In the Harvard Graduate School of Education's (2002) report, *Project-Based and Experiential Learning in Project Zero*, Seidel & Aryeh define project-based learning as:

- a series of activities with a sustained focus over time and linked to an outcome of significance--a performance, a product, or service that is highly valued by students as well as a broader community,
- a group effort that often moves beyond the walls of the classroom or after school, into the community for research, internships, presentations, etc.,
- clear learning goals that often embrace academic, social, and meta-cognitive dimensions simultaneously, and
- assessment that is on-going with frequent opportunities for students to receive and provide feedback as the work is developing as well as final evaluation from peers, instructors, and the public, including self-assessment. (p. 12)

Seidel and Aryeh (2002) defend project-based learning on the basis that it provides opportunities for children to learn about themselves in a group setting. The social interaction and feedback that children receive from their peers encourages them to enjoy learning and feel more comfortable and enthusiastic about learning. Students can incorporate interpersonal skills they develop as they participate in a project-based learning experience in all facets of their lives.

2.1.5 A Framework for Project-Based Learning

Teaching young children to become engaged in learning strategies that are both challenging and motivating is one of the positive outcomes of project-based learning. To keep children's minds engaged in an in-depth project, which can last for several days, requires planned activities and sustained effort rather than "spontaneous play" (Katz and Chard, 1989, p. 2).

A framework of project-based learning and teaching strategies could be constructed using Katz and Chard's (1989) philosophy which incorporates the students' environmental surroundings into the curriculum. The researchers suggest that by developing students' social competence, students can better understand their active participation in a project-based learning setting. An example of this idea would be a child who resides in a fishing village participating in a project that involves boats, fish, and fisheries (Katz and Chard, 1989, p. 3). This framework shares a similar concept to that discussed by Lave and Wenger (1991) in their theory of legitimate peripheral learning and to Rogoff (1990) and her theory of guided participation.

Two central elements of project-based learning are a child's ability to 1) set goals for him/herself and 2) become self-motivated to complete these goals. Middle school students in particular are metacognitively ready to set goals for themselves by independently monitoring and assessing their own learning and preparing themselves for tests by using a variety of study tools (Rafoth, 1999, pp. 19-20). In order to foster students' independent learning skills, it is critical for the middle school classroom teacher to be cognizant of a child's potential metacognitive skill capacity and to implement effective teaching strategies that enable a student to succeed academically and socially. These teaching strategies include the teacher's responsiveness to students' questions and activities and reinforcement of study skills throughout the curriculum (Rafoth, 1999, p. 21). With the implementation of effective instructional strategies and with the support of a teacher, students can become more motivated and confident to independently achieve academic success (Rafoth, 1999; Katz and Chard, 1989; Kessler, 2000; Dewey, 1938).

2.2 SELF-MOTIVATION IN PROJECT-BASED LEARNING

Giving students an opportunity to explore and develop their ideas in a supportive environment is instrumental in project-based learning. The nature of this type of environment encourages children to openly ask questions in an attempt to understand the meaning of curriculum topics and to associate content material with their own experiences. According to Caine, Caine, and McClintic (2002), almost all individuals have an internal drive to understand or construct personal meaning in response to the world around them, namely to participate in constructivist learning (p. 70). Caine et al. (2002) contend that in order for students to “tune in” to curriculum content and become motivated to learn, educators have to 1) address the students’ innate drive to ask questions and 2) engage their full attention. Their approach of guided experience in which the teacher facilitates their students’ in finding answers to their own questions about ideas that interest them is exemplified in students having a desire to learn more:

Because students tend to make sense of experience by focusing on what they care about, embedding our standards in these guided experiences naturally motivates students to ask questions that are personally important to them and that meet standards at the same time. As soon as students are looking for answers that matter to them, they can work with others and, with teacher guidance, use good questioning and critical thinking skills to identify and integrate the standards through their personal inquiries. (Caine, Caine, and McClintic, 2002, p. 70)

By including students’ experiences and interests in curriculum, a teacher creates a framework for a student to learn:

Internal motivation inspires innate drives within students and develops students’ behavior into taking more responsibility for their work as opposed to external motivators which rely on rewards and punishments and, in reality, impede students’ learning. (Erwin, 2003, p. 20)

Intrinsic motivation is more sustaining for students; with intrinsic motivation, learning becomes more effective. Through a three-year study about motivation and boredom with reluctant learners, Strong, Silver, Perini, and Tuculescu (2003) concluded that boredom is primarily caused by curriculum content that does not address the needs of students.

Kessler (2000) also emphasizes the importance of motivation in the lives of young people. According to Kessler, when young students have the opportunity to freely participate in class in an attempt to associate meaning with newly acquired knowledge, they draw inspiration from the experience and are motivated to stay engaged in their educational goals: “Not only motivation but the learning process itself relies on the student’s ability to make meaningful connections, to discover and create patterns of meaning” (p. 60). Kessler continues this thought about the students’ learning process by adding “without meaning in their lives, students’ motivation to learn is imperiled” (Kessler, 2000, p. 60).

Kessler (2000) further contends, “Many students today cannot focus, listen, or even feel the will to learn. Helping these students find their own motivation is increasingly important” (p. 60). To further address the necessity of guiding students toward their discovery of self-motivation, Kessler observes that it is critical for educators to ensure that the structure of the lesson plans and the mobility within the curriculum allow for questions and exploration. While the decision-making process of students demands the inclusion of the students’ background and experiences, students rarely receive tools to tap into what they want to learn in the classroom that they can then apply to their own lives (Kessler, 2000). Encouraging students to examine and share their strategies for academic success through classroom discussions provides potentially rewarding feedback for the students and the teacher. Kozminsky and Kozminsky’s (2003) three-year study in Beer-Sheva, Israel, which centered on the measurement of elementary students’

growth of motivation reflect the value of these classroom experiences. Through classroom discussions between the teacher and the students with the teacher as a “dialogue mediator,” students realized that their successes or failures are attributed more to effort than to ability (Kozminsky and Kozminsky, 2003, pp. 52-53).

Another important consideration in developing self-motivation through project-based learning is the acquisition of independent learning skills. These skills are a motivational factor in a child’s academic success. In conjunction with this idea, Ragozzino, Resnik, Utne-O’Brien, and Weissberg (2003) acknowledge the importance of a child’s social and emotional skills in a learning environment. They promote the concept of Social and Emotional Learning (SEL) which they define as “the capacity to recognize and manage emotions, solve problems effectively, and establish and maintain positive relationships with others” (Ragozzino et al., 2003). Ragozzino et al. (2003) have concluded that 1) social and emotional learning helps to create an environment that encourages students to collaborate with each other in problem-solving situations, and 2) a child’s social and emotional competence allows him/her to manage academic goals. When students utilize these learning concepts in the classroom, Ragozzino et al.(2003) contend that students are motivated to learn, that their academic achievement is “positively affected,” and:

1. They “manage their emotions that interfere with learning and concentration.”
2. They are self-motivated and persevere to complete their goals if setbacks prevail.
3. They “work cooperatively and effectively” in the classroom.
4. They are able to establish and complete academic goals. (p. 169)

When students are engaged in a project-based learning environment, therefore, they can become motivated to be active learners.

Like these researchers, John Dewey (1933) also believes that students are responsible for motivating themselves: “Since learning is something that the pupil has to do himself and for himself, the initiative lies with the learner” (p. 36). In creating motivation, Dewey emphasizes the teacher’s role as one of a facilitator who channels students’ energies and ambitions into a successful plan of studies. The teacher must be cognizant of the students’ personal needs by weaving them into each student’s academic plans (Dewey, 1933).

2.2.1 Self-Motivation and Self-Regulated Learning

Education today places an emphasis on students’ objective test scores. Subsequently, the manner of teaching reflects this demand. As Glasser (1990) observes, “Teachers are required to stuff students with fragments of measurable knowledge as if the students had no needs—almost as if they were things” (p. 22). Glasser (1990) further emphasizes how this affects the authenticity of the curriculum and the curriculum’s effects on the students:

To teach this way, they (teachers) emphasize facts and “right” answers, avoid controversy and discussion, give a great deal of homework, test frequently, and tailor what they teach to state testing programs. In doing so, they become much more impersonal than they would like and teach less of what their students want to learn than they feel is right. (p. 24)

Prensky (2001), who also questions the traditional, routine, linear method of teaching, defines this educational practice as “tell-test education.” He explains this prevailing concept in schools today:

Boiled down to its core, most of what is billed as training, school, and learning consists of being told information, via lectures or reading, and then taking a test to “measure” whether the information “went in...” Tell-test education is especially ineffective with today’s younger workers; it just bores them to tears. (Prensky, 2001, p. 71)

Prensky wonders why many teachers continue to implement this teaching method in their classrooms. While he notes that some teachers do attempt “to make the telling more interesting to their students,” Prensky (2001) argues that most of these attempts are haphazard and do not relate to the core of content material.

It has become apparent that more constructive, long-term, beneficial approaches to engage learners are required in education. Covington (1998) stresses that educational reform is necessary in order for students of all levels of academic achievement to develop the motivation to learn and to manage change.

To maintain students’ interest in curriculum content, teachers need to encourage their students to become self-motivated to study and to apply newly acquired information in their everyday lives as paramount goals in education. Rheinberg, Vollmeyer, and Rollett (as cited in Boekaerts, Pintrich, and Zeidner, 2000) note that despite some research regarding how motivation affects students’ learning process, more investigation into motivational effects on learning with regard to the task and the situation (p. 523) is essential. Rheinberg et al. (as cited in Boekaerts et al., 2000) specifically discuss the need to research students’ engagement and motivation in academic learning activities which are considered “unattractive” by students to determine how students can change these activities into positive learning activities (pp. 523-525). With regards to motivation, Wolters (2003) asserts that “self-regulated learners are thought to hold a collection of adaptive beliefs and attitudes that drive their willingness to engage in and persist at academic tasks” (p. 189). However, Wolters (2003) addresses an important concern

regarding teachers' expectancy of students' learning outcomes: typically, teachers expect students to understand concepts presented in class which they may consider "boring, repetitious, difficult, or unimportant"; then, teachers assign homework which could prove to be "even more difficult" (p. 202). Students are expected to control their interest in and achievement of the assignment. Considering this situation, Wolters (2003) raises the concern that students' self-regulated learning and achievement are affected by their "ability to actively influence their motivation to increase their choice, effort, and persistence at academic tasks" (p. 202). In his research, Wolters (2003) found that "there is some agreement in the literature that students may act to monitor and regulate their motivation or the processes responsible for their motivation and that this form of self-regulation can ultimately have an impact on their learning and achievement" (p. 190). Students need to become the determinants of exercising their motivation to work on and complete a task.

Zimmerman, Bandura, and Martinez-Pons (1992) have demonstrated that self-motivation is a contributing factor for the success of self-regulated learners concerned with setting and attaining goals for themselves. Their study used a sociocognitive model of self-regulated motivation and academic learning to test students' perception of their self-efficacy and the influence of self-efficacy on academic achievement. Teachers recognize self-regulated learners for their "proactive orientation and performance" and their ability to be self-motivated (Zimmerman et al., 1992, p. 664).

Gehlback and Roeser (2002) advise that middle school teachers "tend to be particularly concerned about the quality of students' motivation" (p. 40). Considering the transition from elementary school into a middle school setting, Eccles and Midgley (as cited in Gehlback and Roeser, 2002) note that students' motivation transfers from intrinsic to extrinsic motivation. The

decline in motivation as students shift from an elementary setting to a middle school setting has been assumed to be caused by physiological and psychological changes (Anderman and Midgley, 1998). However, Midgley (as cited in Anderman and Midgley, 1998) advises that the motivational changes that emerge when students enter middle school “depends on characteristics of the learning environment” (p. 1). She contends that students’ perceptions of their educational experiences influence their motivation more than the actual experience itself (Midgley, as cited in Anderman and Midgley, 1998, p. 1).

Teachers can stimulate and maintain students’ motivation to learn by: combining challenging tasks with activities that students regard as routine; creating class discussions that allow students to develop strategies to enhance a project; and developing students’ strengths in order to improve their skills of students they want to promote (Gehlback and Roeser, 2002). Empowering students with choices is another alternative to stimulating students’ motivation. Gehlback and Roeser (2002) advise “the more that students perceive autonomy, the more engaged they become in learning” (p. 42). Caine, Caine, and McClintic (2002) also comment that challenging classroom events are “a powerful way to guide students to explore a subject” (p. 70).

Schallert (2006) conducted a study to find a compelling classroom activity that engages students in the learning process. She focused on 549 sixth graders from two middle schools over a three-week time period to determine students’ attitudes toward science as a result of using a computer-enhanced problem-based learning environment. Schallert chose a problem-based learning environment for this study because she believed it gives students “more autonomy over their learning and more responsibility for their learning processes and outcomes thus placing more emphasis on students’ motivation and capability to complete learning tasks” (Schallert,

2006, p. 3). The study measured students' changes in science achievement, self-efficacy, and attitude from pre- to post-assessment. The results indicated an increase in science achievement $p < .001$ and a significant increase in students' self-efficacy scores $p < .001$ (pretest scores were above mid-point); there was no significant increase in pre-test and post-test scores in the attitude toward science scale (Schallert, 2006). Qualitative data provided more insight into students' attitudes toward science after students engaged in the computer-enhanced problem-based learning environment. Students mentioned that they liked science more and felt more confident in their ability to successfully learn science (Schallert, 2006).

Determining which academic tasks students seek for intrinsic motivation is perplexing. Caine, Caine, and McClintic (2002) recognize the dichotomy between that what the teacher intends the students to learn and what the students are interested in learning. In their concept of "Guided Experience," they observe that students "tend to make sense of experience by focusing on what they care about;" educators need to focus on these experiences so that students will be "naturally" motivated to pose questions that are relevant to them and relate to curriculum standards (p. 70). Students base their perceptions of their learning outcomes on whether they have a personal interest in an academic task; their interest will become their motivator.

Pajares (2006), who examined and explained his findings on self-efficacy in childhood and adolescence, comments: "...unless young people believe that their actions can produce the results they desire, they have little incentive to act or to persevere in the face of the difficulties that inevitably ensue" (p. 339).

Many scholars see the link between relevancies of materials and students' interest. John Dewey, for example, argues that the curriculum must be relevant to students. Successful application of knowledge can be perceived as students transfer and apply knowledge from the

curriculum to a problem in their world. Lambros (2002) notes that students become more involved in their studies when they enjoy discovering new information that is relevant in helping them resolve a problem; they are apt to work more diligently when they enjoy what they are studying (p. 5). Students also feel more confident and motivated about learning when they are engaged in problem-based learning situations (Lambros, 2002, p. 6).

The learning skills acquired by middle school students prepare them to succeed in the workforce both autonomously and in team settings (Zimmerman, Bandura, and Martinez-Ponz, 1992; Alderman, 1999). As a result of their participation in project-based learning experiences in middle school, students potentially 1) gain insight into identifying and gathering a variety of resources, 2) work with individuals who have mastered skills, 3) develop a perspective that incorporates team members' ideas, and 4) empower themselves to find solutions to problems.

2.3 PROJECT-BASED LEARNING TEACHING STRATEGIES

One important aspect of project-based learning, which is also a component in problem-based learning, involves the approach students utilize in their endeavors to identify a solution to a problem or to complete the goals of a project. Lambros (2002) believes the aim of utilizing a project-based learning method in the classroom is to focus on “multiple solutions rather than on correct answers;” project-based learning affords students the opportunity and freedom to become creatively successful in a way that traditional teaching methods do not give them (p. 6).

Eisner (1985) affirms most educational programs place the teacher who delivers precise instructional objectives in order to achieve specific end results in student performance at its center. To explain his point, Eisner (1985) compares the school setting and its focus on

behavior rather than experience with industry and the military and their long-standing traditional behavioral philosophies which value a systematic, efficient approach to instruction and management to produce a predicted behavioral outcome in personnel (p. 112). Instead of the rigidity of this behavioral approach in education, Eisner advocates a freedom in teaching practices that allows for unpredicted outcomes which can be beneficial.

Lambros and Eisner propose that the goal of educators must be to prepare students to become successful in the outside world through flexible, exploratory teaching practices. An integral part of this preparation lies in encouraging students to recognize what needs to be accomplished in tasks and independently to take the initiative to create goals for themselves.

2.4 THEORETICAL UNDERPINNINGS OF PROJECT-BASED LEARNING: SOCIAL INFLUENCES ON COGNITIVE DEVELOPMENT

Being part of the social world is in itself a learning experience. As children observe their environment and interact with others in their world, they learn in a social context. An educational setting can create opportunities for students to expand their knowledge base and to become culturally aware of how others help them formulate their behavior and practice newly acquired skills. This type of learning process best evolves when it is situated in the students' immediate community consisting of individuals with whom they are familiar. Dewey (1938), who believes children are "naturally sociable" and "want to contribute," emphasizes the importance of a sense of community in a school setting.

A dynamic middle school classroom environment, within which a project-based learning experience exists, provides opportunities for students to engage in discussion and share ideas.

Cooperative learning groups or teams that participate in project-based learning experiences draw the motivation and achievement levels of each group member, thereby leading toward the completion of an envisioned goal. Alderman (1999) concludes:

The social interactions influence motivation in a number of ways, both positive and negative. Social context has been found to influence classroom engagement, academic effort, and subsequent school success and failure at all levels of schooling. (p. 171)

The social context of a learning situation is significant (Alderman, 1999). In studying a competitive learning environment, Slavin (1995) notes the positive and motivational effect of students' who collaboratively work on curriculum projects as opposed to each student who works individually. In collaborative work, students encourage each other to succeed and reassure their peers' efforts (Slavin, 1995). This socialization of students within a classroom setting emerges as a critical element of a child's cognitive maturation. Vygotsky, in investigating cognitive development, conveys such a learning culture which promotes the development of each student's intellectual and social skills.

2.4.1 Vygotsky's Zone of Proximal Development

Project-based learning experiences afford students the opportunity to work either independently or with a group of students. As students interact with other students in a group setting, they are exposed to their group members' cultural experiences and perceptions. This interaction and exchange of knowledge within the group contributes to a student's overall perspective of a topic. This interaction also broadens a student's options for solving a problem as the student potentially

realizes that there is more than one way to approach the resolution of a problem or the completion of a desired goal (Vygotsky, 1962).

The idea that social interaction plays an important role in the cognitive development of a child inspired Vygotsky to research social learning; this evolved into his Theory of the Zone of Proximal Development. Vygotsky explains this concept by comparing all of the tasks that a child can complete independently with those activities that a child completes with the assistance of an adult. The adult could be a parent, a teacher, or a mentor who has already mastered a task and is essentially collaborating with the child to help him/her in a scaffolding process to attain a skill. Vygotsky stated that the child who receives the assistance from an adult is solving problems on a higher age level than the child who works independently. He is more concerned with the process of how a child constructs his/her thoughts in conjunction with an experienced, skilled individual than with the finished product that a child produces.

It is important to understand that in a social context, the adult or expert's metacognitive control in a learning situation is important in that he/she models the appropriate skill for a child. Subsequently, the child, cognizant of this modeled behavior, can develop control of the mental process necessary for the successful completion of a particular skill (Day, French, and Hall as cited in Forrest-Pressley, MacKinnon, and Waller, Eds., 1985). Day, French, and Hall (as cited in Forrest-Pressley et al., Eds., 1985) further share important observations regarding metacognitive activity in children:

Metacognitive activity is not always explicitly modeled for learners; the children who have passed the age at which they talk aloud to themselves during the course of problem solving may not give clear-cut evidence of engaging in metacognitive activity. However, even when the metacognitive activity is not directly modeled for the child, the social interactions that take place in learning environments often are conducive to the *induction* of metacognitive skills. (p. 50)

These authors explain that in a learning situation, the teacher models the “problem-solving process” whereby teachers pose questions to students to encourage metacognition. The purpose of these thought-provoking questions is to direct and organize the students’ learning activities. Day et al. (as cited in Forrest-Pressley, Eds., 1985) offer examples of questions that students might ask in a learning situation: “Does that look right?” and “What should we do next?” (p. 49).

Vygotsky confirms the benefits of utilizing the Theory of Zone of Proximal Development in classrooms. He (1962) sites that traditionally “schools favored the complex system of instruction, which was believed to be adapted to the child’s ways of thinking” (p. 104). This method of teaching is flawed since it only asks a child to complete problems that are “adapted to a child’s way of thinking” rather than encouraging the child to attempt to complete more challenging tasks with the assistance of an adult (Vygotsky, 1962). The latter method of teaching would encourage a child to do more and would raise expectations of him/herself rather than maintain a mediocre level of achievement.

When teachers allow for freedom in instructional practices as opposed to a destined outcome, they create an environment in which students are free to experiment and use their ideas in a creative manner. Eisner (1985) elaborates:

The means-ends model of thinking has for so long dominated our thinking that we have come to believe that not to have clearly defined purposes for our activities is to court irrationality or, at the least, to be professionally irresponsible. Yet, life in classrooms, like that outside them, is seldom neat or linear. Although it may be a shock to some, goals are not always clear. Purposes are not always precise, as a matter of fact, there is much that we do, and need to do, without a clear sense of what the objective is. Many of our most productive activities take the form of exploration or play. In such activities, the task is not of arriving at a performed objective but rather to act, often with a sense of abandon, wonder, curiosity. Out of such activity rules may be formed and objectives may be created. (p. 116)

Social and cognitive interaction encourages students to explore their ideas and generate collaborative feedback. Instructional time for students to engage in this creative exploration fosters inquiry-based thinking skills and challenges students to think about how they are learning.

2.4.1.1 Vygotsky's Study of Concept Formation

In order to understand the process of how children grasp concepts and attempt to use these concepts in a constructive manner, Vygotsky explored how children correlate newly acquired concepts through familiar images, especially with reference to a child's familiarity with certain words. Vygotsky (1962) notes that a child establishes an understanding with adults through words long before he/she fully develops his/her thought (p. 55). This study of concept formation is pertinent in the study of project-based learning as Vygotsky is showing how children attempt even at an early age to organize their behavior in their activities. Vygotsky (1962) explains his perception of concept formation:

A child is able to grasp a problem, and to visualize the goal it sets, at an early stage in his development; because the tasks of understanding and communication are essentially similar for the child and the adult, the child develops functional equivalents of concepts at an extremely early age, but the forms of thought that he uses in dealing with these tasks differ profoundly from the adult's in their composition, structure, and mode of operation. The main question about the process of concept formation--or about any goal-directed activity--is the question of the means by which the operation is accomplished. (pp. 55-56)

Students develop conceptual thinking within a social milieu and through the challenge of completing a task (Vygotsky, 1962). This concept is particularly significant in adolescents as they confront new academic tasks which encourage them to explore and develop innovative

strategies to solve problems. Project-based learned experiences, in which students devise ways to achieve their goals, exemplify this process.

Marxian philosophies direct Vygotsky's study of sociocultural theory. The Marxist foundation proposes that "in order to understand the individual, one must first understand the social relations in which the individual exists" (Wertsch, 1985). Wertsch defines Vygotsky's primary concern of study with social processes as "interpsychological" (Wertsch, 1985). He (1985) further explains: "...interpsychological processes involve small groups (frequently dyads) of individuals engaged in concrete social interaction and are explainable in terms of small-group dynamics and communicative practices" (p. 60).

Vygotsky created a conscious awareness of the connection between the function of interpsychological and intrapsychological processes both on the individual and group level. Wertsch (1960) notes that Vygotsky (1960) stressed the importance of the relation between these two processes: "...we shall place this transition from a social influence outside the individual to a social influence within the individual at the center of our research and try to elucidate the most important moments from which it arises" (p. 61).

In his theory, Vygotsky shows a concern with how individuals respond to environmental stimuli and they internalize these experiences. Diaz, Neal, and Amaya-Williams (as cited in Moll, Ed.,1990) further explain this concern by noting that the "major premise of Vygotsky's development theory is that the transformation of basic biological processes into higher psychological functions occurs with the child's social interactions and through the use of culturally determined tools and symbols" (p. 127). In Vygotsky's Theory of the Zone of Proximal Development, it is understood that with the assistance of an adult, peer, or artifact, the cognitive development of a child can progress.

2.4.2 John Flavell and Metacognition

As students engage in problem-solving skills within project-based learning, they also learn to think about what they are actually doing in their activities. This process of “thinking about thinking” is called metacognition (Flavell, Miller, and Miller, 2002, p. 164).

Flavell, Miller, and Miller (2002) believe that metacognition is a type of knowledge that is gradually acquired, “domain-specific,” and a “tool of wide application” since it can be utilized for solving many different kinds of problems. Metacognition is particularly important in the field of education where children engage in problem-solving skills and can double-check their process of completing a task and their end-product (Flavell et al., 2002). Flavell et al. (2002) comments that a “good teacher” has many ways to successfully instruct students on how to double-check their cognitive procedures simply by encouraging a student’s own active participation in this process (p. 167). It is important for students to follow-through with this process in their journey of education. Flavell et al. (2002) note that in conjunction with problem-solving, children often rely on the “game of thinking” to learn and apply newly acquired information. In essence, they acquire learning behaviors in “how things are supposed to go” and, subsequently, build on these methods throughout their educational career especially in problem-solving situations (p. 167).

Flavell et al. (2002) observe that as children engage in tasks or activities that require a solution, they use a cognitive process to achieve a solution that is similar to “achieving (scoring) goals in cognitive games” (p. 168). They note that children will assess how well they handled the situation and whether they can use a similar method to solve the current problem they encounter. Flavell et al. (2002) add: “One is not playing by the rules of the cognitive game if

one just picks an answer or solution at random, reasons illogically, ignores crucial evidence, tolerates contradictions or inconsistencies, and so on” (p. 168).

Although older children, adolescents, and adults engage in “higher quality cognitive play” in this “cognitive game,” Flavell et al. observe that the quality of play is often not very high (2002, p. 168). Children do not have to participate in the thinking game of solving problems by themselves; instead, they can receive “social support” from older, more experienced children and adults. How Barbara Rogoff explains this through her theory of guided participation and how Jean Lave and Etienne Wenger develop their theory of legitimate peripheral learning will be explained later. Flavell et al. (2002) also indicate that social support is evident as younger children attempt problem-solving tasks:

The constant across cultures is that adults and older children teach younger ones how to solve problems; what varies is how they do it and what cultural values are being transmitted in the process. For example, encouraging children to learn by watching others implies that this is how one should learn to solve problems and that the community is an important source for this problem solving... (p. 169)

Flavell et al. (2002) believe that metacognition exhibits an important component in such cognitive activities as oral communication of information, oral persuasion, oral comprehension, reading comprehension, writing, language acquisition, perception, attention, memory, logical reasoning, social cognition, and various forms of self-instruction and self-control (p. 164). Flavell et al. (2002) further explain metacognition as “metacognitive knowledge and to metacognitive monitoring and self-regulation” (p. 164).

Flavell et al. (2002) categorize metacognition into three subdivisions. These include an individual’s knowledge about 1) persons, 2) tasks, and 3) strategies. They explore how individuals sort the information they receive then use this information. Strategy use is

particularly important in project-based learning as it relates to students' determining "what means or strategies are likely to succeed in achieving particular cognitive goals, for instance, in comprehending, remembering or solving a problem" (Flavell et al., 2002, pp. 164-165). Flavell et al. (2002) observe that when children have metacognitive control of their problem-solving abilities, they realize how well they can effectively achieve solutions and goals in their everyday lives.

2.4.3 The Importance of Reflective Thinking in Schools

According to Schunk and Zimmerman (1998), "self-reflective practice is a critical component of self-regulated learning, but to date minimal efforts have been made to integrate it systematically with interventions" (p. 230). They recommend that students have the opportunity to contemplate concepts presented to them in class. Reflective thinking affords students the time to prioritize their goals, make a connection between concrete and abstract concepts, initiate plans or goals, and explore ways to attain these goals. Reflective thought is a deliberate way for individuals to have an outlook on how they are going to purposely attain results (Dewey, 1933). Dewey (1933) fashions the "values of thinking" in three ways:

Action with a Conscious Aim – reflective thinking "converts action that is merely appetitive, blind, and impulsive into intelligent action."

Systemic Preparations and Inventions – reflective thinking prepares individuals for events that may occur based on prior experiences—to protect themselves from unfavorable situations or outcomes.

Enriching Things with Meanings – reflective thinking allows individuals to recognize and attribute meanings to things in our environment. (pp. 19-20)

Dewey's last reflective concept plays a significant role in helping students understand their approach to achieving self-efficacy in a project-based learning experience. Students' interpretation of how they construct meaning of concepts is critical in the process of completing set goals in the project.

Dewey (1933) identifies three attitudes or character traits that are instrumental in the process of reflective thinking: open-mindedness, whole-heartedness, and responsibility. He particularly emphasizes the importance of whole-heartedness. For example, the student who becomes disinterested in a subject may pretend to pay attention to the instructor, but in reality is more concerned with his/her own, more interesting thoughts. This situation illustrates how he/she is becoming intellectually stimulated in the classroom. As Dewey (1933) states, creating a stimulating learning environment potentially engages students:

He feels obliged to study because he has to recite, to pass an examination, to make a grade, or because he wishes to please his teacher or his parents. But the material does not hold him by its own power. His approach is not straightforward and single-minded. This point may in some cases seem trivial. But in others it may be very serious. It then contributes to the formation of a general habit that is most unfavorable to good thinking. (p. 31)

Dewey (1933) stresses the importance of this attitude in curriculum: "When a person is absorbed, the subject carries him on" (p. 31). When a teacher effectively nurtures this attitude, it can be the springboard for other behaviors. Students are motivated to ask questions, become more involved in an inquiry process, and become engrossed in the subject (Dewey, 1933). This self-reflective process encourages students to engage in deeper thinking about their academic work.

Self-reflection in a project-based learning experience affords students the opportunity to frame the task of creating a product and determining how they can best use their previous

learning experiences and resources to construct an action plan to achieve their goals. Self-reflection is vital in the learning process as students assess and determine which strategies will produce successful results and help them accomplish their goals.

Researchers today are interested in how children use their resources in problem-solving situations. Although peers often provide an effective resource in a problem-solving situation, the “social dynamics” of the situation change when one peer or the expert is older (Flavell et al., 2002). Taking into consideration all of the resources children can utilize in a problem-solving situation, Flavell et al. (2002) comment:

They (the resources) increase the chances that children actually will access and use their existing knowledge and skill to solve problems. In fact much of development seems to involve learning to use what you already have, rather than acquiring new “haves.” (p. 169)

Flavell et al., as well as other researchers, are investigating how socialization with others affects the individual’s problem-solving capabilities. Flavell, Miller, and Miller’s (2002) definition of social cognition positions an individual’s thinking and knowledge about him/herself within the arena of social relations among people. Lave and Wenger examine similar ideas involving how individuals learn in a social context.

2.4.4 Situated Learning Theory of Jean Lave and Etienne Wenger

Researchers often question what kind of classroom environment can foster a sense of belonging and a desire to share an understanding of educational concepts. Lave and Wenger’s (1991) Theory of Legitimate Peripheral Participation encompasses the idea that learners acquire knowledge by participating in communities of practice. They learn “sociocultural practices of a community” and participate as “newcomers” with individuals who have mastered skills that they

ultimately transferred to a new generation. Lave and Wenger (1991), after reexamining the concept of apprenticeship, have utilized theories of practice to formulate their definition of legitimate peripheral participation.

2.4.4.1 Legitimate Peripheral Participation Theory

Lave and Wenger consider learning a participatory process, not an individual one. They contend that learning is a “situated activity and has as its central defining characteristic a process that is called legitimate peripheral participation.” This process occurs when learners become part of a community composed of both young and old learners (Lave and Wenger, 1991). All members of the community share their backgrounds, experiences, cultures, practices, and knowledge. Social process occurs when a “newcomer” in a community acquires information. Through their observations on craft apprenticeships in various countries, Lave and Wenger have reevaluated the relationship “between the ‘apprenticeship’ of speculation and historical forms of apprenticeship” (Lave and Wenger, 1991). This observation led to the evolution of their theoretical framework for understanding education and specific historical situations involving apprenticeship. The evolution then created their intense exploration of situated learning and, ultimately, the revision of their theories associated with this sociocultural concept. As a result, Lave and Wenger advocate that “learning is an integral and inseparable aspect of social practice” through the concept of legitimate peripheral participation (Lave and Wenger, 1991).

Peripherality encompasses a variety of means by which an individual can become involved in his/her community. Lave and Wenger caution that newcomers in a community only partially participate in their learning environment. Partial participation does not denote disassociation from a community; it is still considered an avenue, a way of understanding cognitive and social growth (Lave and Wenger, 1991).

Wenger (1998) further proposes a framework that defines learning as a collaborative effort involving social participation. This framework not only incorporates social interaction on a one-to-one basis but also uses “on-line web communities” as well. Individuals are part of a community that exchanges ideas and maintains a sense of social interaction.

Through their theory of legitimate peripheral participation, Lave and Wenger have constructed a “framework for bringing together theories of situated activity and theories about the production and reproduction of the social order” (Lave and Wenger, 1991). They assert that learning as participation in a social sense is a continual process. Many factors influence this theory of social practice: an individual learning in relation to other persons in his/her environment; an individual learning to others in his/her world; and the changing activities in a community (Lave and Wenger, 1991).

2.4.4.2 Legitimate Peripheral Participation

Lave and Wenger (1991) view the learner as entering a community with a multitude of opportunities to develop a perspective of the “whole enterprise,” to question practices, and to formulate his/her way of learning as opposed to following a set pattern of practices. As a “newcomer” becomes an established member of a community, he/she reconstructs traditional practices and methods of learning. With the facilitation of traditional practices and methods, the newcomer is transformed by such patterns of social behavior as the language and tools in a particular community. Hence, a community’s practices and methods are continually evolving. This ongoing process of sharing knowledge involves both the teacher and the student. The Theory of Legitimate Peripheral Participation, or one of centripetal participation, embraces the practice of active interaction in an ever-changing world. Lave and Wenger (1991) describe the learner’s peripherality and the practices of a community over an extended time period:

...who is involved; what they do; what everyday life is like; how masters talk, walk, work, and generally conduct their lives; how people who are not part of the community of practice interact with it; what other learners are doing; and what learners need to learn to become full practitioners. It includes an increasing understanding of how, when and about what old-timers collaborate, collude, and collide, and what they enjoy, dislike, respect, and admire. In particular, it offers exemplars (which are grounds and motivation for learning activity), including masters, finished products, and more advanced apprentices in the process of becoming full practitioners. (pp. 100-101)

This description suggests that the incorporation of mentors within a project-based learning experience can potentially enhance the students' understanding of content. For example, to broaden the students' comprehension of historical perspectives and practices of the historical community, teachers can invite guest speakers such as living historians into the classroom to share their expertise with students. The social interaction creates a learning environment that potentially engages students in discussions in which various points of views are exchanged.

2.4.4.3 Legitimate Peripheral Participation in a Structured School Setting

Lave and Wenger (1991) argue that "legitimate peripheral participation is still the core of the learning that takes place in school considering all of the 'requirements' imposed on teaching" (p. 97). They also divide learning in a school setting into two classifications: a learning curriculum and a teaching curriculum. Teachers aware of these concepts and categories need to ask, "What links students to the learning community?" To establish effective, engaging teaching practices, teachers must first understand how students interpret content and then relate their understanding to students' experiences and interests. In this way, learning emerges as a truly reciprocal process rather than a linear process.

Lave and Wenger elaborate on a learning curriculum that involves a sense of community. As learners participate in a community, they become familiar with different individuals' viewpoints and how individuals interpret their participation in a community. Caine,

Caine, and McClintic (2002) propose that a teacher should develop a sense of community within a classroom encouraging reflection, group collaborations, and student decision-making (p. 72). In addition, teachers need to be willing to release some of their control in the classroom to make this type of community possible. Caine, Caine, and McClintic (2002) note that change in teacher attitude establishes “a climate of mutual respect and responsibility” (p. 72).

The term “community” is an integral element in the Theory of Legitimate Peripheral Participation. Lave and Wenger include this concept in their theory since the social structure of any community enables an individual to learn. Lave and Wenger (1991) describe learning supported by members of the community:

A community of practice is a set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice. A community of practice is an intrinsic condition for the existence of knowledge, not least because it provides the interpretive support necessary for making sense of its heritage. Thus, participation in the cultural practice in which any knowledge exists is an epistemological principal of learning. (p. 98).

It is important for a learner to acquire knowledge peripherally rather than through the recitation of transmitted ideas from other individuals. Lave and Wenger (1991) emphasize this belief in their commentary of a typical, traditional school setting in contrast to their preferred method of instruction: “...rather than learning by replicating the performances of others or by acquiring knowledge transmitted in instruction, we suggest that learning occurs through centripetal participation in the learning curriculum of the ambient community” (p. 35).

An examination of a school setting in relation to legitimate peripheral learning considers students as participants in a community of practice within a classroom. The cohesive social interaction and exchange of ideas that takes place among students contributes to the students’

understanding of how learning is generated, how ideas emerge, and how they identify with a common goal, for instance, a task to be accomplished in project-based learning.

Lave and Wenger (1991) have identified the following factors that contribute to an individual gaining access to a particular community: interaction with old-timers in the community, continuing activity, various resources, and opportunities for participation.

Penuel, Korbak, Cole, and Jump (1999) studied the implementation of a collaborative classroom community in project-based learning. Their study with fourth and fifth graders was part of an initiative called Challenge 2000 Multimedia Project, funded through a Department of Education Technology Innovation Challenge Grant. By incorporating Wenger's (1998) concept of the three modes of belonging (engagement, imagination, and alignment) to a community of practice, students collaborated with their peers using multimedia in a project. The outcome of the study provided insight into how students became more engaged in the classroom as the project progressed; how they developed their identities in relation to others; how they maintained student relationships; how peer recognized their ideas through the process of collaboration (Penuel et al., 1999, p. 449).

It is imperative for a teacher to create a strong concept of community within the classroom, to be aware of students' maturity levels, and to develop an environment of mutual respect (Caine, Caine, and McClintic, 2002). In order for students to feel a part of a community in a classroom, it is also essential for the teacher to encourage student self-reflection, student participation in group work, and student freedom to make decisions in the classroom (Caine, Caine, and McClintic, 2002).

Tomlinson (2002) concurs with the importance of a sense of community as it occurs in a classroom, "Many students come to school looking for a way to contribute to their world" (p. 8).

In order for children to be welcome and feel like they are contributing significant ideas to their class, they should have the opportunity to become a contributor or member of the classroom community. Tomlinson (2002) further explains the importance of this concept:

A child needs to feel that:
I make a difference in this place.
I bring unique and valuable perspectives and abilities to this place.
I help other students and the entire class to succeed.
I am connected to others through mutual work on common goals (p. 8).

Communicating ideas with each other encourages students to deepen their understanding of how they can solve problems through different approaches among their learning community.

2.4.4.4 The Use of Artifacts in the Community

Through active participation in a community, learners also have the opportunity to utilize artifacts. Artifacts corresponding to a specific community practice have significance since they represent tools that have been used over a period of time. Lave and Wenger (1991) contend that artifacts, as a window to the past, help learners understand how individuals used the tools in the past; it facilitates their understanding of the culture in which the tools were used (p. 103).

Because the use of artifacts as they correspond to a practice may not appear obvious to a learner, Lave and Wenger refer to this situation as being “transparent” to a learner (Lave and Wenger, 1991). The concept of transparency incorporates two characteristics: invisibility and visibility. Lave and Wenger define invisibility in the form of unproblematic interpretation and integration into activity and visibility in the form of extended access to information (Lave and Wenger, 1991). These two characteristics constantly interact with one another to create “conflict and synergy” in a learning process. Lave and Wenger (1991) further elucidate this process: “This interplay of conflict and synergy is central to all aspects of learning in practice: It makes

the design of supportive artifacts a matter of providing a good balance between these two interacting requirements” (p. 103).

Social studies lessons exemplify the characteristics of artifacts. As students venture into the past, they become acquainted with how individuals learned, worked, and survived in a particular culture. Essentially, students get a glimpse of how past individuals shared practices within a community. Not only do students learn through textbooks, but they also acquire a sense of how individuals participated in their communities through artifacts. Artifacts provide historical tangibles that show the link between an individual and a particular organization and community and the significance of that connection to the individual in a specific time period. In this way, artifacts are essentially comparable to the manipulatives found in other academic discipline curricula such as math or science.

In a project-based learning experience, artifacts have the potential to bridge the students’ understanding of complex concepts with the students’ ability to engage in constructive conversations about their work.

2.4.4.5 Control and Selection in the Community

Lave and Wenger (1991) observe that access to a community of practice is controlled; for “apprentices” or newcomers, “legitimate peripherality can either promote or prevent legitimate participation” (p. 103). They elaborate this concept by illustrating a butcher apprentice who participates in trade school activities, on-the-job training, and an apprentice job with confined activities all of which fall short of providing a peripheral learning experience for the newcomer in the community. This apprenticeship exemplifies the idea that a community can welcome newcomers and their participation, but still not give them access to legitimate peripherality. Lave and Wenger illustrate that learners in a school, like newcomers, may be asked to become

members of a school community with access to legitimate peripherality but not to legitimate participation. Lave and Wenger (1991) observe that a student can be “kept from participation in the social world more generally.”

A project-based learning experience transforms students from passive recipients of knowledge into active participants in their learning process. In a social studies class, for example, the teacher can encourage active participation by implementing a variety of innovative teaching strategies that simulate historical events and practices.

2.4.5 Guided Participation Theory of Barbara Rogoff

Similar to an apprentice, a child models his/her behaviors after a more experienced individual. Barbara Rogoff (1990) has developed the concept of guided participation which encompasses the idea of children acquiring knowledge in a sociocultural context and being guided by their peers or individuals older than themselves. Rogoff focuses on an individual’s achievement in a social context. In order to understand the cognitive growth of a child, Rogoff (1990) believes the following must be taken into consideration: a child’s method of organization; how other individuals organize tasks and activities for a child; how other individuals support a child in a learning experience; and the sociocultural context of a learning experience such as a school and its associated methods of instruction and “goals of cognitive activities” (p. 39). The process of a child using a more experienced individual’s assistance to complete a task or activity or solve a problem is considered an apprenticeship. The careful examination and understanding of how novice learners acquire knowledge from those individuals who have mastered skills in a new situation is the basis for Rogoff’s behavioral concept of guided participation. To support this idea of cognitive development, Rogoff (1990) states:

I develop the concept of *guided participation* to suggest that both guidance and participation in culturally valued activities are essential to children's apprenticeship in thinking. Guidance may be tacit or explicit, and participation may vary in the extent to which children or caregivers are responsible for its arrangement. (p. 8)

Children in a learning situation attempting to complete a task or activity take their cues or direction from an individual more practiced and skillful in guiding their activities. Rogoff (1990) explains this behavior as follows:

Guided participation involves children and their caregivers and companions in the collaborative processes of (1) building bridges from children's present understanding and skills to reach new understanding and skills, and (2) arranging and structuring children's responsibilities. Children use social resources for guidance--both support and challenge--in assuming increasingly skilled roles in the activities of their community. (p. 8)

Rogoff (1990) refers to a recent trend in recognizing cognition in terms of how the process "may differ according to the domain of thinking and the specifics of the task context" (p. 6). In concurrence with this belief, how a child processes information or solves a problem in a particular social context concerns Rogoff. In addition, she emphasizes the "goal of the activity and its interpersonal and sociocultural context." Rogoff, in considering an approach to understanding cognition and context, states the following: "The purpose of thinking is to act effectively; activities are goal directed (tacitly or explicitly), with social and cultural definition of goals and means of handling problems" (Rogoff, 1990, p. 6). Rogoff's concepts can be applied to the problem-solving concepts associated with project-based learning.

The philosophies of Lave and Wenger, and Rogoff have similarities in terms of how an individual learns within a community of individuals. All three examined the influence of individuals who have mastered skills and now transmit these skills to another generation of

learners. Rogoff (1990) specifically identifies the child's acquisition of knowledge and skills in her concept of guided participation in a culture:

This book (*Apprenticeship in Thinking*) considers children as apprentices in thinking, active in their efforts to learn from observing and participating with peers and more skilled members of their society, developing skills to handle culturally defined problems with available tools, and building from these givens to construct new solutions within the context of sociocultural activity. (p. 7)

Rogoff has created a “framework” that defines the social aspects of cognitive development within a culture. Her theory of guided participation, along with Lave and Wenger's theory of legitimate peripheral participation, illustrate the realization that a child's environment serves as the stage where a child observes, learns, crafts, and employs newly acquired knowledge. Such an environment views students as active participants in their own learning. These theories epitomize the concepts underlying project-based learning. Students engaged in authentic, inquiry-based learning benefit from the opportunity to manage their own learning activities.

2.4.6 The Concept of Selfhood – William Heard Kilpatrick

Scholars attribute William Heard Kilpatrick, an avid follower and implementer of John Dewey's educational philosophies, with the concept of project-based learning. Kilpatrick's (1941) sociocognitive theory resembles Lave and Wenger's Theory of Legitimate Peripheral Participation and Rogoff's Theory of Guided Participation. Kilpatrick refers to the process of maturation and character development of a child that occurs in a social context as “selfhood” (Kilpatrick, 1941, 1951).

Kilpatrick's (1941) sociocognitive perspective is a community-oriented one in which "members of the social community" help a child recognize the cultural value of both play and work. Each member of a child's community progressively contributes to the child's selfhood. This is accomplished by more skilled, experienced members of the community helping the child use "conditions" in his/her environment to facilitate the child's understanding of various situations that occur in life and his/her capability to make decisions. Kilpatrick defines the whole process of selfhood as somewhat of an exchange: the "surrounding culture" contributes a part of itself to the character/personality development of a child; at the same time, the child contributes a unique part of him/herself to the culture through his/her personal talents and skills. This exchange may be perceived as the process in which the teacher and students share ownership of a curriculum.

2.4.6.1 Creating an Environment Conducive to Learning

As a child grows older, the importance of creating a classroom environment conducive to satisfying his/her physical and psychological needs is paramount. Glasser, in accordance with his description of the psychological need for power, expresses a concern with traditional educational systems that render children powerless. A more positive approach provides a caring classroom environment which a child can achieve success through his/her own empowerment.

Glasser (1990) explains:

The idea that young children should not be failed and instead be given many chances to succeed and told that if they keep trying, they will eventually learn is an empowering and motivating concept...In a school without failure, most children keep this vital learning picture in their heads. (p. 67)

A key factor within Glasser's Learning Team Model (1988) is satisfying students' needs through relevant content in a curriculum. Nothing can be more frustrating to students than

memorizing facts and material that becomes useless once they leave the classroom. Students perceive the discussion of information that is applicable to the outside world as more relevant. The student can “make the connection” to what they are learning inside the classroom to their everyday lives. The actual application of knowledge to a given problem in a learning-team model is more needs-satisfying and empowering students than traditional teaching techniques in which students are learning and being evaluated independently. Glasser built his Learning Team Model upon the concept of students working cooperatively in groups. This learning approach has the potential to be a more positive one that empowers students and maintains their interest in the content of the curriculum.

Glasser notes that when he returned in 1984 to work with middle school teachers to introduce them to the learning team model, he realized the superficiality of the assignments students must complete for academic subjects. In his observations, he states:

What seems to be missing is long-term assignments that build on the work of the previous day and increase in depth and involvement over a period of a week. Except for the rare individual, like a Thomas Edison or Albert Einstein, who is capable of proceeding on his own depth, most of us, if we want to get beneath the surface of things, depend on others to go with us. (Glasser, 1998, p. 77)

In order to remedy this situation, Glasser suggests giving students the opportunity to participate in more long-term, in-depth projects that will enable them to realize the connection between knowledge and power. Glasser also comments that working in groups or teams creates a learning environment conducive to exchanging information and sharing in the excitement of discovering something new. Glasser (1998) expresses the idea of fellowship in learning: “We are social creatures, but we find it hard to do it alone” (p. 77).

Embedded in project-based learning is the student’s ability to create a project by contributing his/her experiences to the process. Dewey’s theory of student-centered curriculum

and assimilation are key ingredients to this process. The teacher must be receptive to students' ideas and past experiences as they relate to content material; the teacher must allow students to share their experiences among classmates. Dewey emphasizes that this prior experience is a person's way of organizing his/her thoughts and comprehension of concepts. Through this process, an individual constructs meaning for him/herself.

2.5 ENGAGING STUDENTS IN THE CURRICULUM

Glasser asserts that students will learn if they find the curriculum meaningful, interesting, and satisfying. If the learning environment lacks these elements, it struggles to keep students engaged in a learning activity. A relevant curriculum both motivates and empowers students (Glasser, 1998, p. 67).

While Glasser's philosophy embraces satisfying students' needs through a relevant curriculum, Tomlinson (2002) focuses on motivation. She suggests that some students complete their schoolwork due to an "intellectual compliance and a hunger for stars and A's," while others complete schoolwork to fulfill an "insatiable desire to learn" (Tomlinson, p. 7). Her concept of Invitational Learning resembles Glasser's Choice Theory as it addresses five students' needs that make learning "inviting": affirmation, contribution, purpose, power, and challenge.

Retaining students' interests in curriculum is a challenge; therefore, curriculum design must reflect the students' needs and address the students' curiosity to learn. Strong, Silver, Perini, and Tuculescu (2003) have devised four "natural human interests" that are the basis for determining the relevancy of curriculum that reduce boredom among students:

1. The drive toward mastery: Students have a desire to master skills among their peers. Almost 30% of the students in Strong et al., studies admit that lack of clear direction or anxiety contributed to their feelings of incompetence and inability to succeed.
2. The drive to understand: The curriculum should “spark a sense of wonder.”
3. The drive toward self-expression: Students should have a choice of projects and someone to guide them into making good choices; someone should model strategies for students that help them “identify, define and shape their own purposes and projects”; and samples of similar work should be available to students to study and there should be time for students to discuss their work and any problems they are encountering.
4. The drive toward the need to relate: Everyone shares a need to interact with others and students should have the opportunity to express and share their work with their peers and others. (pp. 25-28).

When a curriculum incorporates these four drives, students will approach learning with new enthusiasm. In his work with students completing research, Kain (2003) found that students actually enjoyed research when they were given the opportunity to use their research in a problem-solving situation.

Dewey (1938) reinforces the idea that a child’s educational experience must be worthwhile. By connecting with the curriculum to create a positive experience, students turn their future learning opportunities into satisfying ones.

The socialization process a child experiences within the school is an integral factor in engaging a child to learn. Dewey (1900) states:

From the standpoint of the child, the great waste in the school comes from his inability to utilize the experiences he gets outside the school in any complete and free way within the school itself; while, on the other hand, he is unable to apply in daily life what he is learning at school. That is the isolation of the school--its isolation from life. When the child gets into the schoolroom he has to put out of his mind a large part of the ideas, interest, and activities that predominate in his home and neighborhood. So the school, being unable to utilize this everyday experience, sets painfully to work, on another track and by a variety of means, to arouse in the child an interest in school studies. (p. 67)

A pivotal improvement to existing curriculum occurs when students' interests and choices are incorporated. The expected outcome is that students will gain confidence in their decisions and become intrinsically motivated to involve themselves in learning. The more learning absorbs students, the more they will enjoy the learning process and experience "flow" (Csikszentmihalyi, 2002).

2.5.1 Developing "Flow" in Students' Learning

In an ongoing study with students across the nation in grades 6, 8, 10 and 12, Csikszentmihalyi (2002) identified ways in which students can be involved in "engaging and challenging activities" that will assist them in becoming "productive adults." Through interviews conducted at various times of the day, students indicated that 10 percent of their time, "what they were doing was like both work and play;" Csikszentmihalyi sees this as the ideal situation (p. 13). This study also notes that interviews reflected that students perceived participation in extracurricular activities as both work and play since they had the opportunity to choose what interested them in these activities. An example of an extracurricular activity in this study is student participation in a school newspaper in which students are "doing something fun, but at the same time they are doing work to adult specifications" (Csikszentmihalyi, 2002, p. 14).

Csikszentmihalyi (2002) asserts that this situation typifies his philosophy: “When you have a close match between a high level of challenge and the skills you need to meet the challenge,” a “spontaneous, effortless experience” is created which he terms “flow.” This type of situation is ideal when a close fit occurs between a student and his/her curriculum. Csikszentmihalyi (2002) elaborates on the relevance of curriculum to students and how “flow” can occur in an educational setting:

Flow happens when a person is completely involved in the task, is concentrating very deeply, and knows moment by moment what the next steps should be... You have a goal and you are getting feedback. The experience is almost addictive and very rewarding. (p. 14)

Glasser’s Positive Addiction Theory (1976) also advocates seeking fulfillment from a positive learning experience. When students derive pleasure from learning and perceive learning as an engaging experience that motivates them to continue to continue to learn, their intellectual growth is limitless (Glasser, 1976, p. 68). Those students “addicted” to the fun of learning are not repulsed by the hard work; instead, they thrive under the challenge of the work itself. An educational experience that provides the opportunity for students to become engaged in seeking creative, individualized approaches to their own learning is one that offers students the possibility that they may become “positively addicted” to the learning itself. For students to engage in positive addiction is, in actuality, allowing students to seek creative, individualized approaches to learning. Project-based learning potentially offers students this type of educational experience.

Similar to Glasser’s Positive Addiction Theory (1976), Atman (1987) discusses positive energy demands associated with striving in the Taxonomy of the Conative Domain. Conation is defined as “vectored energy i.e., personal energy that has both direction and magnitude” that can be directed toward goal accomplishment (Atman, 1987). Transcendence is the fifth stage of the

conative process in which an individual “immerses him/herself in the task in such a manner that the mind/body/task become one” (Atman, 1987). In a learning situation, students can become drawn into a task by the energy that the activity itself generates.

Csikszentmihalyi (2002) notes that young children are “in flow” most of the time since they have the freedom to choose an activity to match their skill level. However, this scenario changes once they enter school; they become passive since they do not have options to choose their goals and “they can’t choose the level at which they operate” (Csikszentmihalyi, 2002, p. 4). The challenge, then, is to discover how to engage students in the flow of educational activities. Csikszentmihalyi (2002) advises that teachers and schools need to create relevant, educational experiences for students to connect their learning to the outside world. He strongly advocates that teachers reexamine their teaching practices and determine the relevancy of the curriculum for their students:

The role of the teacher would then be to find the material that would allow the student to explore his or her curiosity...Once the students are hooked on their interest, the teacher should be the gatekeeper to the enormous richness of information in the world. The role of the teacher is not to convey the same content to a captive audience, which becomes almost immediately aversive to most children. (Csikszentmihalyi, 2002, p. 15)

In addition to the teacher’s role in facilitating students to explore their curiosities, Csikszentmihalyi suggests that students reflect on their activities both inside and outside of school through a personal journal. This enables students to understand which activities in their lives most interest them. It will be discussed later how the project-based learning experience in this study incorporated students’ interests and choices to establish a “rhythm” or “flow” in the project’s activities.

Teachers need to incorporate challenging and relevant project work into their curriculum. They need to reflect closely on their teaching practices and constantly ask themselves whether they are effectively including their students' interests into the curriculum.

2.6 STUDENTS' VOICES IN CURRICULUM CONTENT

A project-based learning experience affords students the opportunity to choose curriculum content. The process of curricular decision-making is a method of developing autonomous learning for students which empowers them in a number of ways. The process motivates them to learn and gives them more responsibility as they travel to becoming lifelong learners. By allowing students to contribute to curricular decisions, the teacher can promote a learning environment that motivates students to learn by using the content material and skills they have acquired through a project-based learning experience in their lives.

Making the connection from real-life experiences to the curriculum content is possible through students' participation in curricular decision-making. Passe (1996) cites several examples in which students benefit from choosing the topic of study in a particular curriculum. For example, one teacher found that when students used concrete examples instead of the fictional situations presented in textbooks, students asked more questions, raised their test scores, and they never once complained, "Why do we have to learn this stuff?" (Passe, 1996, p. 4). When the curriculum successfully implements relevancy and student decision-making, the teacher no longer feels like a dictator of the classroom or an instructor who endlessly assigns paperwork but instead serves as a mentor who gathers learning resources on behalf of the students' requests. Passe (1996) observes that the involvement of students in curricular decision-

making improves these areas of student performance: autonomy, student learning, motivation, and classroom behavior (p. 13). Because of this, Passe insists that one of the major goals of our educational system is to develop and maintain an informed and dynamic society; this is made possible by having citizens who possess the characteristics of an autonomous rather than an heteronymous individual. If students develop autonomous behavior in schools, they can become responsible, knowledgeable citizens who contribute to decision-making situations within their communities. A teacher who involves a student in the curricular decision-making process creates social contexts that provide for increased intrinsic motivation and provides optimal educational outcomes (Passe, 1996, p. 16). This process also gives students a sense of competence and, knowing they helped plan the activity in which they will see the outcomes (Passe, 1996, p.16).

In addition, Passe (1996) cites three curricular principles suggested by those who advocate a curriculum that stresses teaching for meaning and empowering students to make curriculum choices: 1) make connections with students' out-of-school experience and culture; 2) embed instruction on basic skills in the context of more global tasks; and 3) focus on complex, meaningful problems (p. 23). Brown (2002), employing a successful program in an eighth grade classroom in Radnor, PA, that reflects student choice, maintains that Passe's concept works. The Soundings program is a student-generated curriculum that incorporates a sense of community through cooperative learning, differentiated learning, and student-developed assessment tools and responsibility guidelines for their classes (p. 55). Two teachers, also known as coordinators, facilitate the program by moderating students' discussions to ensure that every student receives an opportunity to express him/herself (Brown, 2002, p. 56).

Johnson and Pajares (1996) conducted a three-year longitudinal study which followed a Shared Decision Making (SDM) project in a large, public secondary school. Foster's critical model and Habermas's conception of the ideal speech situation as cited in Johnson and Pajares (1996) were used to interpret the findings of this study. Johnson and Pajares (1996) were interested in: 1) the process of SDM itself and how Foster's critical theory of school leadership could help in understanding the process; 2) the communication among the participants in the project; and 3) the insights of the implementation of a democratic school reform to assist educators (p. 603). They obtained data from semi-structured interviews, 167 on-site and telephone interviews with 92 individual faculty, staff, students, and parents (p. 605). Even though an SDM Council was formed in this project to discuss school-wide issues, the student participation on the council was not as active as that of the professional educators (p. 608). The results of Johnson and Pajares' (1996) study indicate that "attitudes and patterns of behavior were beginning to shift toward more inclusive ways of decision making"... "new voices spoke up" and were heard; barriers of authority and isolation were broken down; and there were changes in teacher beliefs and attitudes (p. 623).

Communication emerges as a valuable component in a shared decision-making process; stakeholders in this process are empowered to cultivate decisions that affect the entire learning community. Using the classroom and engaging students in a shared-decision making process can create opportunities for students to become responsible for the structure of the classroom community. This process also provides students a voice which potentially results in students feeling safe and in increasing their attention and confidence (Mee, 2007, p. 7).

An important component of project-based learning involves students working in a cooperative learning environment. This particular type of environment is conducive to students

developing positive communication skills by encouraging them to construct meaning by discovering, collecting, and sharing information among themselves. As students work together, they develop a sense of community and a sense of belonging.

2.6.1 Providing Students Choices in the Classroom

Education should offer choices to students. Glasser (1998) perceives a child's education in a reciprocal manner--as students feel their needs are being satisfied in the classroom, they will become absorbed in the curriculum. Glasser (1998) advises, "The more students can fulfill their needs in your academic classes, the more they will apply themselves to what is to be learned" (p. 33). In order for teachers to be consistently cognizant of students' needs, they need to ask themselves these questions:

...ask yourself if the students in your classes sense that they belong, that they are friendly with other students and supportive of you and each other. Do your students realize that there is power in knowledge, and if they do not, have you any program to help them gain this vital belief?...Do your students have freedom to choose what to study or have any say in how they might prove to you that they are making progress?...Is there...some laughter and good natured clowning in which you are an active participant as they work or discuss assignments? Even if you have not been aware of these needs, have you been concerned that your students find satisfaction in your class? (Glasser, 1998, p. 33)

An integral aspect of project-based learning involves teaching students responsible behavior, including the ability to create responsible choices. To facilitate a student in completing a project in a timely manner, the teacher must help the student choose appropriate behavior so that he/she can make decisions that affect his/her participation in a given classroom learning environment. Glasser's (1998) concept of choice theory professes this basic belief: "All behavior is our constant attempt to satisfy one or more of five basic needs that are written into our genetic

structure. *None* of what we do is caused by a situation or person outside of ourselves” (p. 18). The five basic needs to which Glasser refers fall into the categories of physical and psychological needs: surviving, belonging, having fun, freedom, and power.

Glasser elaborates on the five elements of choice theory. The physical need of surviving involves an individual satisfying the need for nourishment, shelter, and safety. One psychological need for belonging focuses on an individual’s need to connect with the world and feel accepted by others. Having fun, another psychological need, evolves around the idea that all creatures enjoy play and feel a sense of happiness and satisfaction when they find ways to entertain themselves. The need to be free empowers us to take control of our lives, to determine goals for ourselves, and to decide what is best for ourselves. Choice theory also recognizes the need for power. Glasser advocates that this need is paramount to an individual’s perception of success in society, how much knowledge one possesses, and how one uses his/her knowledge to gain success and stature in society. He elaborates that in our everyday lives, we attempt to fulfill these five basic needs as we integrate them into our thoughts.

Glasser’s (1988) application of choice theory advises that as much as teachers try to get students to learn in a classroom, the students will only learn if they feel their needs are being satisfied. The application of choice theory in the classroom is relevant since so many teachers become frustrated in their attempts to achieve both academic and behavioral success with their students. Glasser (1988) reinforces this idea in his attempt to relieve the frustration of teachers by repeatedly pointing out that educators cannot achieve success with students by using “external control theory.” Instead, teachers must realize that the students’ desire to learn and become successful in school has to originate from within the students, not from outside sources.

After interviews with seventh and eighth graders in a middle school, Glasser (1988) discovered that these students felt powerless in their school. They attributed power with social acceptance and popularity among their peers. When Glasser asked them, “How would you like to work together in your classes in small teams instead of by yourself as you mostly do now?”, he received an overwhelming positive response (Glasser, 1988, p. 46). He did not know that this group learning approach created skepticism about the grading procedure. Students feared team evaluations due to their recognition that not all of the members of the team do their fair share to earn a good grade. Still, Glasser (1988) maintained, “There is no doubt in my mind that the picture of learning-teams in their classes is satisfying to all their needs” (p. 47). In this particular observation from Glasser, he realized that as students participated in learning teams, they gained a “sense of competence” and, after presenting their projects to the class, they felt a sense of importance among their peers. By applying Glasser’s Choice Theory, students manifested an improvement in attitude and behavior and achieved a higher quality of learning and performance (Erwin, 2003).

2.7 STUDENTS AS AUTONOMOUS LEARNERS

Autonomy provides students in a classroom with the ability to develop choices. The teacher creates a balance by giving students the opportunity to make choices in their curriculum and at the same time by controlling the amount of responsibility the students have in making these choices. Autonomy provides the maximum opportunity for students to use their freedom of choice within the classroom and to explore the social context of project-based learning.

Alderman (1999) believes that a teacher can establish a caring learning environment that promotes a feeling of membership within a group of students through classroom structure that incorporates autonomy and responsibility, cooperative learning, and teacher support (p. 196). As students feel a sense of membership within a group, they develop the need to participate towards a common goal, and to adopt an attitude of mutual respect and concern for group members. Alderman notes, “A number of studies have documented positive motivational effects when students have opportunities for some degree of autonomy or ownership in classroom learning (Alderman, 1999, p. 181).

As Alderman warns, some teachers can feel a sense of powerlessness when they allow students to have freedom within the classroom. To deal with this, Alderman (1999) supports the idea of structuring freedom: “Opportunities are provided for students to exercise control, but they are not given control. A teacher’s role is to set boundaries for work, social/behavioral expectations, and responsibility” (p. 182). The balance between teacher control and student autonomy can be achieved by utilizing Vygotsky’s Zone of Proximal Development. The role of the teacher is to determine how much structure students require in a learning situation in conjunction with the level of autonomy they are capable of possessing.

To a certain degree, in a traditional classroom setting, the teacher controls and conducts the activity within the classroom environment.

2.8 FROM THE CLASSROOM TO THE OUTSIDE WORLD

Project-based learning provides students with a foundation in which they can apply what they have learned in the classroom to situations outside the classroom. By allowing students to

contribute to curricular decisions in project-based learning, the teacher promotes a learning environment that motivates students to learn and use the content material and skills they have acquired in their everyday lives. The classroom can become a practicing ground for significant decision-making that will occur throughout the students' lives. One of the positive outcomes of implementing project-based learning techniques in the classroom, then, is how such learning affects success in the real world.

The Carnegie Council on Adolescent Development (1989) recognizes the necessity of bridging the educational responsibilities of middle schools with community organizations. They have examined potential ways to create partnerships between middle schools and communities by, “placing students in youth service; ensuring student access to health and social services; supporting the middle school program; augmenting resources for teachers and students; and expanding career guidance for students” (p. 70).

Being capable of making decisions and self-managing one's self entails the development of skills that equip an individual to control a task in a given situation, particularly in the global setting of the 21st century. Hence, in recent years, research has addressed the significance of self-regulatory behavior.

2.9 ADOLESCENTS' DEVELOPMENT OF SELF-REGULATORY SKILLS

Research on how students can govern their own learning has become increasingly popular (Zimmerman, 1998; Zimmerman, Bonner, and Kovach, 2002; Gibbons, 2002). A shift in traditional teacher-directed learning to student-directed learning has proven to yield successful

learners who continue to use acquired self-regulatory skills to complete academic tasks (Zimmerman, 1998). Zimmerman (1998) notes:

Self-regulated learners, whether historic or contemporary, are distinguished by their view of academic learning as something they do for themselves rather than as something that is done to or for them. They believe academic learning is a proactive activity, requiring self-initiated motivational and behavioral processes as well as metacognitive ones. (p. 1)

Teachers guide their pre-adolescent students in the classroom; they do not expect these students to use self-regulated learning to complete homework or to spend hours on extensive independent study (Zimmerman, as cited in Pajares and Urdan, Eds., 2002). According to Zimmerman (as cited in Pajares and Urdan, Eds., 2002), during the primary grades, students receive classroom support from their teachers; as they progress to higher grade levels and receive more assigned homework, students seek assistance from their parents when necessary. Zimmerman (as cited in Pajares and Urdan, Eds., 2002), who notes that the transition from the primary grade level to a middle learning environment requires greater academic self-regulation, explains the changes in both academic and physical setting in a middle school environment:

Despite these limitations in self-regulatory development, students enter middle school having more fluid classroom environments as well as increased expectations for personal responsibility than in elementary school. In middle school, students are often taught academic subjects, such as mathematics or English, by different teachers and are expected to manage multiple homework assignments on their own. To succeed in this more demanding academic setting, students must assume greater responsibility and display greater personal initiative. (p. 2)

To complicate the situation, Zimmerman (as cited in Pajares and Urdan, Eds., 2002) notes that pre-adolescents possess limited abilities in their acquisition and self-evaluation of their learning strategies.

As students face more demanding academic settings in the middle school, they will have to acquire more responsibility and personal initiative to complete tasks (Zimmerman, as cited in Pajares and Urdan, Eds., 2002, p. 2). In a middle school setting, students' schedules reflect a variety of both academic (core subjects) and exploratory arts courses. As a result, students must utilize various learning strategies to accommodate classroom participation, homework assignments, and tests for these courses. In addition, students need the capability to determine which learning strategies promise success for the various courses. This process requires students to embody metacognitive skills, reflect on the quality of their learning strategies, and determine how they can transfer these strategies from one particular course to another.

One goal of education is to provide students with opportunities to self-develop decision-making skills to become informed, global citizens. Bandura, Barbaranelli, Caprara, and Pastorelli (2001) conclude that students with a powerful sense of self-efficacy can sustain themselves through academic challenges: "Among the mechanisms of human agency, none is more focal or pervading than people's perceived self-efficacy" (p. 187). Bandura (1997) elaborates by impressing the importance of students developing academic skills to prepare themselves for the future. Bandura (1997) believes that the students' acquisition of skills should keep in step with the pace of society:

Educational systems, therefore, must teach students to educate themselves throughout their lifetime. They have to be adaptable, proficient learners. The hope and future of individuals and their societies reside in their capacities for self-renewal. (p. 213)

Zimmerman (as cited in Pajares and Urdan, Eds., 2002) states that social cognitive psychologists at the commencement of the 21st century recognize the physical and psychological

changes adolescents experience in terms of the “attainment of self-regulation.” He elaborates on this understanding:

Unlike personality trait or stage views of self-regulation, a social cognitive count focuses on the metacognitive processes, behavioral skills and associated motivational beliefs that underlie youth’s growing self-confidence and resourcefulness in acquiring the skills needed to succeed in adulthood. These include such self-regulatory techniques as goal setting, strategy use, time management, self-monitoring, self-evaluation, and self-reflection. (Zimmerman, as cited in Pajares and Urdan, 2002, p. 1)

As students progress from middle school into high school, they can apply the self-regulatory skills they acquired as adolescents to homework and study expectations.

2.10 DEFINING SELF-REGULATION

The breadth of defining self-regulation is very diverse. Boekaerts, Pintrich, and Zeidner (2000) assert that “self-regulation is a very difficult construct to define theoretically as well as to operationalize empirically” (p. 4). Educators need an awareness of students’ development of self-regulatory behavior and its successful implementation in an academic setting. According to Caine, Caine, McClintic, and Klimek (2005), self-regulated learners have acquired these attributes: sustained motivation; use of appropriate strategies; an awareness of analyzing their own thinking habits; setting appropriate goals that are attainable and challenging; and managing their time and resources (p. 22). It is critical for educators to help students develop and implement these skills in a student-empowered learning experience and, support students’

strategies to confidently reflect and to understand their self-regulatory skill usage in a social context.

Bandura (1997) taking a social cognitive perspective, views self-regulation as an interaction of personal, behavioral, and environmental triadic processes. Bandura (1997) contends “cognitive development and functioning are embedded in social relations” and students’ self-directed learning incorporates the management of “social resources” and the social outcomes of learning experiences at school.

Zimmerman (1998) notes that even though “academic self-regulation and its constituent forms of self-reflection are seldom taught in most schools,” students can be taught these skills through “a core set of instructional and personal practice experiences” (p. 16). He describes self-regulation in a cyclical fashion since individuals use feedback from prior performances to make necessary adjustments to reach their goals. Individuals observe, monitor and adjust personal, behavioral, and environmental factors which constantly change during the learning and the performance of tasks (Zimmerman, 1998).

2.10.1 Adolescents’ Needs and Self-Regulatory Skill Development

Zimmerman (as cited in Pajares and Urdan, Eds., 2002) indicates a definite need for adolescents to develop self-regulatory skills in order to create a foundation for future learning and to learn how to scaffold their learning processes. Zimmerman (as cited in Pajares and Urdan, Eds., 2002) further emphasizes that “there is seldom any instruction in methods of studying or other self-regulatory skills, and there is substantial evidence that many students fail to acquire these skills on their own” (p. 3).

The importance of students developing self-regulatory skills in a deliberate fashion stems from the need for students to sustain these skills over a period of time rather than just on a short-term basis. Students who develop self-regulatory skills by first modeling behaviors and then through self-control display higher levels of acquisition and better motivation than students who use alternative methods (Zimmerman, 2002).

A structured instructional model in the classroom empowers students to develop self-regulatory skills to achieve self-efficacy. According to Schunk and Zimmerman (1994), researchers are exploring academic self-regulation and interventions with promising results. This suggests that educators are beginning to teach self-regulated learning skills to students in school settings.

Zimmerman, Bandura, and Martinez-Pons (1992) confirm that students' personal goals play an integral role in their academic success. They define the importance of self-efficacy beliefs in attaining goals:

...self-regulation of motivation depends on self-efficacy beliefs as well as on personal goals. Perceived self-efficacy influences the level of goal challenge people set for themselves, the amount of effort they mobilize, and their persistence in the face of difficulties. Perceived self-efficacy is theorized to influence performance accomplishments both directly and indirectly through its influences on self-set goals. (Zimmerman et al., pp. 664-665)

As Belfiore and Hornyak (cited in Schunk and Zimmerman, Eds., 1998) state, "Ultimately, education is only beneficial when it results in the development of academic independence in students" (p. 184).

Students can become self-managers of their learning by developing self-regulated academic skills. The transition from teacher-directed to student-directed learning occurs by:

1. Teachers providing multiple opportunities for academic achievement in relevant contexts and
2. Students monitoring, reflecting on, and modifying personal performance compared to educational standards of mastery and excellence (as set forth by the school community and/or the student). (Belfiore and Hornyak as cited in Schunk and Zimmerman, 1998, Eds., p. 185)

Project-based learning in this framework is considered a social phenomenon that evolves from participation with others. As students investigate ideas important to them and monitor their own behavior, it is anticipated that they will be motivated to increase their engagement in the process of learning.

Middle school students in particular have unique needs related to the major developmental changes that are occurring in their physical and emotional growth patterns. Bandura (1997) cites the challenges that adolescents experience at this time in their lives; and the manner in which they “exercise their personal efficacy” is a determinant of the paths they choose for their future.

The changes incurred with puberty directly affect youngsters’ perceptions of self-efficacy. Bandura, in his observation of adolescents’ psychological and physical transition at this time, notes this change:

Pubertal changes contribute to the development of self-efficacy in interaction with psychosocial factors rather than directly. Biological maturation can affect physical prowess and social status among one’s peers in ways that have significant impact on self-schemata of efficacy in physical and psychosocial domains of functioning. (Bandura, 1997, p. 178)

Any implementation of a self-regulatory skill development in the middle school classroom must consider the maturational development of students. A middle school culture is extremely complicated as it takes into account the need for a sensitive and consistent school climate (Hoose, Strahan, and L’Esperance, 2001). A student’s middle school experience is a

critical time in which he/she searches for identity and develops a sense of self-concept. As students develop a sense of self-concept, they engage in metacognitive skill development as well. The adolescents' experiences with their peers and adults, their views of themselves, and their perceptions of their competence and success in school are everchanging (Hoose, Strahan, and L'Esperance, 2001).

Zimmerman (as cited in Pajares and Urdan, Eds., 2002) offers that students developmentally change in their capability to self-regulate both internal processes and external forces "*proactively*" (p. 4). It is essential for students to learn new skills by observing and emulating a model. In addition to observing individuals model a behavior, students need to receive feedback and support as they acquire cognitive skills and develop strategic ones (Zimmerman, as cited in Pajares and Urdan, Eds., 2002).

2.11 RESEARCH ON SELF-REGULATION

While researchers conducted studies on self-regulation learning strategy implementation in various courses, they have not discovered any substantial evidence of how adolescents develop self-regulatory skills in a project-based learning setting. Brown (2002) conducted a study in three middle schools with 254 students in their physical education classes to understand how students utilize and perceive such self-regulated learning strategies as seeking help, goal setting, monitoring, and goal evaluation. Brown selected 13 students, including six high, two average, and five low self-regulated learners, to further examine their perceptions and usage of self-regulated learning strategies. Data collected through observations and goal setting sheets revealed that target students asked "mostly procedural questions" when they sought assistance

from a teacher or a peer; they asked for teacher help more than their peers, while girls requested more help than the boys (Brown, 2002). The target students also set “mostly psychomotor goals during the sessions” (Brown, 2002, p. 114). Student interview data indicated that high self-regulated learners used more strategies than low self-regulated learners. Brown (2002) found that students’ self-regulated learning strategy use did not significantly improve following the intervention; she uncovered no significant differences between conditions for the Learning Strategies in Physical Education Questionnaire (LSPEQ) gain scores. Brown (2002) indicated that a possible explanation for the lack of significant finding might be the ineffectiveness of the LSPEQ as a measurement tool (p. 116).

Research in self-regulation has assumed multiple dimensions. Boekaerts and Cascallar (2006) contend that self-regulation “is not an all-or-none process or property of the system, but that it consists of multiple processes and components” (p. 200). Further, Boekaerts and Cascallar (2006) address two ideas related to self-regulation involving a “clear description of the self-regulation strategies that are necessary and sufficient” for students to utilize in self-directed learning given their current level of skills and the accessibility of “valid assessment instruments” to assess students’ implementation of self-regulation strategies (p. 200). Boekaerts and Corno (as cited in Boekaerts and Cascallar, 2006) conducted an inventory of available self-regulation assessment instruments and concluded that:

...no one single instrument is sufficient to register students’ progress in self-regulation. A combination of instruments is essential to tap the various aspects of students’ developing skills in self-regulating their learning and motivation process. A combination of different assessment tools allows researchers and teachers to capture what students think, feel, and undertake in order to steer and direct their learning motivation in a domain. It also provides insight into how students’ attempts at self-regulation change over time in function of (1) their own perception of progress in skill development (2) their changing beliefs about learning and self-regulation in a domain, and (3) their changing psychological needs. (p. 207)

In order for teachers to acquire a better understanding of how students perceive their self-regulatory development, it is necessary to recognize students' reactions to such factors as classroom environmental conditions, the teacher's instruction, teacher's expectations of students' work, student autonomy, and teacher's demeanor in the classroom (Boekaerts and Cascallar, 2006, p. 204).

2.12 SUMMARY AND CONCLUSIONS

A review of literature has shown that studies and articles discussing self-regulatory behavior in various content areas in classrooms are beginning to emerge. For example, the authors of *A Taxonomy for Learning, Teaching, and Assessing*, have included the category, metacognitive knowledge, recognizing that this is a new thrust for understanding the importance of students' self-reflection about their own learning processes (Anderson, Krathwohl, Airasian, Cruikshank, Mayer, Pintrich, Raths, and Wittrock, 2001, p. 43). I have found that self-regulation has multiple definitions and diverse interpretations. Other behaviors have been correlated with self-regulation, particularly in educational settings to determine the academic success of students. To date, however, there has been limited research on self-regulation within a project-based learning pedagogy, although some agreement exists on what methods successfully implement self-regulation skills for middle school students. The goal of the Review of Literature has been to identify factors that contribute to the development of self-regulatory skills in an adolescent's project-based learning experience.

In order to fully understand the significance of promoting self-regulatory behavior(s) in a project-based learning experience, I have searched for common threads among selected works of

Lev Vygotsky, John Flavell, John Dewey, Jean Lave and Etienne Wenger, Barbara Rogoff William Heard Kilpatrick, William Glasser, Mihaly Csikszentmihalyi, Barry Zimmerman, and Albert Bandura. I have drawn on these theories to examine principal elements of project-based learning that support students' content knowledge and development of self-regulatory skills. These theories complement each other by emphasizing the importance of the cognitive and social development of children, the value of cooperative interaction in educational settings and the relationship of self-regulatory skills in a project-based learning experience. This Review of Literature is intended to contribute to the knowledge base of the practicality of developing and implementing self-regulatory skills within a project-based learning context. Moreover, this study will draw upon middle school students' voices to attempt to understand the students and their development and implementation of self-regulatory skills in a project-based learning experience.

Project-based learning encompasses collaborative learning, social interaction and positive interdependence in individual and group learning situations. The sociocognitive theories of Vygotsky, Dewey, Rogoff, Lave and Wenger, Glasser and Bandura have demonstrated that students acquire knowledge not only on a cognitive level but also on a social level. When students participate in a project-based learning situation, they have the opportunity to exchange knowledge and to acquire an understanding of other students' perspectives of learning. This teaching strategy has proven to do the following: act as a way for satisfying students' psychological and physiological needs which include the need for power by expressing a "voice" in the students' curriculum; serve as a way to establish relevancy between the curriculum and the students' lives; and emerge as a method that engages students as lifelong learners by intrinsically motivating them to learn.

Within the framework or structure of a project-based learning experience, students work to achieve not only the group's envisioned goals but personal goals as well. Johnson, Johnson, and Holubec (1994) have developed strategies for both educators and students that encourage productive, cooperative learning groups. Lave and Wenger (1991) have conceptualized the importance of the social interaction among individuals. They have examined how learners interact and learn from each other in a community and have defined this process as legitimate peripheral participation. Rogoff, who has discussed the importance of Vygotsky's research and its application to the social world, has defined the mutual understanding which people achieve in communication as intersubjectivity in her theory of guided participation. This concept of intersubjectivity emphasizes that understanding occurs between two people; it is not a single attribute. Project-based learning values this idea as a "connection" between two or more students who share goals.

Two classroom-based research studies have identified project-based learning as an invaluable tool in the classroom. Both the Buck Institute for Education and Howard Gardner's Project Zero have developed a guide for teachers who seek to implement this educational strategy in their classrooms.

Project-based learning incorporates students in the decision-making process in both short- and long-term projects. Passe (1996) believes that by allowing students to contribute to curricular decisions, the teacher promotes a learning environment which motivates students to learn and use the content material and skills they have acquired in their lives outside of the classroom. The classroom, in essence, can become a practicing ground for significant decision-making that will eventually occur throughout the student's life.

Teaching strategies today must reflect society's demand for flexible, competent, and resourceful individuals. The classrooms should be considered communities in which students have the opportunities to practice their decision-making skills, express their thoughts, and share their experiences about the curriculum with peers and teachers in an open-minded forum. It is important for students to develop tolerance and create a repertoire of resources they can utilize in problem-solving situations not only in the classroom but in their personal lives. These resources include guidance, mentoring, and apprenticeships from individuals more experienced than themselves. Because these resources are not derived from a textbook, they are invaluable.

Project-based learning affords students the opportunity to apply the skills they have learned in the classroom to problems they encounter in authentically created projects. Eisner (2003-04) expressed an important quality that teachers need to nurture in young students' minds:

The best way to prepare students for the future is to focus on the present in a way that enables students to deal with problems that have more than one correct answer...Judgment is not mere preference, but rather the ability to give reasons for the choices that we make...To cultivate this quality, the curriculum needs to consist of problems that permit judgment. (p. 8)

More than ever, with an increased attention to standards and applicability of curriculum content to the outside world, teachers need to recognize their role in facilitating young students to become intrinsically motivated and reflective participants in their learning processes.

3.0 METHODOLOGY

We share a vision that communities of practice will help shape society with pervasive knowledge-oriented structures. They will provide new points of stability and connection in an increasingly, mobile, global and changing world.

(Etienne Wenger, Richard McDermott and William Snyder, 2002)

3.1 INTRODUCTION

This research study examined middle school students' self-reflections and self-monitoring of their self-regulatory behaviors in a project-based learning experience. It investigated the students' development and use of the following self-regulatory skills: learning strategy use, goal setting procedures, and time management skills. Gathering information through the students' voices was an essential part of the study. This process provided candid feedback on the students' perceptions of their self-regulatory skill development. My intention was that the results of information obtained from the students' voices would contribute to educators and their understanding of middle school students' self-regulatory skill development. The study assumes that most teachers set a deliberate agenda to accomplish a set of curriculum goals (including student skill development) in an orderly, predetermined fashion in their daily classroom routines.

These conditions tend to ignore students' personal goals and interests as factors in their understanding of curriculum content and skill development.

The following hypotheses are addressed in this study.

3.2 HYPOTHESES

3.2.1 Hypotheses for Qualitative Analysis

The study examines the following qualitative hypotheses:

1. Teaching strategies will emerge that have an impact on students' self-regulatory behavior as demonstrated by students' responses on the Student Weekly Reflection Forms, teacher-student interviews and the Teacher's Daily Log.
2. Students will identify which learning strategy, goal-setting, or time management skills contributed to their overall capacity for self-regulation as demonstrated by students' responses on the Student Weekly Reflection Forms, teacher-student interviews and the Teacher's Daily Log.
3. Both the teacher and the student will identify curricular activities of the project-based learning experience that helped students accomplish their goals as demonstrated by the students' responses on the Student Weekly Reflection Forms.

3.2.2 Hypotheses for Quantitative Analysis

This study examines the following quantitative hypotheses:

4. Null hypothesis: There will be no change from the beginning to the end of the project-based

learning experience in students' mean scores on the Bandura Self-Efficacy for Self-Regulated Learning Scale using a one-tailed t-test.

5. Null hypothesis: There will be no change from the beginning to the end of the project-based learning experience in students' pre/post mean scores on the Bandura Self-Efficacy for Self-Regulated Learning Scale for students who scored high (the top 20%) on the pretest using a one-tailed t-test.
6. Null hypothesis: There will be no change from the beginning to the end of the project-based learning experience in students' pre/post mean scores on the Bandura Self-Efficacy for Self-Regulated Learning Scale for students who scored low (the bottom 20%) on the pretest using a one-tailed t-test.
7. There will be an increase from the beginning to the end of the project-based learning experience in students' goal accomplishment style mean scores on the Goal Orientation Index (GOI) Part 1: the subscales (Acting, Planning, and Reflecting) and Part 2: the twelve goal-oriented behaviors using a one-tailed t-test.
8. There will be an increase from the beginning to the end of the project-based learning experience in students' pre/post goal accomplishment style mean scores on the Goal Orientation Index (GOI) who scored high (the top 20%) on the GOI Reflecting Subscale pretest using a one-tailed t-test.
9. There will be an increase from the beginning to the end of the project-based learning experience in students' pre/post goal accomplishment style mean scores on the Goal Orientation Index (GOI) who scored low (the bottom 20%) on the GOI Reflecting Subscale pretest using a one-tailed t-test.
10. There will be a positive correlation between the students' post-test scores on the Bandura

Self-Efficacy for Self-Regulated Learning Scale and the Goal Orientation Index using a one-tailed t-test.

3.3 EXPLANATION OF PROCEDURES

This study collected both qualitative and quantitative data. Using the two research methodologies provides 1) a more comprehensive evaluation of a) students' perceptions of their self-regulatory skills and b) students' reported behavior at the pre- and post-test times of the study, and 2) the perceptions of the teacher and students concerning which aspects of the project-based learning experience were beneficial in facilitating students' successful self-regulatory behavior development. By using the students' voices, the qualitative data provides rich, informative feedback about the project-based learning experience. The purpose for conducting both qualitative and quantitative analyses is to compare and affirm the results found in the Student Weekly Reflection Forms (SWRF) (See Appendix A), teacher-student interviews and observations in the Teacher Daily Logs (See Appendix B) with any findings from the pre- and post-inventories.

This study examined the students' development of self-regulatory skills—learning strategies, goal setting, and time management—in a project-based setting. It proposes that project-based learning is a significant vehicle for students to develop self-regulatory behaviors in contrast to routine, daily assignments with goal strategies and due dates usually established for students by the teacher. This project-based learning experience provided the opportunity and setting for students to recognize, choose, and utilize learning strategies, determine goal setting

procedures, manage their time and, most importantly, self-monitor their progress through a weekly recording system, the Student Weekly Reflection Form (SWRF). In combination with data obtained from the SWRFs, two instruments were chosen to examine the impact of this educational process on students' self-regulatory skill development: the Bandura Self-Efficacy for Self-Regulated Learning Scale (Bandura, as cited in Pajares and Urdan, Eds., 2006) and the Goal Orientation Index (GOI) (Atman, 1986) (See Appendix C).

3.4 CHAPTER ORGANIZATION

This chapter is divided into seven sections. The first section, Participants, presents a description of the students involved in the study, while the second section, Setting, describes the students' classes in relation to the overall structure of their curriculum. In the third section, the Framework of the Study, I discuss my intended goals, my instructional framework, teaching strategies, the process for developing student self-reflection skills, teacher-imposed organizational structure, curricular activities, my anticipated outcomes of the students' responses to my teaching strategies and curricular activities, and concerns about the project. The fourth section explores how to build an educational community in the classroom, the fifth section discusses the promotion of autonomous learning, and the sixth section, Instrumentation, focuses on the various instruments used in the study. The last section, Data Analysis and Interpretation, describes the procedure for collecting and processing data and interpreting results.

3.5 SECTION ONE: PARTICIPANTS

The population for this study consisted of two seventh grade social studies classes which totaled 56 students: 31 girls and 25 boys. Parental and student permission forms were signed and approved for students' participation in the study and the administration of the Bandura Self-Efficacy for Self-Regulated Learning Scale and the Goal Orientation Index to students before and after the study. The school administration granted permission to implement the study.

The students' ages ranged from 11 years old to 13 years old. All of the students in the sample attend regular education classes. Seven students incorporate gifted education classes in their curriculum. The students are primarily white, and they come from a middle to lower socioeconomic background. I selected two classes out of my five for this study in order to individually monitor the outcomes of a project-based learning experience and evaluate the students' feedback. For comparative purposes, I chose one of the classes I teach in the morning and another class in the afternoon. The morning class' population consisted of six gifted students and 22 regular education students; the afternoon class' population consisted of one gifted student and 27 regular education students. These two classes were the most populated classes among my five classes. Both of these classes also had the most equal distribution of boys and girls and academic skill levels in comparison to the other three classes. An important feature of a project-based learning experience is the existence of a socially-based curriculum which allows students to interact with one another, discuss their choices, and create collaborative relationships within the classroom. The observation of two classes in this study afforded me the opportunity to more closely analyze the students' feedback and progress of goal accomplishment throughout the life of the project. Pseudonyms were given to student participants' names in this study.

3.6 SECTION TWO: THE SETTING

This study was conducted in a public suburban middle school located in southwestern Pennsylvania. The total population of the student body is 1,300 in grades 5 – 7. This particular school district is a merger of four separate municipalities. The students in this study followed a schedule which consisted of ten periods, each approximately 45 minutes in length. More specifically, the students' schedules included five core or required academic classes and three to four encore (exploratory arts/foreign language/physical education) classes with the remaining time devoted for lunch and a tutorial and/or elective class. This study proceeded in social studies, one of the required core, year-long academic classes, during the second semester of the 2004-2005 school year. The school administration and the students' parents or guardians granted permission to implement the study (See Appendix D).

3.7 SECTION THREE: FRAMEWORK OF THE STUDY

This section provides an overview of how the study was designed, what procedures were implemented throughout the study, and any problems that might be encountered. This section is further described in several subsections. The first subsection offers a description of my intended goals in the study. I specifically explain the manner in which I designed the classroom setting and skills I intended my students to develop throughout the project-based learning experience. In the second subsection, I discuss the "infrastructure of the project" which examines the teaching methods I implemented to facilitate each student's understanding of the historical content presented in the curriculum and to link student interests and needs with the process of creating an

authentic product, the historical journal. I also discuss the development of the students' process of self-reflection. My role as a facilitator included supporting students in developing realistic expectations for their historical journals. The next subsection presents the curricular activities I implemented throughout the study. Finally, the last subsection suggests how to fashion an educational community in the classroom.

3.7.1 Intended Goals

My overall intended goal in the project was to empower students to become cognizant of how they developed and employed the effective self-regulatory skills inherent in becoming autonomous learners. A curriculum goal of the project was for students to develop a conceptual understanding of the historical events involved in the French and Indian War and the Revolutionary War and to apply their newfound knowledge in an authentically created product.

I conducted the study during an 8-week period. I deliberately implemented it toward the end of the school year as students were familiar with the routines of the school day including the social studies class in which the study was situated. I also anticipated that students would be more receptive to participate in a long-term project toward the end of the year because: 1) they were attuned to the teacher's style of instruction; 2) they had established a sense of camaraderie in the class throughout the year; and 3) they had created a classroom rapport with each other and the teacher. I also anticipated that eight weeks would be an adequate amount of time for students to become acclimated to a project-based learning experience involving the historical content examined in class and to acquire an understanding and development of the self-regulatory skills needed to establish and complete personal and academic goals. The time length for this project would provide for not only a "social network" among the classmates but also an "academic

network” in which students could exchange ideas about the project, share research information, and discuss feedback about each other’s progress and goals. I anticipated that students would benefit from each others’ knowledge about their approaches to the project aside from my suggestions. Through interaction in the classroom, I expected that students would share their strategies for accomplishing goals, strengthening existing peer relationships in the classroom, and creating new peer relationships as they engaged in the project.

I anticipated several other considerations in implementing a project during the second semester of the school year: my cumulative perception of the students’ work ethic, the students’ acquisition of comprehending the curriculum content, and the classroom environment which had been constructed up to the onset of this project. In my teaching experience, I have found that students are more likely to communicate with me their concerns, questions, and comments about the “everyday” routine of the classroom after they have engaged in several cooperative learning experiences in class. This may stem from conversations with students to obtain their feedback about the cooperative learning tasks they completed previously in class. By the beginning of the second semester of the school year, the students and I had created a “rhythm” that gave students a familiarity with the structure of the classroom environment, a rapport with other classmates, the experiences of cooperative learning situations in the classroom, the experiences of balancing the workload of other classes with my class, and their personal and academic growth throughout the school year. Before this study began, I attempted to create experiences in the classroom in which the students and I could work together, share knowledge, and discover possible ideas to incorporate into students’ assignments. I also intended to implement this teacher-student collaborative learning process in this longer-term project. Lave and Wenger’s (1991) concept of community reinforced my efforts to define the classroom environment I was creating for my

students.

It was anticipated that as students engaged in reflective thinking about their self-regulatory skill development and monitored their reflective thoughts as they progressed throughout the project, they would reveal honest responses about their reactions to the challenges of the project. I expected students would express how they used their own strategies to shift from teacher-directed instruction to student-directed learning. By monitoring and recording the self-reflecting process, students had opportunities to review how they could control or regulate their own learning. As students regulated their own learning, I believed they would have the flexibility to manage their time and assess the consequences of their choices and learning strategies.

3.7.2 Instructional Framework

I based my instructional framework for this project on my students' learning needs and the necessity of providing for both their cognitive and social engagement in the learning activities that I designed for the curriculum. Hands-on-activities are a popular venue that actively engage students in the learning process; however, to create an optimum learning experience, I encouraged students to think of creative ways to approach the tasks involved in the project. I believe that having them continually tap into their own innovative resources would hopefully create a more meaningful understanding of constructing the historical journal. Based on the theoretical framework for this study, my teaching methods reflect a constructivist approach. It was important for my students to 1) work collaboratively to exchange ideas and achieve success in the project, 2) develop independent self-regulatory skills in order to become effective managers of their learning process, and 3) develop the ability to discriminate choices and

understand the consequences. Therefore, in order to achieve these anticipated student outcomes, I implemented a variety of dynamic teaching strategies that enhanced students' learning potential, and I anticipated that students would become managers of their own learning by being held accountable for their progress. I also believed that, by students' monitoring themselves and understanding their development of self-regulating skills, they would achieve their anticipated outcomes.

3.7.3 Teaching Strategies

A cornerstone of project-based learning lies in the design and implementation of innovative and effective teaching strategies. Nurturing students' self-regulatory skills through creative curricular activities within project-based learning affords students the opportunity to complete their goals. My teaching strategies were learner-centered as they offered a variety of ways to capture students' interests and encouraged the students to find one or more of the curricular activities that best suited their learning styles.

To facilitate students' learning experiences in my classroom, I attempted to create an environment that promoted student choice, autonomy, and both social and academic interaction among peers. I emphasized throughout the project that the process of completing the product is as relevant as the finished product itself. A learner-centered approach to the project suggests that students will learn to construct knowledge for themselves, think critically about the choices they make within the context of the project, and be accountable for their decision making skills.

This learner-centered process in this project reflects John Dewey's (1915) description of the four instincts children possess: "1) Social instinct – children's inquiry into the world around him/her; 2) Language instinct – children's desire to communicate; 3) Instinct of making –

children's interest in constructing things; 4) Art instinct – children's artistic expression" (pp. 41-45).

These children's instincts help educators understand the relevance of implementing teaching strategies in which students exercise their ability to construct meaning from content. As students complete a project, teachers anticipate that there will be salient features of the product and the process of completing the product that will be of particular interest. An example of these salient features would be the steps a student chose to solve a problem he/she encountered in the project, the materials a student chose to construct a product, and the resources the student used to significantly connect the content with his/her understanding of the concept.

In addition to my learner-centered process, I implemented three additional strategies to empower students to construct meaning for themselves: endorsing students' personal selection of historical content; connecting students to the curriculum content; and facilitating the application of the newfound knowledge in the historical journal.

3.7.3.1 Selection of Historical Content

I asked students to research a specific event(s) within the time period of the French and Indian War and/or the Revolutionary War, namely the period from 1753 to 1783, and to interpret their findings in a chronologically detailed account in the form of a journal or diary.

Students could convey their interpretations of the historical account through the eyes of a fictitious or real-life character within the specified time period. I suggested to students that their journals should represent authentic journals created during the 1700's by including characteristics of these journals. The journals would reflect the cultural, economic, and social aspects of the individual recalling the historical events. To illustrate the significance of journals

in describing authentic accounts of events, I read excerpts of *The Journals of George Washington and Christopher Gist: Mission to Fort Le Boeuf, 1753-1754*, edited and annotated by Kopper (2003). This detailed account of young George Washington and Christopher Gist's journey to Ft. Le Boeuf provided a model for students to use in their historical journals. To impress upon students the importance of authentically produced journals, I had to tailor my teaching methods to incorporate the utility of artifacts and the demonstration of these artifacts in these time periods. Therefore, I invited knowledgeable guest speakers, namely living historians, into the classroom to express the lifestyles of individuals in this time era and to discuss and demonstrate artifacts that reinforced the concepts presented in the curriculum. Through the living historians' reenactments of the lifestyles reflective of the time period in the curriculum, I believed students would acquire a keener insight into the importance of producing an authentic product within the context of this project-based learning experience.

As a facilitator for my students in this project, one of my most challenging roles was to help students effectively interpret historical content and translate their historical understanding to their respective goals. I evaluated students on the knowledge they acquired and interpreted through curricular activities, independent research, classroom discussions, and their application of historical information in an authentic product, the historical journal.

The students' historical journal projects fulfilled the requirements of the Pennsylvania Standards for Social Studies Curriculum (22 Pa. Code, Chapter 4). Specifically, students were required to demonstrate skills and to know information included in these academic standards for history:

- a. 8.1: Historical Analysis and Skills Development
- b. 8.2: Pennsylvania History
- c. 8.3: United States History. (22 Pa. Code, Chapter 4, pages 5-12, 2002).

In order to develop an understanding of the historical content in the curriculum, students engaged in historical inquiry. The focus question in this project guided students' investigation of resources which enabled them to construct historical interpretations about the French and Indian War and the Revolutionary War. It was assumed that various students' historical interpretations could be shared to initiate new topics for discussion and to stimulate students' further exploration.

3.7.3.2 Connecting Students to the Curriculum Content

For this particular project, I had to convey both the importance and relevancy of the curriculum's historical content as well as adhere to state standards incorporated in the project. In essence, I was facilitating the translation of historical content into concepts identifiable with the learner. In order for students to "connect" to newly acquired information and enrich their understanding about individuals' actions during the French and Indian War and the Revolutionary War, I offered multiple curricular activities in the classroom so that students could tap into their knowledge base to associate with the newly acquired information. It was my intention for students to use one or a combination of these curricular activities to connect to the information presented in class. I encouraged students to relate their personal interests, previous classroom experiences, and/or curiosities about historical events to the information presented in class. My objective was to "pull in" students' interests so that they would be motivated to learn and relate new information to their existing knowledge base.

Linking students' experiences with the curriculum invited students to discuss topics that they were familiar with among their peers. This "invitation" extended to all students in the learning community of our classroom was analogous to Wenger's (1998) concept of identity formation and learning within the conceptual framework of his social theory of learning. Wenger (1998) affirms "three distinct modes of belonging" which occur in conjunction with one another: engagement, imagination, and alignment. Engagement is critical in the context of learning as it is "not just a matter of activity, but of community building, inventiveness, social energy, and emergent knowledgeability" (p. 237). Taking into consideration students and their awareness of how they engage in learning with one another and a mutual understanding of each other's contributions to the project was important in developing classroom activities that enhanced the curriculum. Imagination was particularly significant in this project as students linked images of the past with images of their finished journals. This project challenged students to envision themselves in another time era and, as students shared their individual experiences of risk-taking in terms of different learning strategies and approaches to collecting data, they identified with their peers' similar experiences (Wenger, 1998). As students become cognizant of what they were individually doing in the project as well as what they were contributing to their peers' experiences in the project, they perceived how their engagement fit into a larger social context (Wenger, 1998).

It was important for students to develop an understanding or knowledge base of the historical content in order to frame the stories within their journals. Learning in a social context facilitated this understanding as students could collaboratively construct meaning through participation in classroom activities. Wenger (1998) reminds us of the importance of learning and identity, "Because learning transforms who we are and what we can do, it is an experience of

identity. It is not just an accumulation of skills and information, but a process of becoming – to become a certain person or, conversely, to avoid becoming a certain person” (p. 215). I hoped that the project-based learning experience would attune students to what they were doing in terms of successfully reaching their goals and at the same time enhance their understanding of how their participation in the project contributed to the formation of a learning community within the classroom. The importance of this association within a community is essential and potentially becomes a “source of meaningfulness and of personal and social energy” (Wenger, 1998).

3.7.3.3 Facilitating the Application of New Knowledge in the Historical Journal

The historical journal reflected students’ understanding of the lifestyles of colonists and Native Americans during the time period of both these wars, the effects of both of these wars on the colonists and the Native Americans, and the beginning framework of our nation’s government. The journal also reflected the quality and clarity of the students’ writing skills. This study incorporated the middle school academic goal of students practicing writing skills across the curriculum; the historical journal contributed to this goal.

One of the objectives of this project-based learning experience within the social studies curriculum was students’ acquisition of a conceptual understanding of the historical events and application of their knowledge of the French and Indian War and the Revolutionary War in their historical journals. The students’ finished products were to be authentic assessments of their historical comprehension of the material they independently researched throughout the project. As they gathered and recorded information for their journals from a variety of curricular activities throughout the project, students constructed knowledge for themselves. Based on the

constructivist theory, students in this project engaged in active learning by creating a journal to personally illustrate their interpretation of the historical information they researched and assessed in their authentic products. This method of assessing students' achievement and performance contrasts with standardized assessment in which students passively receive information from a teacher and adhere to a method of assessment through conformity such as tests. Through authentic assessment, students had the opportunity to build on what they previously knew about the historical events discussed in class and to interweave this prior knowledge into their finished product.

3.7.4 Process for Developing Students' Self-Reflection Skills

To support autonomous learning in the classroom, I conveyed to students the importance of taking responsibility for their work by self-monitoring their progress through a self-reflection process. This process enabled the students to examine how well they were accomplishing their goals of completing the historical journals. I adapted Zimmerman's self-regulatory cycle (2002) for implementation in this project-based learning experience by combining my previous project-based learning classroom experiences with Zimmerman's self-regulatory cycle so that students were engaged in a structured process of self-regulatory skill development.

3.7.4.1 Cyclical Monitoring

Zimmerman's (1998) cycle includes a forethought phase, performance or volitional control phase, and a phase involving self-reflection. The self-reflection phase influences an individual's forethought on what efforts he/she will enact to complete the cycle.

In this project-based learning experience, I modified Zimmerman's (1998) self-regulated learning cycle to create a framework for students to 1) develop self-regulatory skills, 2) implement self-regulatory skills, 3) reflect on the effectiveness of these skills, and 4) modify and re-implement these skills. Students engaged in metacognitive exercises in which they reflected on how successfully they monitored and evaluated their work. At the onset of the project, I asked students to reflect on these questions: how they approached previous classroom projects they completed, what they learned from their previous classroom project experiences, and how they planned to incorporate their previous project results within this current social studies project. I explained to students that they would be engaging in self-reflective practice throughout the entire project and recording their thoughts as a reference to monitor 1) their learning strategy use, 2) their methods of developing goals to reach objectives they set for themselves, and 3) their plans to manage their time in the project.

Each week, students had the opportunity to refine and improve these skills. Belfiore and Hornyak (as cited in Schunk and Zimmerman, Eds., 1998) affirm that, "A dynamic self-management system allows for self-reflection because the student must monitor, evaluate, recognize, and reintegrate, and then monitor again" (p. 199). To further explain the self-reflection process within the concept of a project-based learning experience and how students could perceive the development of their finished product, the historical journal, I introduced a simple formula:

$$\textit{Prior knowledge} + \textit{personal experience} + \textit{curriculum content} = \textit{finished product}$$

Students could combine any previously learned historical information (their *prior knowledge*) with personal, cultural background knowledge (*personal experience*) with information presented in class or research (*curriculum content*) to produce their historical journals (*finished product*).

3.7.4.2 Student Weekly Reflection Forms

As part of the “infrastructure of the project,” I provided students a system for self-monitoring their self-reflections. I achieved this through the students’ completion of the Student Weekly Reflection Form (SWRF). The form was intended to facilitate students’ development of self-regulatory skills through a metacognitive procedure. In the classroom, students completed their Student Weekly Reflection Forms each Friday to establish a routine in the self-reflective process. These self-reflective forms allowed students to evaluate their progress on the effectiveness of learning strategies they chose to implement in the project, their time management skills, and their goal setting strategies. Students revisited each one of their self-regulatory skills to determine how they engaged in a cyclical process of self-monitoring their progress throughout the project. I placed the accumulated SWRFs in students’ folders stored in a centrally located file cabinet in the classroom for accessibility and students’ reference throughout the project.

The SWRF had a two-fold purpose: 1) to develop self-regulatory behavior as students focused on evaluating and refining learning strategies, organizing their time, and setting their goals, and 2) to monitor and evaluate what they accomplished and to metacognitively reflect on their thinking processes. In essence, this form became a personal record of thoughts on the students’ development of self-regulatory skills. I positioned a guide which included prompts that encouraged students to complete this form (see Appendix E) on the chalkboard and also gave copies to students for ongoing reference. These prompts enabled students to continually self-monitor their progress by having them self-question 1) learning strategies they used in their studies; 2) their attempts to establish goal-setting procedures; and 3) how well they budgeted their time throughout the project. Students had the opportunity of forming groups with two or three of their peers to discuss how they planned to improve their goals for the following week. I

limited each peer group to a maximum of four students throughout the project for the following reasons: it was a precaution against any excess conversation in the peer evaluation process, and it allowed for ample time for each student in the group to receive feedback. I also closely monitored the peer evaluation process, an opportunity for students to exchange ideas with other students about goal planning strategies and to receive feedback on the effectiveness of their plans. The initial peer groups met throughout the project for consistency.

Interfacing with peers created a potential situation in which students could get sidetracked with irrelevant conversation instead of completing the task at hand. Therefore, students had to adhere to a time limit in order to complete both sides of the SWRF. From the onset to the conclusion of this process, it was important for me to weave among the various conversations to monitor the efficiency of the dialogue in groups of students.

Students recorded the feedback they received from their peers, reflected on their progress, and utilized the feedback to establish and/or refine goals for the upcoming week in the project. I impressed upon students that the purpose of the Student Weekly Reflection Form was to engage in a process of self-reflection on the development, usage, and refinement of various strategies as they interpreted the focus question and determined if the strategies they had chosen to complete the project were producing the intended results. Also, continued feedback from peers and me enabled students to assess the content and quality of their journals.

Flavell (1979) notes that metacognition causes individuals to actively monitor and regulate their cognitive processes as they complete a goal. Schunk (1998) also observes that as learners engage in self-reflective practice, they can adjust their learning strategies based on their learning progress and decide what they need to do to accomplish their goals.

The implementation of the SWRF also incorporated Zimmerman's self-regulatory cycle in which students engaged in a cyclical process that continually involved them in planning, monitoring, adjusting, and thinking about what learning processes were successful in helping them to achieve their goals. Zimmerman notes that the teacher can instruct students on how to do these skills and break the task into manageable "components." The SWRF was an integral component of the self-reflecting process as it 1) illustrated students' evaluation of their self-regulatory habits and 2) provided criteria for students' self-efficacy.

In their comments, Belfiore and Hornyak (as cited in Schunk and Zimmerman, Eds., 1998) elaborate the utility of a self-monitoring device such as the SWRF:

For any self-monitoring routine to be effective in behavior change, it must (1) define both the behavior to be controlled (monitored behavior) and the controlling behavior (monitoring behavior), and (2) develop a recording system to ensure self-monitoring accuracy. Rehearsing, modeling, testing, and reviewing are also components necessary when teaching self-management strategies to students. (p. 194)

Similar to an artist rethinking the purpose of his/her work of art after it has begun, students need to continually engage in a reflective process that entails reference to a guiding standard, namely, the focus question in this project.

3.7.4.3 Focus Question

This project-based learning experience used a focus question to direct students' thoughts through various aspects of the project, specifically the task of interpreting historical content discussed in the social studies curriculum. This question acted as a compass as it assisted students' in concentrating their energies on the goals of the project. I frequently repeated the focus question in different settings such as the library, computer lab, guest speaker lectures/demonstrations, and class lectures in the project, and asked students to think about how

they used their resources to investigate possible answers to this question. I also asked students to record the focus question in their notes as a self-monitoring strategy.

The focus question was intended to encourage students to connect to project tasks by relating their existing knowledge and generalizations to the new information they were learning in class. Markham, Larmer, and Ravitz (2003) state that a project question posed to students is a “critical task,” referring to this question as the “driving question.” Markham, et al. (2003) believe that the driving question should be:

- 1) Provocative so that it sustains students’ interests during the project
- 2) Open-ended so that it engages students into higher-level thinking and requires them to integrate, synthesize, and critically evaluate information
- 3) Focused on controversies central to the field and debated by professionals within the field
- 4) Challenging so that it encourages students to confront difficult issues and try out unfamiliar behaviors
- 5) Focused on real-world dilemmas that students find interesting
- 6) Consistent with curricular standards and frameworks. (pp. 37-39)

With these elements of a focus question in mind, I used the following question to direct students in this study: “How did the French and Indian War and the Revolutionary War affect individuals?” Students answered this question by synthesizing a variety of information presented in class through primary resources: living historians and interviews with members of the community and experts in the field of the French and Indian War and the Revolutionary War. Students also gathered information through secondary sources: the class textbook, reference books in the school’s library, Internet resources, teacher handouts of both the French and Indian and the Revolutionary War, and curriculum reference books kept in the classroom. Project-based learning is an ideal approach to learning that encourages students’ inferential thinking and

challenges them to ask themselves questions about their progress. This self-questioning process can become a gradual progression towards practicing self-reflection.

3.7.5 Teacher-Imposed Organizational Structure

In addition to the curricular activities implemented in this study, students received the following information which was intended to keep them organized throughout the project.

3.7.5.1 Informational Letter

I provided an informational letter to both students and parents explaining the scope of the project (See Appendix F) along with a permission form.

3.7.5.2 Grading Rubric

To plan for long-term goals, I gave students the Historical Journal Project Rubric that I would use to evaluate their historical journals (See Appendix G). The students also used the rubric to self-evaluate their task performances. The rubric was intended to keep students apprised of expectations to demonstrate their knowledge of the content and their ability to complete the project in a timely fashion. Within the guidelines for the historical journal, students were expected to meet two journal checkpoints throughout the project so that both the students and I could monitor their progress.

3.7.5.3 Additional Organizational Tools

In order for students to approach the project in an orderly fashion, I utilized three additional tools: calendars, handouts, and classroom space allocation. These tools were meant to

specifically facilitate the self-regulatory skill of time management. I encouraged students to work productively; and in order to do so, they had to be responsible for organizing themselves.

By providing students with a blank calendar for the months of April and May, I enabled them to record extra-curricular activities, homework assignments, and project related work (See Appendix J). I anticipated students using this calendar to prioritize their homework assignments, list tasks related to their projects, and serve as a reminder for activities and responsibilities both inside and outside of school.

I kept all handouts given to students throughout this study in the students' social studies binders which I stored on a designated shelf in the classroom. This assured that students maintained a permanent reference point for their handouts, research papers, and notes for the project. In a sense, this procedure kept them "grounded" throughout the project-based learning experience.

In addition to allocating a designated space in the classroom for students' social studies binders, I placed a file cabinet in the classroom so that students could easily access their folders containing their collection of SWRFs and any pertinent information or articles they desired to safely store for their journals. By attempting to centralize students' collective research material for easy accessibility in the classroom, I encouraged students to organize their materials. This procedure also suggested to students that the classroom space belonged to a community of learners (the students) rather than to me—making it less my (the teacher's) classroom. Hopefully, this would also motivate students to collaborate on identifying materials for their journals with peers and to generate discussion about their research.

3.7.6 Curricular Activities

To facilitate an understanding of historical knowledge, I gave students the option of choosing among a variety of learner-centered activities that proved to be uniquely successful for them to acquire and understand the historical content. It was important for the students to understand what learning strategies were successful in constructing their historical journals. These learner-centered curricular activities were intended to help students gain an understanding of how they used their anticipated, developed self-regulated skills to successfully implement both short- and long-term goals in this project. The following is a description of the curricular activities I implemented in the project.

3.7.6.1 Guest Speakers

I invited guest speakers, known as living historians, into the classroom to present and explain historical events and the lifestyles of individuals during the 1600's and 1700's. Guest speakers were chosen as experts in their field of interest so that they could act as "guides" for students as they progressed in the completion of their journals. Invited guest speakers included a living historian from the Fort Pitt Museum in Pittsburgh, PA; a living historian impersonating a Native American; a family of living historians impersonating a French trader, homemaker, and two children living in the early 1700's; and a living historian impersonating a homemaker during the 1700's who included an outdoor cooking demonstration over a campfire and an explanation of clothing worn during the time period of her presentation. Prior to each guest speaker's visit, I instructed students how to review their research and craft questions that provided clarification to the historical content the guest speakers were interpreting for them.

I expected that the guest speakers would be a popular venue as they expressed their perspectives of U. S. history and explained their investigations into our country's past. Therefore, I not only intentionally introduced guest speakers at the beginning of the project, but I also scheduled them throughout the length of the project so that students would maintain interest in the project. Also, students could link information presented from one guest speaker to another and construct knowledge in the form of progressive layers. I carefully chose the guest speakers in this project-based learning experience for their knowledge of the historical content they possessed in relation to the curriculum material examined in class. It is important to note that the guest speakers and I worked closely in planning the content of their presentations. I encouraged students to formulate questions for the guest speakers prior to their visits, during their presentations, and throughout the day of their visits. Both the guest speakers and I closely reviewed the historical material presented to the students to ensure that the speakers' content would enhance the students' social studies curriculum. We took into consideration the students' interests about historical information and questions of historical significance derived from student research. For example, each guest speaker and I reviewed topics that particularly interested the students, including: 1) the historical characters the guest speakers were representing; 2) their area of expertise; 3) cooking techniques they demonstrated; and 4) knowledge they shared about artifacts (typical tools and other items from a specific time period) to reinforce concepts presented in class. The collaborative efforts of the guest speakers and me were especially critical in anticipating students' reactions to the speakers' presentations and maintaining the students' interests.

The first scheduled guest speaker, John Debelak, represents the Fort Pitt Museum in Pittsburgh, PA. I intentionally scheduled him as one of the guest speakers during the first week of the study since he discussed and set the time frame for the students' projects.

The second guest speaker, Thomas Vecchio, is a living historian who represents a Shawnee Native American, "Welethetowaco," which translates into "Pretty Ears" to denote his ear adornments. Vecchio not only presented/framed the setting for the French and Indian War; but he also gave students the Native American viewpoint of the French and Indian War. During his presentation, he asked the students to sit on the floor to "get in the mindset" of a typical Native American council meeting. Not only did this guest speaker present historical information, but he also gave students a sense of what it was like to be a Native American in the 1700's. Vecchio stayed within his Native American character throughout his presentation to strengthen students' perception of his Welethetowaco's role in history. This guest speaker engaged the students by conveying the need to place themselves in a particular historical time frame, and to reflect on the events that occurred, and to ask themselves, "Would I have made the same decisions?" He also posed this question to students as they study history, "Do you read the word or the story?" By suggesting to students that their way of thinking is not the same as everyone else's, Vecchio broadened the students' perspectives. He also asked them to reflect on how the various resources they researched depicted history.

This guest speaker's visit was only intended to be for one class. However, strong interest encouraged him to stay throughout the entire day so that students had the opportunity to visit with him as they exchanged classes and during tutorial to gather additional data for their research. Additionally, students further asked to visit and chat with him during their lunch period.

The third guest speaker presentation entailed a family of parents and twin daughters who are living historians and members of Compagnie France de la Marine de la Riviere au Boeuf, an educational living history group from Edinboro, PA; the Tutino's are also members of the Depreciation Lands Museum Historical Society in Allison Park, PA. Each of them depicts a separate character representative of the lifestyle during the 1700's. The mother, by portraying a woman of New France, attempts to convey to students the everyday life, clothing, chores, food, and games of the time period. The father portrays a member of the Canadian militia. This presentation particularly interested the students since two of the guest speakers were my former students in my social studies classes. The family offered a unique viewpoint through the eyes of not only former students but also through the eyes of children their age in the time era of the 1700's. This group of guest speakers also stayed throughout the entire day to discuss students' historical journals and/or answer students' queries.

The last guest speaker, Brenda Applegate, a living historian from the Beaver County Historical Society, is familiar with the type of cooking and eating habits popular in the 1700's. Her demonstration of cooking took place in an outside courtyard of the school. She set up an "outside kitchen" which would have been similar to that of a colonist cooking during the 1700's. This living historian cooked food over an open fire, displayed various cooking tools, and described their usage. After explaining the purpose of herbs, she invited students to participate in preparing colonial recipes which consisted of cornbread and beef jerky. She also brought a wide variety of books for students to use as reference materials in their journals. These books were available throughout the day to encourage students to browse through them and develop questions. Mrs. Applegate's visit lasted an entire day. Students had the opportunity to visit her after their scheduled class time to ask questions and receive advice about information they

wanted to include in their journals. Many of the students enjoyed the opportunity to chat with her again after they had time to reflect on what she had expressed in her demonstrations.

The guest speakers' dialogues enriched the curriculum material and encouraged students to reflect on various perspectives beyond textbooks presented about both the French and Indian War and the Revolutionary War. The speakers encouraged students to assume the role of historians and to utilize inquiry based thinking to formulate questions about their newfound knowledge. The living historians also facilitated students' research and historical interpretation of pertinent information inclusive in their journals. These guest speakers served as a "bridge" or link from events that happened in the past to the information students were researching for the historical journal project.

3.7.6.2 Notetaking

By encouraging students to take notes throughout the project, I impressed upon them that they would be managers of their information. This responsibility entailed the collection, storage, and usage of the information they acquired through guest speaker presentations, class demonstrations, teacher lectures, class discussions, videos, independent research in both the library and the computer lab, and information from resources acquired outside of the classroom. I suggested to students that as they researched information, they could take handwritten notes from various resources, generate copies of information from the Internet and highlight pertinent information, and make notations directly on the handouts I distributed.

Students' research for their journals had to portray an accurate picture of the events that the historical literature reflected. I emphasized in this project-based learning experience that authenticity was paramount. As students amassed notes from various resources including teacher handouts, I instructed them to review the information relevant to their journals and then

eliminate impertinent data. At the same time students reviewed their notes, I suggested that they prioritize their information by sifting through all of their data and exclude extraneous information which did not answer the focus question in the project, “How did the French and Indian War and Revolutionary War affect individuals?” I further instructed students to highlight material and create a “game plan” in order to gain an overall perspective of how they would represent their completed journals. To achieve this, I instructed students to complete a blueprint of their finished products.

3.7.6.3 Blueprint

In order to facilitate students’ goal setting procedures, I asked students to visualize the journal in small steps to get a preliminary idea of what information each page their journals might contain (See Appendix K). I demonstrated the concept of a blueprint on the chalkboard so that students could plan the layout of their historical journals. After drawing small blocks on the chalkboard to represent each page of a journal, I then identified the content of each page such as journal entry, map, illustration, or hand-made item. A blueprint concept would help students plan how many pages they would need overall for the construction of the journal as well as give the students an idea of where they could strategically place information in their journals.

I presented my former students’ historical journals from a project similar to the one in this study and explained some of these students’ ideas for depicting characters in their journals, interviewing historical information into their journal entries, and displaying unique hand-made artifacts they created to enhance concepts presented in their journals. I anticipated that students, by crafting a miniature version of their historical journals, would create a framework for their research. This blueprint potentially provided an outline as students planned how to utilize their time and research in the computer lab, library, and classroom settings. Students stored this

blueprint with their project calendar. The purpose of the blueprint was similar to an artist's thumbnail sketch—to “sketch out” ideas and envision what the finished product would look like for future modifications.

3.7.6.4 Computer/Internet

This curricular activity encompassed the students' visiting the schools' computer labs to research information via the Internet and to type journal entries. Even though I anticipated that students would be comfortable with this learning strategy, I suggested that they use key words in search engines as they investigated historical maps, documents, and other information for their journal entries. Prior to and during computer lab visits, I instructed students how to locate specific sites that would provide preliminary information for their investigations.

3.7.6.5 Library

I scheduled visits to the middle school library for students to research resources for their journals. Students had access to computers in the library in order to investigate information. During the initial library visit, the school librarians instructed students on various resources available in the library and also suggested methods for browsing the Internet. The librarians were available with each of the scheduled library visits as well as during tutorials to assist students' with their research. In addition to my scheduled classes held in the library, students also independently visited the middle school library during their tutorial classes to conduct research.

3.7.6.6 Videos

I showed videos exemplifying information about the French and Indian War, the Revolutionary War, and lifestyles of individuals during the 1600's and 1700's on specific dates. I also encouraged students to take notes during the videos.

3.7.6.7 Artifacts

Artifacts are items that potentially enhanced the historical and cultural content of the curriculum. This project included hand-made items representative of the time era depicted in the historical journals, samples of notes handwritten in calligraphy, poems, maps, and illustrations. The guest speakers in their visits to the classes demonstrated and discussed a variety of artifacts. I also displayed various artifacts in the classroom as models for the students' reference. These artifacts provided the students with a connection between events that took place during a particular era in history, namely the late 17th and early 18th centuries, and their understanding of those events. Therefore, the guest speakers' presentations and explanations of artifacts were critical in empowering students to become members of their living historian communities. By giving students the opportunity to manipulate the artifacts in their demonstrations, the guest speakers invited students to experience membership in their communities of practice.

Lave and Wenger (1991) describe the importance of understanding the artifacts employed in a community of practice: "Thus, understanding the technology of practice is more than learning to use tools; it is a way to connect with the history of the practice and to participate more directly in its cultural life" (p. 101). As students captured the essence of the guest speakers' demonstrations and formulated an understanding of the use of artifacts, they recreated this comprehension by designing their own artifacts. Their artifacts took the shape of items representing symbols, letters, maps, and other items used in the 17th and 18th centuries including the historical journal

itself. From a historian's point of view, students had the opportunity to reflect on how individuals utilized these artifacts in their lives. These artifacts generated discussions that facilitated the students' understanding of how they could use replications of these artifacts in their journals. They provided a tangible means for students to connect to the historical time frame that was being discussed in the curriculum. Wenger (1998) explained the process as reification: "The process of giving form to our experience by producing objects that congeal this experience into 'thingness'. In doing so, we create points of focus around which the negotiation of meaning becomes organized" (pp. 58-59). Wenger (1998) adds that "Reification shapes our experiences" (p. 59). The importance of students observing and manipulating the guest speakers' artifacts emerged in the way the students subsequently used their own understanding of these tools in the context of their journals.

3.7.6.8 Lectures

I discussed significant information from the French and Indian War and the Revolutionary War and answered students' questions in class discussions. Occasionally, I used an overhead projector to display my outlines of notes. I suggested students record notes during the lectures.

3.7.6.9 Journal Checkpoints

I created checkpoints of students' journals twice throughout the course of the project (See Appendix H and I). The purpose of these checkpoints was to monitor students' progress on their journals. I notified students in advance of the checkpoints by way of class reminders and the project calendar.

3.7.6.10 Demonstrations

I demonstrated the use of calligraphy and wax seals to encourage students to create their historical journals as authentically as possible. To assist students in making journals that were representative of hand-made journals from the 18th century, I instructed them on how to the following: 1) construct a journal from raw materials to resemble a diary, journal, or log typical of this colonial time period; 2) duplicate the style of handwriting used by colonists by demonstrating calligraphy with authentic writing tools (quill pens and homemade ink); and 3) utilize the technique of ink sketching to resemble illustrations from this era. Using historical journals created by my previous students, I modeled replicas of journals from the colonial period so that students could better understand how to use calligraphy.

This project highlighted the relevance of handwriting. Thorton (1996) argues that handwriting typifies a certain time period and is important in history since “it mattered to people in the past, in ways deeply embedded in their cultures” and further, “it embodied, regulated, and generated notions of the self” (p. x). As I instructed students in the use of calligraphy, they modified their styles of handwriting to create a unique, custom look for themselves. Thorton (1996) contends that “because handwriting revealed the self, what made handwriting important was the impression of self it left with readers, and what made it good was the degree to which it faithfully represented the writer” (p. 35). I hoped that as each student practiced calligraphy in class, he/she would find a purposeful, unique application of this handwriting technique in his/her journals.

I also demonstrated and discussed the use of wax seals. Students had the opportunity to create a wax seal on a printed document for inclusion in their journals.

3.7.6.11 Project Calendar

In order for students to independently manage their time and set both short and long-range goals, I provided them with a project calendar (See Appendix L). This calendar, specifically designed by me, informed students of what was occurring each day of the project. The Project Calendar illustrated the class schedule for each day of the eight-week project. Students could anticipate guest speakers' visits, computer lab and library visits, teacher lectures, teacher demonstrations, video showings, class discussions, and completion of the pre- and post-surveys.

The Project Calendar was intended to be used as an instrumental guide in assisting the students in understanding the concept of effective structure and management of their goal accomplishment process. It also illustrated to the students that I was conducting the project in an organized fashion so that the students could make constructive, informative decisions in their plans, especially by setting both short-term and long-term goals for themselves.

3.7.6.12 Handouts

I created a packet of information relevant to the French and Indian War and the Revolutionary War to enhance the curriculum content. This handout, which supplemented our class textbook, consisted of various pieces of information that I had accumulated on both of the wars. I garnered some of the information in the handouts from local historical centers, museums, and the living historians. Some students used the handouts as benchmarks for information they found in other resources such as the Internet. The information contained in the handouts also prepared students for questions for the guest speakers. Because these handouts were portable, they could store them in their folders and then take the folders to the library and the computer labs.

In designing the curricular activities in this project, I gave attention to the social, emotional, and physical needs of younger adolescents. Feinstein (2004) asserts that varying

instructional strategies can motivate learners. Younger adolescents are “more reactionary, impulsive and curious” (Feinstein, 2004, p. 152). To stimulate younger adolescents’ interest in learning, teaching strategies that encourage active participation cannot be overlooked. Perhaps equally important, I enabled students to hold themselves accountable for seeking resources that would supplement the information I presented in class.

3.8 SECTION FOUR: BUILDING AN EDUCATIONAL COMMUNITY WITHIN MY CLASSROOM

The social context in which students developed self-regulatory behaviors was a paramount consideration in this study. To reflect and accommodate students’ diverse backgrounds and previous learning experiences, I sought to create an integrated learning environment and to adopt an understanding of how my students’ differences could be interwoven into the daily activities of the project. Deci (1995) explains that the “individual differences that individuals bring to situations allow for some predictability in terms of how the people will respond to the situations, and together with a characterization of the situation itself, they explain a good deal about the interaction between people and their environments” (pp. 182-183).

Before engaging in this eight-week project-based learning experience, I deemed it essential to acclimate my students to the process of autonomously creating an assessed product. Therefore, throughout the year, I engaged my students in smaller scale projects which entailed cooperative learning experiences with fellow classmates. As part of the social-cognitive view of learning, students shared their interpretation of concepts and construction of knowledge with their peers. Specifically, I gave students the opportunity to choose peers for cooperative learning

groups and to complete products on a group scale as well as an individual basis. These attempts to create social situations that would promote positive learning outcomes and encourage students' concern for each other's success prior to this endeavor would hopefully prepare students for the collaborative learning situations inherent in this large-scale project (Johnson, Johnson, and Holubec, 1994).

It was important for students to engage in small cooperative learning groups to exchange feedback about problem-solving processes. Students had to develop an understanding of the curriculum content as well as communicate with other students who were also developing an understanding of the content. This project afforded students the opportunity to choose peers within the classroom to exchange feedback. Even though students were perhaps facing a more challenging social studies curriculum in a middle school setting, the familiarity of working in small groups within this larger school setting offered a sense of security (Feinstein, 2004). Taking into consideration the social attributes of adolescents, such learning opportunities which allow students to engage in conversation with other students promises to sustain their interest in the curriculum.

3.8.1 Physical Organization of Classroom

The physical learning environment of my classroom was an important consideration in developing a sense of collaborative learning in the project-based learning experience. Bandura (1997) discusses personal agency relevant to one's environment: "The exercise of personal agency over the direction one's life takes varies depending on the nature and modifiability of the environment" (p. 163). He further mentions that individuals do not have much control over their

physical and sociostructural environment; however, they have flexibility in how they understand and react to it.

I envisioned my classroom as an environment in which students would feel welcome to engage in class discussions and activities and become motivated to learn. As students became involved in different class lectures/discussions and classroom activities, I arranged the students' desks in circular configurations to engage students in relevant communication among their peers. Tom Vecchio, one of the guest speakers in the project, also encouraged student discussion in his lecture and demonstration by intentionally designing a memorable learning experience for the students. All of the students' desks were pushed to outer limits of the classroom so that a large space remained in the center of the classroom floor. During his visit to the classroom, Vecchio requested that all of the students sit on the floor in a large circle to "acquire a sense of time" and to participate and encourage eye contact with one another and with him. Physical space in the classroom was potentially conducive to increasing social activity and membership within a community of learners.

Gross (2006) reminds teachers to "consider how the physicality of our classroom shapes social activity" (p. 24). Also, Gross (2006) notes that students' familiarity with physical spaces such as the playground, classroom, and hallways contributes to their understanding of associated rules and behavioral patterns. Students' earlier experiences with these surroundings shape their perception of individuals, groups, and institutions (Gross, 2006). Gross' observations and Bandura's recognition of an individual's environment on learning suggest that the classroom environment provides both social interaction and learning opportunities for students.

In my classroom, I encouraged to share their historical knowledge and personal learning experiences in class discussions and to contribute suggestions for their peers' historical journals.

From this perspective, I invited students into the classroom milieu by empowering them to perceive the classroom environment as a community in which everyone contributes to each other's learning outcome. In order for students to become integral contributors or stakeholders of the learning community in the classroom, I continuously ensured the use of their ideas and informative feedback to improve the flow of the project. Classroom-generated conversations and discussions were meaningful in establishing guidelines for the entire class. As the project progressed and students became more comfortable with their learning outcomes, it was important for students to raise questions to assure that they were on track.

Creating a classroom climate that encourages students are encouraged to develop and sustain behavior management and participate in curriculum decisions can potentially become a complex process. However, both the teacher and the students should share these responsibilities in a classroom community. The Synergetic Leadership Model (Atman, 1996) offers an explanation for the process that takes places as the leader/teacher orchestrates the interaction between the climate of the context (trust that leads to bonding, shared vision, and empowerment); and the development of the vision that leads to a mission (a goal resulting in action); and, finally, a product. As this interaction takes place, the resulting shared energy facilitates an increasingly greater understanding, appreciation, and willingness to participate in the process both individually and as a fellow worker. A group member's commitment to the goal becomes the drive that moves the group toward the goal's accomplishment. Through this dynamic process, the "whole becomes greater than the sum of its parts" (Atman, 1996).

Taking into consideration motivational factors and my students' reactions to curricular activities, I methodically organized the physical space of my classroom so that students could engage in project-related activities at all times. Therefore, supplemental learning materials, such

as copies of historical artifacts, reading materials, raw materials to create hand-made items for the journals, and calligraphy writing materials, were available to students. Students also had accessibility to three computers in my room so that they could readily research information before, during, and after class. I consciously used this computer accessibility to help my students connect to the curriculum. Computer usage also generated opportunities for students to share ideas for their journals, reflect collaboratively with other students and me, develop an overall stronger sense of community within the classroom.

3.8.2 Role of Teacher/Facilitator/Coach

I defined my role in the project as that of a coach on the sidelines of a sport's practice or game. My primary concern was to establish a responsive climate in my classroom in which students comfortably engaged in purposeful learning with their peers. It was important to create a classroom environment in which everyone was respectful and tolerant of each other's suggestions and ideas. Students feel connected to a school when they develop a social identity and a sense of belonging with others (Alderman, 1999). Many scholars/educators believe that this sense of becoming a member of a school environment is important for students' success (Alderman, 1999).

As students brainstormed ideas for approaches to the project and formulated their goals, I continually looked for ways to invite students into classroom discussions so they could exchange feedback with each other.

Tolerance of others' ideas and opinions was one of the ground rules in my classroom. To establish a sense of cooperation and community within the classroom requires students listening to and understanding peers and their contributions. Throughout the project, it was important for

me to be a receptive listener to my students' concerns and suggestions. After implementing many project-based learning experiences in my classroom, I believe it is essential to develop a reciprocal understanding with students. Therefore, I was always available during my students' scheduled class times and throughout the school day to listen and respond to their ideas and questions. This created a sense of trust between the students and me. I have found that in previous project-based learning experiences, students need to communicate their ideas and receive feedback in an ongoing manner. Unlike traditional teaching strategies in which the teacher primarily determines the students' expectations of completing an assignment, project-based learning elicits students to be open-minded to different approaches to solving a problem or completing a task.

I advised students that I would be visiting their peer groups each week to monitor their progress on the completion of the peer-prompted reflections on the SWRF and to act as an advisor/facilitator for the groups' discussions.

Throughout the project, I periodically conducted two Journal Checkpoints (See Appendix H, Appendix I, and Appendix M) to review students' project folders which included class handouts, the students' research notes, and reference materials the students' had accumulated in their research. The Journal Checkpoints would also become a safety factor for some students who needed additional assistance in completing their goals. I also reviewed the students' project folders which contained SWRFs. These checkpoints provided close teacher supervision of students' self-monitoring process and assured that students remained on-task.

If a student and I determined that he/she was not progressing satisfactorily with the development of their goal strategies for the project, then I implemented the following Intervention Strategies:

- a. 1st Intervention Strategy: Student would revise goals and submit them to me the following school day for review with a brief follow-up teacher/student meeting.
- b. 2nd Intervention Strategy: Student would meet with me mid-week to review proposed goals and prepare for the Student Weekly Reflection Form review/completion at the end of the week.
- c. 3rd Intervention Strategy: Student would be required to submit daily goals to me consecutively for one week.

These intervention strategies were intended to act as an additional support for students if they had difficulty connecting to and/or learning the material presented in class.

As students progressed throughout the project-based learning experience and became more independent, I anticipated that my traditional role as decision-maker in the classroom would diminish. In this project, I invited students to become decision-makers in the project; I supported their choices by permitting them to take risks in terms of attempting different learning strategies and seeking multiple solutions to solve problems that arose in the project.

3.9 SECTION FIVE: PROMOTING AUTONOMOUS LEARNING

3.9.1 Student Choices

An integral part of students becoming managers of their learning is their ability to make effective, positive choices that help them successfully achieve their goals. This raises the question as to how students make effective choices.

In this project-based learning experience, students had the opportunity to share in the decision-making process in the design and research methods for their historical journals. I intended for my students to identify the outcomes of both effective and ineffective decisions they might make in order for them to reflect on what modifications were necessary for the completion of their historical journals. I designed both previous project-based learning experiences in my social studies classes as well as the one in this study to engage students in critical thinking and decision-making skills in order to prepare them to become active citizens.

Students' collective histories from previous project-based learning experiences in the classroom, which included learning situations with classmates and shared understandings of goals, combined with participation in the interactive, curricular activities of this project, contributed to the students' negotiation of meaning (Wenger, 1998). Perhaps a sense of familiarity existed as they shared an understanding of not only the events that occurred in the classroom but also how they worked together to construct meaning of the activities. Wenger (1998) emphasizes, "The negotiation of meaning is a productive process, but negotiating meaning is not constructing it from scratch. Meaning is not pre-existing, but neither is it simply made up. Negotiated meaning is at once both historical and dynamic, contextual and unique" (p. 54). Further, as students negotiated meaning in the project and shared common goals, they gained a sense of ownership through their collaboration of ideas (Wenger, 1998).

Students had the opportunity to elaborate on the basic framework of the historical journal project as I encouraged them to use their personal talents to reach their goals in the project. The project itself challenged students to go beyond the basic guidelines (i.e. construct a facsimile of a historical journal) and made it possible for them to incorporate their creativity into their product. In traditional, teacher-directed assignments, students usually work within the

parameters of the assignment established by the teacher and often do not explore the possibility of working outside the limited boundaries imposed on them. When my classes were involved in short-term projects, several students asked for permission to expand the project guidelines to custom-tailor their interests, and I welcomed their desire to do so. Their creative interpretation of the project guidelines contributed to the diversity of the scope of the project; students also had the opportunity to share their unique approaches regarding the project with peers. I valued the students' opinions and modifications of the project guidelines and their interest in becoming decision-makers in the scope of the project. I believe this became a motivational force not only for them but also for their peers.

For example, I encouraged those students interested in music to explore musical expression during the historical time periods of the project and perhaps write a song that reflected their interpretation of historical events. Another example included a student who was interested in the printmaking trade in the 1700's. The student's interest in this skill could evolve into the student crafting documents similar to those created on a printer's press.

I impressed upon students that their choice of "author" would allow them to create a voice in each of their journals to express their perspectives of each of these wars. This project-based learning experience allowed students to choose and assume the identity of an individual living during both the French & Indian War and the Revolutionary War, such as an important historical figure (i.e. George Washington, Christopher Gist, Paul Revere, Betsy Ross, Benjamin Franklin, or Daniel Boone). The individual whom each student chose became the "author" of his/her journal. Students could also choose to create fictitious characters for their journals.

Just as artists express their own style in a painting, students' self expression is an important contribution in "their" curriculum. I encouraged my students to become artists by exploring and formulating "images" or ideas for their class work.

One aspect of this project-based learning experience created apprehension for me: allowing students the freedom to make choices in the classroom. Perhaps I initially feared that if I gave students the option to structure their own learning, I might be supporting unproductive, even chaotic behavior in the classroom. Alderman (1999) reminds us that student autonomy does not necessarily mean that teachers relinquish their responsibility in the classroom. A classroom that provides for students' choices may be perceived as one in which "opportunities are provided for students to exercise control, but they are not given control" (Alderman, 1999, p. 182). To allow students the opportunity to freely make decisions in the classroom entails my understanding of and confidence in the students' abilities to succeed independently. Taking into consideration the physical and social changes occurring in adolescence, I believed it was important for me to maintain a consistently positive, open-minded perception of my students' project ideas. Keeping these changes in mind, Feinstein (2004) notes that when adolescents are "confronted with information," they react quite differently from the way adults might react. This is due to the brain, primarily the parietal lobes, temporal lobes, cerebellum, and hippocampus, being actively under construction in adolescence. (Feinstein, 2004).

Another important process that also occurs in adolescence involves myelin—a substance made of glial which is produced to insulate neurons (Feinstein, 2004, p. 11). The brain releases myelin at varying ages; and the frontal cortex is one of the last parts of the brain to receive myelin (Feinstein, 2004). According to Feinstein (2004), as the frontal lobes become myelinated during adolescence, teens develop the ability to hypothesize, set long-term goals, utilize

deductive and logical reasoning skills, and analyze (p. 12). Another important feature of the frontal lobes is their relationship to an organ, the amygdala, that controls the individual's emotions. Feinstein (2004) asserts changes in adolescents' behavior can lead to "poor" decision-making skills and frustration (p. 13).

Because adolescents tend to react emotionally to situations, I paid special attention to their sense of worth. Feinstein (2004) notes that "there is a strong correlation between a student's self-concept and academic achievement, motivation and teacher and peer relationships; the combination puts them in either an upward spin or downward spiral in school" (pp. 56-57). As a teacher, it is important to value students' ideas and praise students for the unique perspectives they bring to the project.

Alderman (1999) also notes that schools and classroom practices often force competition and promote "negative motivation patterns of failure avoidance" (p. 68). To overcome failure and protect their self-worth, students will devise strategies such as setting goals too low and cheating (Covington, 1998, pp. 91-92), Ames and Ames' strategies (as cited in Alderman, 1999) recommend failure-avoiding strategies that teachers can implement in a classroom:

- Effort and strategies are emphasized and respected
- Learnable intelligence is emphasized
- Improvement is recognized in evaluation
- Failure does not mean dumb
- Meaningful learning is emphasized
- All students are valued and treated with dignity
- Social comparison through public recognition and comparative grading is deemphasized.

(p. 80)

Among Ames and Ames' (as cited in Alderman, 1999) strategies to reduce failure and performance orientation include: instructing students in learning strategies, emphasizing students' progress by giving feedback that indicates skill development, and recognizing that each student's ability increases as he/she gains knowledge and skills (p. 80).

As I continually reflected on my teaching practices in the project, I recognized the importance of conveying a positive outlook rather than expressing an uneasiness about the methods students employed to attain their goals. Students' self-concept influences their learning experiences (Feinstein, 2004). Feinstein (2004) again cites the association of learning experiences with the amygdala in the brain: if the amygdala remembers negative emotions such as anger and fear associated with an experience or concept, it will hesitate to pass it on to the working memory (p. 57). On the other hand, if an individual has a pleasant experience, the amygdala remembers this and is more receptive to learning about the topic in a similar situation (Feinstein, 2004, p. 57). With these considerations, I strived to design a supportive classroom climate that would operate continuously during the span of the project.

3.9.2 Student Goal Setting

I encouraged and mentored each student in his/her respective goal setting processes. Initially, I instructed students to create a long-term goal and to plan backwards to determine what was necessary to achieve that particular goal. Specifically, students had to be able to deliberately develop manageable and, more importantly, attainable short-term goals throughout the project in order to realize the steps toward the successful completion of long-term goals. The long-term goal was a tangible piece evidence showing that the project had been finished. Helping students keep a constant pace throughout the project was a challenge, both for the students and me. My objective in this project-based learning situation was for the students to develop the necessary self-regulatory skills that would enable them to work autonomously and complete their intended outcomes of the project. As Bandura (1997) states,

The motivating power of personal goals is partly determined by how far into the future they are projected. Short-term, or proximal, goals provide immediate incentives and guides for current pursuits. Distant goals are too far removed in time to be effective self-motivators. (p. 217)

Bandura continues to discuss the importance for individuals to establish interim, short-term goals as they achieve their longer-set goals: Self-motivation is best sustained by combining a long-range goal that sets the course of one's endeavors with a series of attainable subgoals to guide and sustain one's efforts along the route (Bandura, 1997) As students progressed through the project, several of them independently discovered that if they were going to achieve the long-range goals they prepared, they must develop and accomplish "mini" goals along the way. These students referred to this method as "taking smaller steps" in order to reach their desired goal(s).

Similar to this process, Schunk (2001) asserts:

Effective goal setting requires that people set a long-term goal, break it into short term, attainable sub-goals, monitor progress and assess capabilities, adjust the strategy and goal as needed, and set a new goal when the present one is attained. This multi-step plan is a key to promoting healthier human functioning, higher motivation and perceived self-efficacy, and self-regulated learning and performance across the life span (pp. 4-5).

Schunk (2001) advises that "goal setting is an integral component of self-regulated learning" (p. 4); however, goals "do not automatically enhance self-regulation" (p. 2). Students need to be cognizant of developing goals that include specific performance standards as opposed to general goals, of using short-term periods, and of avoiding goals that are considered too easy to be motivating (Schunk, 2001, pp. 2 – 3).

The objective in a project-based learning situation is to empower students to realize their development of self-regulatory behavior and self-efficacy in the completion of the project. Some educators may see assisting students as they work in concert with their plans to complete their

projected goals as a daunting task. I was prepared to allocate time to all of the students in my class throughout the project to assure they were synchronizing their daily work with their projected goals. Timing is a critical element in this synchronization process. Students who depend on teacher-directed learning may find it difficult to take responsibility for their own decisions and goal preparations. Several times throughout the project, students asked me, “What do you want me to do?” and/or “What do I have to do to get an ‘A’ on this project?” These comments exemplified the students’ dependence on me to construct goals for them. To teach independency and responsibility, I had to be attentive to time in order to gradually release my support from students who continually sought my assistance.

3.9.3 Students’ Self-Reflections

As students reflected on their self-regulatory skill development and recorded their progress on their SWRF, their observations ultimately became scripts for them to follow each week. The systemization of these self-reflections and recordings became routine and a natural part of their study habits. Using Flavell’s Model of Cognitive Monitoring (1979), specifically the class of metacognitive knowledge, I anticipated that students would identify with one or more of my intended curricular activities to facilitate their learning experiences. Additionally, in the task category of metacognitive knowledge, students could hopefully learn to predict what outcome would prevail from their decisions. In strategy, Flavell’s (1979) last category of metacognitive knowledge, students would establish goals and subgoals as ways to identify cognitive processes to use in their achievement. Flavell et al. (2002) affirm that “self-monitoring sometimes involves ‘metacognitive experiences’.” Flavell (1979) suggests that metacognitive experiences might

occur in situations where individuals carefully think about tasks that require 1) planning ahead of time and evaluating afterwards and 2) any risky actions (p. 908).

Metacognitive experiences which might arise for students in the project include decision-making pertaining to strategies that involve thinking about the viability of one's own skills in self-regulatory development. Flavell (1979) notes: Metacognitive experiences can have very important effects on cognitive goals or tasks, metacognitive knowledge, and cognitive actions or strategies. First, they can lead you to establish new goals and to revise or abandon old ones. Experiences of puzzlement or failure can have any of the effects, for example. (Flavell, 1979, p. 908).

Furthermore, Flavell (1979) mentions that metacognitive experiences can integrate new information to existing information and provide observations for "relationships among goals, means, metacognitive experiences and task outcomes" (p. 908). Taking this into consideration, students' weekly completion of the SWRF, disciplined them to review their previous weeks' experiences in order to analyze and modify their goals.

3.10 SECTION SIX: INSTRUMENTATION

3.10.1 Qualitative

Because I was interested in understanding how students conveyed their development of self-regulatory skills from my teaching strategies and their experiences in the project, I used descriptive qualitative research in this study. I utilized qualitative instruments that would allow students to transmit in their own words the process(es) they used to complete their projects in the

context in which it occurred. Items included in the analysis of the qualitative data were the Students' Weekly Reflection Forms (SWRFs), the Teacher's Daily Logs, and the students' interviews with the teacher. I tape-recorded students' interviews and analyzed them to obtain students' feedback on their self-regulatory behaviors and the project-based learning experience itself.

3.10.1.1 Student Weekly Reflection Form (SWRF)

Students used the Student Weekly Reflection Form (See Appendix A) to record the development of their self-regulatory skills: learning strategy use, time management, and goal-setting. They monitored their self-reflections and peer-prompted feedback of their self-regulatory skill development through narrative responses on this form each week during the project. First, students individually recorded their responses to the prompts on Page 1 of the SWRF and met with one or more peers in the group to review their individual self-reflections and to obtain feedback on their projected goals for their historical journals. They recorded the peer-prompted responses on Page 2 of the SWRF. This collaborative effort was instrumental in students constructing meaning of the curricular activities and determining how each member of the group could utilize these activities in the project-based learning experience. It was important to capture the students' perspectives of my intended teaching strategies because I designed my classroom as an interactive learning environment. Bransford, Brown, and Cocking (2000) explains the relevance of creating a classroom atmosphere in which students feel comfortable to ask questions and take risks in academics: "Teachers must attend to designing classroom activities and helping students organize their work in ways that promote the kind of intellectual camaraderie and the attitudes toward learning that build a sense of community."

Bransford et al. (2000) contend that this community-centered approach to learning is established by norms generated in the classroom and also indicates that classroom norms have persuasive effects on students' achievement. The Bransford et al. (2000) community-centered approach to learning is among four interrelated attributes of learning environments: learner-centered classrooms and schools; a knowledge-centered classroom environment which promotes learning with understanding rather than memorization; and formative assessments in which students have the opportunity to understand their learning process, i.e., through review and feedback rather than a test to evaluate comprehension of concepts. Bransford et al. (2000) further note that a knowledge-centered classroom environment is specifically attuned to students' interests or engagement in a task. This feature is particularly valuable in a project-based learning experience in which curricular activities are inquiry-based, challenge students to use critical thinking and decision-making skills, and focus on students' beliefs and backgrounds.

The students' self-monitoring process with the utilization of the SWRF also captured the students' initial responses to curricular activities and their experiential learning situated within the classroom. I considered the SWRFs as considered the primary qualitative instrument in the data collection process.

Some initial concerns of the implementation of the SWRF included students' expression of descriptive, detailed explanations of their self-regulatory behaviors. Students' responses provided the evidence of how they constructed meaning from my teaching strategies and their interactions in the social context of the project. In order for students to describe meaningful project experiences, I needed to convey the process of self-reflection and suggest ways for the students to articulate their awareness of their efforts and participation in the project. Since students had to complete questions on the form both independently and with a peer(s), I had to

design the format of the SWRF in an easy-to-read, streamlined format so that students could complete it within a class period. I added prompt questions for each self-regulatory skill category and specific behavior so that students had a readily accessible reference point for a description of the behavior.

3.10.1.2 Teacher-Student Interviews

To further obtain as much candid information from the students as possible in the study, I elicited their comments through informal student interviews. I used these interviews to supplement the SWRF data collection. At the beginning and conclusion of the project, I tape-recorded interviews of 20 randomly selected students to gain a perspective of their process(es) of identifying learning strategies, goal setting, and time management. After recording the interviews, I transcribed and analyzed them to obtain the students' feedback on their self-regulatory behaviors and the project-based learning experience itself.

I based the structure of the teacher-student interviews on Glaser and Strauss's (as cited in Miles and Huberman, 1994) theoretical sampling to obtain a perspective of students' responses to specific questions at various times in the project. Through the interview process, I also gained insight into students' needs for interventional strategies. In the interview process, I emphasized making the students to feel comfortable about discussing their concerns about the project. As previously mentioned, I believe one of the advantages of conducting this long-term project in the latter part of the school year was the reciprocal understanding of the classroom structure between my students and me. At this point in the year, I believe my students were less hesitant and more comfortable sharing their concerns and suggestions about the project with me.

I kept the interviews brief as supplements of the information obtained from the primary data collection source, the Student Weekly Reflection Form. The interviews, conducted at my

desk situated in the back of the classroom, ensured a less distracted and more quiet place for students to comfortably participate in a discussion. I advised my students that I was tape recording the interviews. In order to respectfully maintain eye contact with my students, create trust, and convey a supportive interest in the comments students were sharing with me, I avoided taking notes during the interview. Non-leading, open-ended questions were posed to students to compare the consistency of students' responses in terms of their experiences in the project and to allow them to elaborate on their answers rather than express short negative or positive responses to closed questions. I posed the following questions to students at the beginning of the project:

“Who is going to be your ‘voice’ in your journal?”

“What procedure(s) are you using to convert the information you gathered in your research into journal entries?”

With each of the students I interviewed, I was prepared to answer questions they generated specific to their journals. I anticipated collaborating on individualized goal setting procedures with several students who sought my approval on their work from the beginning of the project. With this in mind, I provided positive feedback for students to use in making any revisions to their goals. I used the interview sessions to focus on the students' reflective comments of their self-regulatory skill development. In the interviews, students' impartial comments about their projects further distinguished ideas that provided rich insight into developing common themes for data collection. Using this information assisted me in making further observations and contributed to the questions I asked students in the second interview. I modeled the second interview process after Johnson and Pajares' (1996) data analysis of their three-year longitudinal study: “Preliminary analysis influenced the questions asked during the last round of interviews and the focus of the observations.” Participants responded to the

following questions presented in the interviews conducted at the end of the project: 1) “On the SWRF, which one of the self-regulatory skills helped you the most in the project?” 2) “Which one of the following helped you the most in the project: the project calendar, the blank calendar, and/or the blueprint?” 3) “What project-based learning curricular activity helped you the most?”

I analyzed the students’ responses to the interview questions to determine if patterns emerged in how students gathered, synthesized, and applied their collected information into their journal entries. I used the students’ responses to these questions to understand more clearly the results obtained on the SWRF, specifically the Learning Strategies, Goal Setting, and Time Management categories on the SWRF and the last question on Page 2 of the SWRF: “What project-based learning activity helped you the most in achieving your goals this week?”

3.10.1.3 Teacher’s Daily Log

I used the Teacher’s Daily Log (See Appendix B) to maintain a daily record of what occurred in the classroom throughout the study. In this log, I observed and recorded various aspects of the project-based learning experience: the classroom environment which included the physical arrangement of the classroom and the classroom ambiance; daily lesson plans; teaching strategies; the student interviews; students’ comments; and my suggestions to students. These notes also included my reflective remarks. I completed this form throughout the school day; at the conclusion of the school day and/or at home. I reflected on my remarks and often added additional comments. This log provided a reference for me to compare students’ observations and comments about curricular activities and their responses as to how they perceived these curricular activities in relation to their goal accomplishments.

3.10.2 Quantitative

All of the fifty-six participants completed the Bandura Self-Efficacy for Self-Regulated Learning Scale (Bandura, as cited in Pajares and Urdan, Eds., 2006) and the Goal Orientation Index (Atman, 1986).

3.10.2.1 Bandura's Self-Efficacy for Self-Regulated Learning Scale

In an attempt to measure the students' perceptions of their self-regulatory abilities to complete goals before and after the project-based learning experience, I asked students to complete the following pre/post tests: Bandura's Self-Efficacy for Self-Regulated Learning Scale (Bandura, as cited in Pajares and Urdan, Eds., 2006). Bandura (1997) notes that the development of self-efficacy scales must consider that "The nature of the challenges against which personal efficacy is judged will vary depending on the sphere of activity" (p. 43). Bandura's Self-Efficacy for Self-Regulated Learning Scale is a seven-item scale adapted from Bandura's Children's Self-Efficacy Scale (Bandura, as cited in Pajares and Urdan, Eds., 2006). Bandura's Self-Efficacy for Self-Regulated Learning Scale evaluates students' perceptions of their abilities to utilize various learning strategies in the classroom. This purpose of implementing this scale is to determine how students evaluated their success in completing the project tasks. The scale consists of 11 self-regulatory task questions such as "How well can you finish your homework assignments by deadlines?" Answers to the questions range from 1 ("Not well at all") to 7 ("Very Well"). Zimmerman, Bandura, and Martinez-Pons (1992) have shown Cronbach's alpha reliability test producing a coefficient at .87 for this scale.

On the second day and second to the last day of the study, I asked students to complete Bandura's Self-Efficacy for Self-Regulated Learning Scale. Students sat in uniform rows to

complete these tests. This seating arrangement ensured independently, confidentially chosen answers by the students participating in the study.

3.10.2.2 Goal Orientation Index (GOI)

To gain an understanding of students' development and implementation of goals, I implemented The Goal Orientation Index (GOI) (Atman, 1986) (See Appendix C). The GOI, a 96-item self-report inventory, provides a profile of an individual's goal accomplishment style, e.g. "I start projects on a strong note but lose momentum as I go along." The content of the instrument is based on the Conation Cycle, a 12-step problem/solving decision making model derived from an entrepreneurial case study. Construct validity for each of the 12 subscales (i.e. Recognize Need, Set Goal, Brainstorm Alternatives, Access Risks, Select Strategy, Visualize, Organize, Make It Happen, Push On (Don't Procrastinate), Wrap It Up, Evaluate, and Long Range Direction) was drawn from other well-known instruments, e.g. the Bass Orientation Index, Shostrom's Personality Orientation Index (POI), Nideffer's Test of Attentional and Interpersonal Style, and the Meyers Briggs Type Indicator. The reliability coefficient across the 12 goal-oriented behaviors identified in the GOI ranged from .789 to .941. I used the GOI to determine whether the project-based learning experience resulted in a strengthening or weakening of the use of students' goal setting strategies. It was also used in conjunction with Bandura's Self-Efficacy for Self-Regulated Learning Scale to determine students' perceptions of their ability to finish their envisioned goals. Students completed the GOI the first and last day of the study.

3.10.3 Anticipated Outcomes

I had two anticipated outcomes for this study: 1) As I facilitated students' development of self-regulatory skills and completion of their goals, I anticipated that my students would become less dependent on my support and more self-sufficient managers of their learning; 2) I also anticipated that students would become knowledgeable and engaged in their learning strategies by sharing in the decision-making process of the historical journal project and working with me. By orchestrating my classroom as a collaborative learning environment, I encouraged my students to share discoveries in their research as a way to assist their fellow classmates with their inquiries in the project.

As students embarked on their journey through the project, I urged them to use their imagination to create workable solutions to obstacles that arose, personalize the curricular activities designed to promote self-efficacy, and engage in constructive discussions about the project with their peers to elicit productive feedback. Hopefully, this feedback would be an impetus for students to self-reflect on their performance in the project and harness the strategies necessary to achieve self-efficacy.

3.11 SECTION SEVEN: DATA ANALYSIS AND INTERPRETATION

3.11.1 Method of Qualitative Analysis

I interpreted the findings for the research questions pertaining to qualitative data analysis by using the NUD*IST (Non-numerical, Unstructured Data-Indexing, Searching and Theorizing)

qualitative analysis program. In order to effectively and systematically manage the volume of qualitative data, primarily the information recorded in the SWRFs, in this study, I used a version of QSR's NUD*IST computer software for qualitative analysis, N6. The N6 software is designed to handle the challenges of open-ended answers in surveys (Richards, 2002). Computer Assisted Qualitative Data Analysis Software (CAQDAS) assists the coding and retrieval of data (Butcher, 2000). It was imperative for me to become familiar with the data and decide how it should be organized. Suggestive theoretical thinking and analysis of tasks was not the sole responsibility of an inanimate device, CAQDAS; rather, the purpose of CAQDAS was to "provide assistance" in theoretical thinking and analysis for me (Barry, 1998).

N6 uses a hierarchical node system for organizing data. This method facilitated the coding of data and identification of patterns or themes (Richards, 2002) that developed in students' responses in their Student Weekly Reflection Forms. Data were categorized specifically into main and subcategory relationships through coding. Codes highlight how frequently students used words or phrases in their SWRFs (See Appendix A).

I utilized the N6 program to ensure a more accurate and efficient method to produce findings. I analyzed 358 Student Weekly Reflection Forms to obtain students' feedback on their learning strategy use, goal setting techniques, and time management skills for the following qualitative research questions:

1. Which teaching strategies emerge as having had an impact on students' development of self-regulated behavior?
2. Which learning strategy, goal setting, or time management skills as reported by the students contributed to their overall capacity for self-regulation?
3. What curricular activities of the project-based learning experience are identified by

both the teacher and the students as being helpful in accomplishing the students' goals?

Students used the SWRFs to record their weekly self-reflections of their progress during the project. Students had the opportunity each week to review the previous weeks' forms to modify and develop both short-term and long-term goals. This weekly review also afforded students the opportunity to engage in reflective feedback with their peers. Students' cumulative SWRF were organized on a weekly basis to compare students' conceptual development of their self-regulatory skills as well as to compare my feedback with the students' responses. Due to the changing, unpredictable nature of middle school students' behavior (Feinstein, 2004), the SWRFs became a constant visual reference point for students to develop their project plans.

3.11.2 Coding

The research questions for this study dictated the direction of the data collection and data analysis. As I gathered data during the study, I observed the categories that would pre-determine the structure of the data analysis. Because I anticipated that a rather substantial quantity of data would be obtained from the students' accumulated SWRF, the interviews, and my Teacher's Daily Log notations, I coded the data obtained from the SWRF in an ongoing fashion as recommended by Miles and Huberman (1994). This enabled me to be relatively knowledgeable of the students' initial responses to my teaching strategies. This uncontrived information, which included students' reflections about the curricular activities, afforded me the opportunity to modify any of my teaching strategies to ensure a successful project-based learning experience for my students.

3.11.3 Preparing the Data

At the conclusion of the study, I imported the students' responses for each question recorded on the SWRF into the N6 program as documents. Each section of the SWRF on Page 1 consisted of students' self reflections of self-regulatory skill development in the area of Learning Strategies, Goal Setting, and Time Management. On Page 2 of the SWRF, students responded with their peers in regards to Learning Strategies, Goal Setting, Time Management, Plan of Action, and Most Helpful Project Based-Learning Activity. In N6, I developed a header for each student's name and the SWRF for a particular week. For example, "SWRF-Marie6.txt" indicated that it was Marie's sixth consecutive SWRF she completed in the project. This header helped in data analysis as I used it as a quick reference to compare each student's responses as he/she proceeded in the project. I was particularly cognizant of the progression of students' comments in terms of the quantity and articulation of information as they communicated from one week to the next. I also noted the frequency of self-regulatory skills students employed and curricular activities chosen to complete personal goals each week.

As I imported numerous quantities of SWRFs, I consciously began to create categories and subcategories of students' responses according to similar patterns found in their text. Miles and Huberman (1994) suggest "pattern coding" to "identify an emergent theme, configuration, explanation" (p. 69). With the abundant amount of SWRFs to sort through, it was particularly relevant for me to identify recurring students' responses and group these together according to meaningful units of information. Miles and Huberman (1994) confirm the important features of pattern coding for researchers: 1) reduction of large quantities of data into smaller units; 2) early analysis during data collection allowing for more focused fieldwork; 3) development of a

“cognitive map, an evolving, more integrated schema” to comprehend “local incidents and interactions;” and 4) the establishment of groundwork for cross-case analysis (p. 69).

As I entered the SWRF data into the N6 program, I found it helpful to construct a tentative structure of codes based on the repeated phrases or common ideas in students’ responses. After I imported all of the SWRF data into N6, I generated a report for each self-regulatory skill category: Learning Strategies, Goal Setting, and Time Management. I also generated a report for the “Plan of Action” question on Page 2 of the SWRF which requested students to describe their goals for the following week in the project and a report indicating which project-based learning activity(ies) helped them achieve their goals for a particular week.

After the reports were generated, I analyzed all of the students’ responses and searched for the following patterns: frequency of similar words or phrases, including the mention of the specific self-regulatory skill (learning strategies, goal setting, and/or time management), and frequency in similar ideas. I used the patterns that emerged from the data to code the text inside each of the imported SWRF documents in N6. The coding process involved the creation of nodes on the N6 “tree.” For a clear, accessible display of the codes, N6 utilizes a tree format to categorize all of the nodes that the coding process creates. Up to this point, I had used index categories to code all the unstructured data on the SWRF; I had organized the index categories into a hierarchical tree structure to reflect relationships between categories and various subcategories. As I reviewed the Learning Strategies Report, for example, I identified frequent words or ideas in students’ responses to express a general concept (Miles and Huberman, 1994) such as “Guest Speaker” or “Internet.” I highlighted the text within the students’ responses and created individual nodes in N6 identified as “Guest Speaker” and “Internet.” Within the Learning Strategies Report, I ultimately created 20 nodes for future data analysis. This process of

identifying and clustering similar ideas is described as “chunking” or “coding” information (Miles and Huberman, 1994). Miles and Huberman (1994) define this process: Codes usually are attached to “chunks” of varying size—words, phrases, sentences, or whole paragraphs, connected or unconnected to a specific setting. Miles and Huberman (1994) suggest that an “if-then” tactic is helpful in determining the success of pattern codes: “if a pattern holds, other things will or will not happen” (p. 71). They also suggest that if a “general” pattern code is being utilized a lot, subcodes should be created to explain content and facilitate the researcher in easy retrieval of data (Miles & Huberman, 1994).

The process of repeatedly revisiting the text of the SWRF was necessary to skillfully substantiate the formation of additional index nodes and to assure that I did not overlook any patterns in students’ responses. This reconsideration process was similar to peeling away layers of a vegetable to reveal its core. A rigorous exploration of the text usually revealed several possibilities for nodes; however, it was imperative to address the research questions. Since I was directly involved in the data collection and familiar with the students’ dialogue in class, this exploration facilitated my understanding and processing of the text. My direct involvement in the data collection of this study enabled me to develop a reasonable understanding of students’ reactions and responses to the curricular activities in class as well as their descriptions of their self-regulatory skill development. After I highlighted part of the text and indexed it into a new category or node, I generated a separate report to further analyze the data for recurring themes or patterns. This process of fine-tuning the data analysis was essential as it distinguished specific student behaviors and provided greater insight into how students interpreted what was happening in the project. Each time I revisited the data, I was cognizant of the research question that was being linked with the data as well as the individual and peer-prompted response question on the

SWRF. While reviewing the Learning Strategies Report, for example, I continually asked myself how students' responses correlated with Research Questions 1, 2, and 3. On the SWRF, each student was asked, "What learning strategies did I use this week that worked well for me?" and "What learning strategies did not work well, and how can I improve them?"

The individual reports that were generated from each node proved quite beneficial in understanding the development of students' self-regulatory skills and the context in which students responded to the questions posed on the SWRF.

3.11.4 Quantitative Method of Analysis

I used a one-tailed t-test to analyze data obtained from the Bandura Self-Efficacy for Self-Regulated Learning Scale (Bandura, as cited in Pajares and Urdan, Eds., 2006) and the Goal Orientation Index (Atman, 1986).

Student data related to the Bandura Self-Efficacy for Self-Regulated Learning Scale were analyzed using a one-tailed level of significance t-test for paired samples to assess changes in the scores from pre- to post-testing situations. I used the obtained data to answer the following research questions pertaining to the Bandura Self-Efficacy for Self-Regulated Learning Scale:

4. Is there a significant increase from the beginning to the end of the project-based learning experience in students' Bandura Self-Efficacy for Self-Regulated Learning Scale mean scores?
5. Is there a significant increase from the beginning to the end of the project-based learning experience in the mean scores of students who scored high (the top 20%) on the Bandura Self-Efficacy for Self-Regulated Learning Scale on the pretest?

6. Is there a significant increase from the beginning to the end of the project-based learning experience in the mean scores of students who scored low (the bottom 20%) on the Bandura Self-Efficacy for Self-Regulated Learning Scale on the pretest?

Student data related to the three subscales, Part 1 (Acting, Planning, and Reflecting) and the twelve goal-oriented behaviors, Part 2, found in the Goal Orientation Index were analyzed using a one-tailed level of significance t-test of paired samples to assess changes in the scores from pre- to post-testing situations. Data obtained were used to answer Research Question 7 to determine whether the students' mean scores underwent a significant change: Is there a significant increase from the beginning to the end of the project-based learning experience in students' goal accomplishment style mean scores on the Goal Orientation Index (GOI) Subscales, Part 1 (Acting, Planning, and Reflecting) and the twelve goal-oriented behaviors, Part 2?

I analyzed student data related to the Reflecting Subscale of the Goal Orientation Index by using a one-tailed level of significance t-test of paired samples to assess changes in the scores from pre- to post-testing situations. Data obtained were used to answer Research Question 8 and Research Question 9:

8. Is there a significant increase from the beginning to the end of the project-based learning experience in the goal accomplishment style mean scores of students who scored high (the top 20%) on the pretest Reflecting Subscale of the GOI Subscales?

9. Is there a significant increase from the beginning to the end of the project-based learning experience in the goal accomplishment style mean scores of students who scored low (the bottom 20%) on the pretest Reflecting Subscale of the GOI Subscales?

Student data derived from 1) the Bandura Self-Efficacy for Self-Regulated Learning Scale (Bandura, as cited in Pajares and Urdan, Eds., 2006) and 2) both area subscales and goal-oriented behaviors data derived from the Goal Orientation Index (Atman, 1986) were analyzed using a one-tailed level of significance measure of correlation coefficients. Data obtained were used to answer Research Question 10:

10. Is there a positive correlation between the students' total post-test scores on the Bandura Self-Efficacy for Self-Regulated Learning Scale and the students' post-test scores on the Goal Orientation Index?

3.12 SUMMARY

The summary of the Methodology consists of three sections: my initial concerns of the project-based learning experience, the implication of my teaching strategies in the project, and the contributions of this study for the learning community.

3.12.1 Initial Concerns

Prior to the onset of the project-based learning experience in my classroom, I addressed some initial concerns. I needed to effectively and meaningfully balance the students' interest and

participation in the project with the designed curricular activities. I believed that if students maintained a personal interest in the curriculum, they would embrace learning content as a satisfying experience. In order for students to independently conduct research for their historical journals, they had to develop sufficient historical background knowledge of the material they were investigating.

3.12.2 Implications of My Teaching Strategies

To ensure students' understanding of the historical content and to strengthen their ability to relate the concepts being discussed in class to their research, the invited living historians and I implemented scaffolding strategies; these linked relevant information for the students' usage in their journals. Helping students associate with some aspect of new information was essential in their negotiation of meaning. In order to do this, students needed to comprehend learning concepts in layers, thus building an understanding of new concepts in a stratified manner. My timetable to cover course material had to match their rate of acquisition.

To enable my students to successfully understand content, I focused on implementing flexibility in my teaching strategies. Considering students' various learning styles, I believe it was necessary to utilize a diversity of teaching strategies, particularly in a project-based learning situation where each student's perception of how he/she is going to complete the task varies.

Empowering students to become part of the decision-making process proved to be a challenge for some students who had not been previously invited to participate in the decision-making of curriculum content and/or assessment. Past conformity to school customs whereby the students paid attention to and followed the teacher's directions became a problem for some students. This concept identified as "intentional instruction," applies to these educational

situations in which masters (teachers) serve as a concrete instantiation of what they want their students to become (J. Lave, Personal Communication, July 26, 2007).

3.12.3 Contributions of This Study for the Learning Community

This study attempted to document and substantiate the applicability and use of specific teaching strategies instrumental in the development of middle school students' self-regulatory skills in a project-based learning setting.

4.0 DATA PRESENTATION AND DISCUSSION

This study examined project-based learning as a potentially beneficial means of promoting self-regulatory behavior in middle school students. The multiple forms of data generated from the study support the proposition that project-based learning experiences can enhance student self-regulatory behavior. This chapter provides a close examination of how students attempted to develop self-regulatory skills through 1) self-reflection and 2) self-monitoring their academic work and 3) social behavior in a student-centered learning context.

4.1 OVERVIEW OF THE CHAPTER

This chapter consists of three sections: 1) assemblage and organization of data; 2) qualitative data analysis; and 3) quantitative data analysis. The sequence of the sections forms an understanding or layering of the data analysis process for the study. To effectively share information in the study, I analyzed both qualitative and quantitative data to determine the students' development of self-regulatory skills. It is intended that the layers will show relationships between the qualitative and quantitative data. In Section 4.1, the first "layer" includes the assemblage and organization of data. In addition to information presented in Chapter 3 pertaining to the description and method of implementation of the instruments utilized

in the study, I have also included my observations of 1) students' self-reflective and self-monitoring processes involved in completing the Student Weekly Reflection Forms; 2) the teacher-student interviews; and 3) the pre/post tests used to measure self-efficacy and goal orientation.

In Section 4.2, the second "layer" discusses the analytical framework through which the discovery and emergence of important patterns and concepts from the qualitative data provide insight into student-developed learning strategies. I reviewed my teaching strategies and student-developed strategies in the project and focused on the qualitative analysis of study data. This analysis includes a description and an explanation of the teaching strategies I implemented in relation to social cognitive theories. I designed my social studies classes to engage students in active inquiry into U. S. history. This section also examines the students' responses to my teaching strategies and their understanding of self-regulatory skill development as expressed in their student-developed strategies. Teacher's strategies identified in this chapter as curricular activities include specific activities used to 1) enhance the social studies curriculum, 2) encourage the development of student self-regulatory skills, and 3) create a positive learning environment for students. The students' feedback on these curricular activities will provide insight for teachers planning project-based learning experiences in their classrooms.

This section further presents the strategies both the teacher and students valued in terms of self-regulatory skill development. Self-regulatory skill development in this study focused on students' learning strategy use, time management, and goal setting in relation to the project. Research questions one, two, and three, which focus on the qualitative aspects of the study, are addressed in this section primarily from the Student Weekly Reflection Form data and are complemented by the teacher-student interview data and my daily observations of the students in

the classroom, the library, the computer lab, and the exterior courtyard of the middle school during one of the guest speaker's demonstration. The qualitative data utilized the following three research questions:

1. What teaching strategies emerge as having had an impact on students' development of self-regulated behavior?
2. Which learning strategy, goal setting behavior, or time management skills as reported by the students most contributed to their overall capacity for self-regulation?
3. What curricular activities of the project-based learning experience are identified by both the teacher and the students as being helpful in accomplishing the students' goals?

The second section examines the reciprocity among my intended teaching strategies, the students' developed strategies, and the students' development of self-regulatory skills, specifically in becoming independent managers of their own learning process. As previously indicated, the methodology for analyzing the qualitative data was accomplished through a standardized, systematic procedure, NUD*IST, to ensure reliability and consistency in organizing and categorizing students' responses on the SWRF.

In Section 4.3, the third "layer" presents the results of the quantitative pre/post data analysis. This includes 1) an analysis of pre/post student scores on the Bandura Self-Efficacy for Self-Regulated Learning Scale and Goal Orientation Index (GOI) and 2) a review of the relationship between the two instruments. This section addresses the following research questions:

4. Is there a significant increase from the beginning to the end of the project-based learning experience in students' Bandura Self-Efficacy for Self-Regulated Learning Scale mean scores?
5. Is there a significant increase from the beginning to the end of the project-based learning experience in students' mean scores for those who scored high (the top 20%) on the Bandura Self-Efficacy for Self-Regulated Learning Scale on the pretest?
6. Is there a significant increase from the beginning to the end of the project-based learning experience in scores of students who scored low (the bottom 20%) on the Bandura Self-Efficacy for Self-Regulated Learning Scale on the pretest?
7. Is there a significant increase from the beginning to the end of the project-based learning experience in students' goal accomplishment style mean scores on the Goal Orientation Index (GOI) subscales, Part 1 (Acting, Planning, and Reflecting) and the twelve goal-oriented behaviors, Part 2?
8. Is there a significant increase from the beginning to the end of a project-based learning experience in the goal accomplishment style mean scores of students who scored high (the top 20%) on the pretest Reflecting Subscale of the GOI subscales?
9. Is there a significant increase from the beginning to the end of a project-based learning experience in the goal accomplishment style mean scores of students who scored low (the bottom 20%) on the pretest Reflecting Subscale of the GOI subscales?
10. Is there a positive correlation between the students' total post-test scores on the Bandura Self-Efficacy for Self-Regulated Learning Scale and the students' post-test scores on the Goal Orientation Index?

This “layering” effect of understanding the data analysis is used to recognize similarities or differences in both the qualitative and quantitative data. However, it is also important to examine the textual analysis that students provided on their SWRFs and the narrative analysis derived from the teacher-student interview data in comparison with the statistical data obtained from the Bandura Self-Efficacy for Self-Regulated Learning Scale and the GOI. Both the qualitative and quantitative data yielded similarities in the students’ reflective thinking skills. Using both qualitative and quantitative data to provide insight and breadth of understanding of how students developed and employed self-regulatory skills in this project was necessary. Patrick and Middleton (2002) contend that although surveys are employed to quantify students’ responses of their self-regulated learning, they do not exemplify important factors such as “the nature of learning tasks, instructional contexts, and interaction for students’ self-regulated learning” (pp. 27–28). Descriptions can provide rich insight into the events that occur in a social context. The students’ weekly self-monitored responses illustrated authentic students’ voices that were essential for understanding the students’ perspectives and valuable in documenting how the students developed self-regulatory skills in this project.

4.2 ANALYSIS OF QUALITATIVE DATA

I first accomplished the task of analyzing qualitative data by gathering and categorizing information collected through two qualitative instruments: the Student Weekly Reflection Forms (SWRFs) and the teacher-student interviews. I discovered useful data from the strategies developed by students as reported on their SWRFs. With the data obtained from these two sources, I compared the teaching strategies I implemented in my classroom with the strategies

developed by the students as they completed their historical journals. In order to capture the students' reactions to and interpretations of my teaching strategies and how they incorporated these teaching strategies into their goal plans, I gave careful consideration to students' articulation of ideas on the Student Weekly Reflection Forms. In addition, I paid particular attention to the quantity and quality of written responses the students provided on the SWRF over the course of the project. These observations provided insight into the students' interests in monitoring and self-evaluating their progress, particularly in achieving their goals, as well as the value they placed upon the whole idea of recording self-reflective and peer-initiated feedback of their goal strategies. Since this self-reflective and self-monitoring process was a new experience in a project-based learning experience for the participants in this study, it was imperative to acknowledge any nuances in the written feedback students shared with me throughout their use of Student Weekly Reflection Forms.

A close examination of students' responses on the SWRFs disclosed how students conceptualized my teaching strategies, connected to the curriculum, and envisioned the formulation of their goals.

I noted that the students' identification of the progress of their self-regulatory skill development through self-reflection and self-monitoring was not a precise, linear process. As Zimmerman comments, the motivation to engage in self-regulatory behavior is not always present (Zimmerman, as cited in Pajares and Urdan, Eds., 2002) comment:

Various aspects of self-regulation, such as forethought planning, systematic self-monitoring, and intense self-reflection are mentally and physically demanding activities, and people may decide to forgo their use if they feel tired, disinterested, or uncommitted. (p. 9)

I observed occasions in the project when a few students were simply not in harmony with what was going on around them in the classroom. When these occurrences took place, I urged

the students to step back and reflect on what they specifically needed to do to realign their daily activities with their goals. Through a disciplined process of self-recording their work performance and goals on the SWRFs, I hoped students could realize their accomplishments in terms of goal setting, time management, and success with their chosen learning strategies. The SWRF form not only afforded students the examination of what strategies they were successfully employing to complete their goals, but, also alerted them to what was missing from their attempted strategies if they were not accomplishing their goals. I assumed that the students' repetitious review of the SWRFs would enable them to develop decision-making skills.

For most students, this self-monitoring process was an unfamiliar concept. One student stated, "This is the only class that actually let us write down everything we did." As the project progressed, the weekly time set aside for self-reflection became less of a disciplined, teacher-imposed activity. After students engaged in the SWRF completion several times, the process became automatic; students felt comfortable discussing suggestions for self-improvement with their peers.

4.2.1 Analytical Framework for Qualitative Data Analysis

To amass, organize, and analyze the copious amount of qualitative data, which included 358 Student Weekly Reflection Forms, I developed an analytical framework for this study. The framework consisted of three outcome areas: 1) designing a project that helped students "connect" to the curriculum and consider their personal interests and voices in the development of an authentically assessed end product; 2) understanding students' development of self-regulatory skills in relation to a project-based learning experience using social cognitive and constructivist theories; and 3) understanding the relationship of the learning environment to the

teacher's intended teaching strategies and the development of the students' self-regulated skills. The initial role of the teacher in a project-based learning experience is to provide a structured framework for students; thereafter, she progressively mentors students progressively throughout the project so they can develop the self-regulatory skills needed for success in life.

Using the constructivist approach in this project, I anticipated that self-regulated learners would take an active role in making sense of newly presented information by processing it in ways that reflected their personal interests. Therefore, I engaged students in the authentic task of constructing meaning that would surface in the pages of their historical journal. Students had the opportunity to choose a topic of personal interest for their historical journals as well as to select from a set of diversified, dynamic curricular activities (teaching strategies) to creatively and successfully plan and complete their journals.

Because my students come from diverse backgrounds, I imagined they would infuse their personal histories into their historical interpretations of the curricular content in their journals. These journals not only afforded each student the opportunity to express his or her identity within the curriculum, but also offered a student-centered approach to learning content. In a sense, the project/journal asked students to look for opportunities within the curriculum through which they could validate both their personal and educational experiences. Through the students' chosen fictional or nonfictional characters' voices/perspectives in their journals, each student responded to the focus question of the project, "How did the French and Indian War and the Revolutionary War affect individuals?"

Principle to this study's analytical framework is Lave and Wenger's theory of situated learning which emphasizes that "learning is an integral part of generative social practice in the lived-in world" (Lave and Wenger, 1991, p. 35). Student learning is not simply a reception of

facts; it takes into account the students as agents, the activity in which students are involved, and the world in which the students live (Lave and Wenger, 1991). I designed the curricular activities in this study to facilitate students' understanding of curriculum content in the context of an interactive classroom environment. Through the implementation and functionality of the curricular activities and through interaction with others in an educational setting, I intended for students to become agents of their learning. The students' narrative responses on their SWRFs specifically provided an understanding of their learning experiences in the project and empowered me to critique the pedagogical tenets I incorporated in my teaching strategies.

4.2.1.1 Research Question One

I based this study on my belief that students would develop an understanding of how they internalized self-regulatory skills in order to successfully complete the project through an ongoing process of self-reflection. Students adopted my intended teaching strategies (curricular activities) and interpreted them in terms of their own learning strategies in two ways: first, students renamed the twelve curricular activities as "learning strategies;" second, I found a pattern in the array of learning strategies the students created which I grouped together and called "student-developed strategies." These student-developed strategies emerged in the students' self-evaluations of their applied learning strategies, goal setting procedures, and time management as recorded in their SWRFs. The following selections explain both my intended teaching strategies and student-developed strategies in response to the first research question: What teaching strategies emerge as having had an impact on students' development of self-regulated behavior?

I derived the answer to this research question by examining the students' responses on their Student Weekly Reflection Forms (SWRFs) and by studying my observations in my

Teacher's Daily Logs. The hypothesis for this research question was: Teaching strategies will emerge that have an impact on students' self-regulatory behavior as demonstrated by students' responses on the Student Weekly Reflection Forms, teacher-student interviews and the Teacher's Daily Log. Therefore, the hypothesis was accepted. Each time a student identified a learning strategy, goal setting procedure, or time management skill on his/her SWRF indicates a response. It is important to note that while the first research question addresses learning strategies, I occasionally mention goal setting procedures and time management skills, two other self-regulatory behaviors observed in this study. For clarification and comparative purposes, I found it necessary to discuss all three of the self-regulatory skills at various times in the following data analysis of students' learning strategies.

4.2.1.1.1 Teaching Strategies

My teaching strategies can be envisioned as the infrastructure of the study. These teacher-implemented strategies consisted of developing and implementing twelve unique, diverse curricular activities in this project so that students had the opportunity to choose which activity or activities helped them understand the curriculum and achieve success in completing their historical journal projects. I designed the curricular activities to be responsive to my students' needs, to create an interactive learning environment, to incorporate technology into the curriculum, to engage students in critical thinking skills, and to develop self-regulatory behaviors. For example, I gave students the opportunity to learn historical content through guest speaker visits to the classroom, historical videos, computer lab visits, demonstrations related to artifacts, browsing the library for resource materials, and participation in classroom lectures/discussions. These curricular activities included: Guest Speakers; Notetaking; Computer/Internet usage; Videos; Library; Artifacts; Lectures; Journal Checkpoints;

Demonstrations; Project Calendar; Blueprints and Handouts. I incorporated a diversity of techniques because I assumed students learn through a variety of methods. I embedded into each curricular activity my intended structure for developing and utilizing self-regulatory skills in the project. This intended structure was two-fold: 1) students would develop and utilize the self-regulatory skills for each curricular activity and 2) students, through practice, would habitually and independently use the self-regulatory skills. For example, “Guest Speakers” served as a curricular activity implemented four times throughout the project. Before each speaker’s visit, I instructed students on 1) how to prepare in terms of questions to clarify the guest speaker’s presentation of information; 2) how the guest speaker’s material applied to the students’ research; and 3) how to utilize the guest speaker’s demonstration of artifacts in the students’ historical journals. I observed that students reflected and employed self-regulatory skills by asking themselves: 1) How am I going to obtain the information I need from the guest speaker? (Self-Regulatory Skill: Learning Strategy); 2) What am I going to do with the information I obtain from the guest speaker in terms of constructing something for my journal? (Goal Setting); and 3) How much time do I have to obtain information and complete the goals I have set for myself? (Time Management). The Student Weekly Reflection Form Guide (See Appendix F) was used as a source of prompts for self-reflection and self-monitoring throughout the project-based learning experience. I initially guided students in the process of self-reflection and self-monitoring for each curricular activity; I then assumed the role of mentor for the subsequent occurrence of curricular activities in order to facilitate student autonomy.

An important element in this project was to enable students to choose one or more of the curricular activities and to recognize the strength and weakness of each activity as it related to the completion of their historical journals. I hoped this opportunity to select and utilize a variety

of curricular activities would motivate students to maintain interest in the project (Kessler, 2000; Feinstein, 2004). Rather than the project's being teacher-directed, it was intended for it to become student-driven. The project empowered students to choose the curricular activities that best suited their learning styles and that had the most personal relevance to the composition of each student's historical journal. The students' narrative descriptions in their SWRFs expressed their methods of making sense of curricular activities, their mutual understanding of their participation in the project-based learning experience, and their comprehension of the concepts presented to them in class. Students' self-reflections and peer responses of their progress on the SWRF provided insight and significance into the students' sense of control of their learning in the classroom. Through students' feedback on the SWRF, I construed which curricular activity (activities) proved most beneficial in helping them interpret and apply historical information in their journals and employ self-regulatory skills in managing their work in the project.

As students reflected on their learning strategies, they were responding to the prompt, "What learning strategies did I use this week that worked well for me?" Throughout the duration of the project, the students gradually called the various curricular activities "learning strategies." For example, in responding to the question on learning strategies, students included "Video" or "Guest Speaker" as a reference to the curricular activity implemented by me in a particular social studies lesson. This form of curricular activity labeling might perhaps stem from the students' familiarity with previous experiences of teacher-directed learning—using the teachers' terminology verbatim in reference to the type of assignment and/or curricular activity. This student labeling could also be a quick notetaking method of reference to the curricular activities indicated on the SWRF as well as in the students' conversations both in and out of the classroom in which they exchanged information about the project. Students' use of brevity in their

responses, “Video” or “Guest Speaker,” may be attributed to the maturational growth of adolescents’ frontal lobes in their brains (Feinstein, 2004). Feinstein (2004) explains adolescents’ speech production: “Young adolescents have more difficulty generating words and expressing themselves than do older adolescents” (p. 13). Perhaps students only knew an articulation of their self-regulatory skill development in terms of short phrases and words.

Students’ poignant interpretation of my teaching strategies emerged on the 14th day of the study. Once students completed their second SWRF, we engaged in a class discussion pertaining to students’ effective research methods. This dialogue evolved into a brainstorming session about how the students could exchange information among themselves during class time whenever necessary. Several students spontaneously suggested that I set aside time during class so they could discuss discoveries they encountered in their research and concerns and progress about the project on an as-needed-basis with their peers. The students and I conversed about their need to share ideas with their peers; I prompted the students to think of a name for this concept. After some deliberation, students chose to call this idea “working sessions.” Thereafter, I incorporated this student-developed curricular activity into my teacher-implemented curricular activities whenever students indicated to me that they needed to take a “time-out” for class reflection and discussion during the regular class period. Both the students and I perceived the working sessions as a time for students to juxtapose themselves from the process—they needed to stand back from their work to understand their role in the project, to view what others were doing around them in terms of how they could seek help, and to share data or simply reflect on their ideas to accomplish their goals.

At this point in the project, it appeared that my intended expectations for students’ self-regulatory skill development shifted to become the students’ expectations for their own

development of self-regulatory skills. The students' began to understand that their communication with me about any concerns relevant to the project was paramount in developing a sense of community within the classroom. I assumed that the students shifted their perception of me as an authoritarian figure in the classroom to a mentor or guide who needed to understand their perceptions of the project. This shift in students' perceptions is important for three reasons: 1) students, comfortable with the knowledge of my teaching style, knew I would be receptive to listening to their views and approaches to learning curriculum content which incorporated their interests; 2) students, collaborating ways to construct an idea of how to handle student-initiated questions about research methods, engaged in negotiability (Wenger, 1998); and 3) students shared in the decision-making process of their learning. This last reason is very critical in understanding the self-discipline involved in the development of self-regulatory skills.

At the beginning of the study, students inquired frequently about how their project grade would affect their cumulative grade for the year. Some of the questions I received were: "How much information do I have to include in my journal to get an 'A'?" "What do you want us to include in our journals?" After I reflected on these questions, I realized the extent to which students were accustomed to fulfilling requirements that the teacher imposed on them rather than developing for themselves acceptable criteria to reach their goals.

Table 1 indicates the results of how students responded to the curricular activities they chose in terms of successfully using a learning strategy: "What learning strategies did I use this week that worked well for me?" I derived the answer to this research question by examining the students' responses on their Student Weekly Reflection Forms (SWRFs). A response on the SWRF refers to each time a student identified a learning strategy on his/her SWRF. The following curricular activities are listed in descending order of students' responses on their

SWRFs: 1) Guest Speakers; 2) Notetaking; 3) Computer/Internet; 4) Videos; 5) Library; 6) Artifacts; 7) Lecture; 8) Journal Checkpoints; 9) Demonstrations; 10) Project Calendar; 11) Blueprint; and 12) Handouts.

Table 1. “What learning strategies did I use this week that worked well for me?”

<u>Curricular Activities</u> (Teacher-Intended)	<u>n</u>	<u>Percent</u>
Guest Speakers	99	27.7
Notetaking	93	26.0
Computer/Internet	88	24.6
Videos	63	17.6
Library	24	6.70
Artifacts	12	3.35
Lecture	11	3.07
Journal Checkpoints	9	2.51
Demonstrations	8	2.23
Project Calendar	7	1.96
Blueprint	3	.84
Handouts	2	.56

n = number of times any student indicated this response on SWRFs

Percent = the percentage of responses out of the total 358 SWRFs

Four of the twelve curricular activities, Guest Speakers, Notetaking, Computer/Internet and Blueprints will be discussed in terms of their effectiveness as teaching strategies. I selected these four curricular activities were selected because they represent the diversity of teaching strategies I implemented in the project. Having the ability to draw upon students’ interests and personal goals (Feinstein, 2004; Alderman, 1999) to create opportunities for students’ choices (Dewey, 1933; Glasser, 1990) and to encourage the development of self-regulatory skills for student autonomy and self-management (Alderman, 1999), served as the prerequisite for my being able to design a variety of teacher-intended curricular activities.

4.2.1.1.2 Guest Speakers

The number of SWRF responses indicate that Guest Speakers was the most popular recognized curricular activity. I attribute justification for this well-received curricular activity to the guest speakers' approach to their demonstrations of the 17th and 18th century lifestyles of individuals and their ability to enrich the students' research. The living historians shared their expertise with students, but, more importantly, these individuals opened a new window of adventure into historical events of the past.

It appears that the appeal of the guest speakers was the authenticity of information they conveyed to students. Students' comments to me indicated that they welcomed the guest speakers to the classroom not only as a diversion from previous social studies classes where they typically read and recited information from the social studies textbook, but also as the chance to hear other points of view that elaborated on and clarified the historical content that students researched. Jan mentioned, "The guest speaker helped me understand more." Terry indicated, "The guest speaker helped me a lot. I even got to interview her so she gave me tons of information." I believe that students responded well to this curricular activity since guest speakers invited students to participate in their class demonstrations. In their participatory role with the guest speakers' presentations, students attempted to recreate the life of someone living in the 17th and 18th centuries. Experiencing this time period and using artifacts to understand an individual's lifestyle proved genuinely memorable for students. Students' manipulation of tools and other devices used in a certain time period conjured up a connection with the past. The guest speakers' presentations reinforced the students' research, conveyed the authenticity of individuals' lifestyles in the time period students were studying, and more clearly defined what students were learning.

As students observed guest speakers' modeling information they had researched, their "learning" became more vivid and explanatory. Through this shared experience with their peers, the students exchanged ideas about the hands-on-activities with the guest speakers and developed fresh, mutual understandings of historical facts and applications of newly acquired knowledge in the project. In this context of learning, students identified with each other's observations of guest speakers' information, thus engaging in negotiability to determine the relevancy of the information (Wenger, 1998). As students shared their experiences of participation in the guest speaker's historical re-enactments, they acquired a sense of their membership in a community of living historians.

Through their recollections of learning history as an adolescent in their respective classrooms and understanding their roles as living historians in which they continually share knowledge about their historical characters, the guest speakers communicated their excitement and satisfaction about learning in general. Their historical interpretations more clearly defined what students were learning. The opportunity to learn about history through the living historians' voices brought an enriching, educational experience to the students. Creating educational experiences for students is an integral part of engaging students in the learning process. Wenger (1998) discusses the importance of students' identifying themselves within a learning community. Taking into consideration the students' sense of belonging within a learning community, Wenger (1998) poses some considerations for educational designs "not just in terms of the delivery of a curriculum, but more generally in terms of their effects on the formation of identities" (pp. 270-271). To implement this educational design concept, for schools need to consider the following students' needs in the formation of a learning community:

- 1) places of engagement;
- 2) materials and experiences with which to build an image of the

world and themselves; and 3) ways of having an effect on the world and making their actions matter (Wenger, 1998, p. 271).

Based on the students' responses, the guest speakers' presentations created an educational experience in which students could identify their interests and goals in the project. Wenger (1998) elaborates on student engagement in learning: "What is crucial about this kind of engagement as an educational experience is that identity and learning serve each other" (p. 270). As evidenced by students' responses on their SWRFs, several students did not hesitate to ask questions and communicate their journal ideas to the guest speakers. Perhaps the informality of the guest speakers' presentations attracted students to this curricular activity. The students' initiation of communication between themselves and the guest speakers indicated that they took an active role in understanding what they needed to do in order to accomplish the goals they created for themselves. While my intent was to create the opportunity for students to grasp the guest speaker curricular activity, I also wanted the students to take the responsibility of customizing the learning experience. Wenger (1998) explains the infrastructure a learning community entails:

1. Activities requiring mutual engagement, both among students and with other people involved challenges and responsibilities that call upon the knowledgeability of students yet encourage them to explore new territories
2. Enough continuity for participants to develop shared practices and a long-term commitment to their enterprise and each other (p. 272).

The positive, purposeful educational opportunities created by the guest speakers' presence in the classroom could be attributed to students' participating actively and socially in the learning community. As I observed students' social interactions with the guest speakers and their peers during the living historians' visits, I realized that the students were self-motivated to make inquiries to the guest speakers and share information with their peers. To support students'

self-motivation, I created a classroom atmosphere where students felt comfortable exploring and discussing their ideas. I was consistently receptive to their ideas as to how they could interweave the guest speakers' information into their journal goals. Listening to the students' spontaneous and well-thought ideas, I knew I had to be flexible in my teaching methods and in my perception of sharing power in the classroom. As the students and I began to understand together what was relevant to them in completing their journals, the concept of student empowerment in the classroom was evidenced by the students' more confident approach to the demands of the learning situation. It became clear in my observations of the students' social interactions with both the guest speakers and their peers that, as I diminished my role as an authoritarian figure in the classroom, particularly during a guest speaker visit, and encouraged students to assume responsibility for the "flow" of the learning, they were able to succeed.

Beginning with the first guest speaker's visit, I modeled strategies that students should use in class to create effective, informative notes for their historical journals. I suggested to students that as they researched information, they could take handwritten notes from resources, class lectures, demonstrations, and guest speaker presentations. I also instructed students to be prepared to take notes and sketches for future reference and to prepare questions that related to their respective research to ask the guest speaker, the librarian, and/or me. The notetaking strategy emerged as a two-fold concept for students: 1) students recorded notes that would reflect their understanding and interpretation of historical and cultural events of the 1600's and 1700's and transformed these notes into individual journal entries in their historical journals, and 2) they utilized notetaking to self-monitor their progress in the project. During the self-monitoring process, students utilized notetaking to record their observations, ideas, and self-reflections throughout the project.

I provided guided instruction to students on how to take notes. Another consideration for students' notetaking was to generate copies of information from the Internet, highlight the pertinent data, and/or highlight and make notations directly on the handouts distributed. As students amassed notes from various resources including teacher handouts, I instructed them to review the information and eliminate impertinent data for their historical journals. I hoped students' interpretation of their research data would hopefully develop into accurate portrayals of events in the historical literature.

The student's realization of what particular learning strategies proved to be helpful in their completion of the project emerged from the process of constructing the journal. The participants in the study who considered themselves to be conscientious, efficacious students demonstrated their efficient study habits in the completion of their journal: "I just had all my stuff organized, I knew where everything was" (Katrina); "What helped finish this project was staying organized and following guidelines" (Annie); "I set goals; I can improve by keeping up with what I say I will do" (Barb).

As students identified learning strategies that helped them achieve their goals and modified those strategies that proved to be unproductive, I observed some students struggling with the process of how to interpret, synthesize, and transform their research into journal entries. This process, which students addressed as "journal entries," specifically involved students seeking, researching, understanding, and applying historical information drawn from curricular activities. I incorporated higher-order thinking skills by requiring students to synthesize information from a number of resources and transfer this information into their journals. Those students who were novices to this synthesizing process often found this synthesizing process a challenge; they needed to consider by the level of complexity of their selected goal setting

strategies. Students' concerns for developing goals to accomplish their journal entries were evidenced in the most frequent student response for the self-regulatory skill of Goal Setting. Transitioning students to a position of responding to their own carefully developed "assignment structure" (i.e. goals) is a formidable challenge.

In the traditional school setting, students tend to rely on their teachers for the dissemination and acquisition of information and to set expectations for students' learning processes. Boekaerts and Niemivirta (as cited in Boekaerts et al., 2000) note the students' dependency on the teacher to determine and channel the path for the students' goals: "It is accepted, even expected, that teachers should be largely in control of what is being learned, how it is learned, when it is learned, and to what extent" (p. 417).

In further explaining the complexities that arise when students are routinely accustomed to teacher-directed learning, Boekaerts et al. (2000) argue:

The generally accepted role pattern wherein teachers convey declarative and procedural knowledge and students must find a way to comprehend, store, and activate that knowledge leads to a situation in which students lack sufficient opportunity to organize and regulate their own learning. (p. 417)

In this project-based learning experience, students prioritized the steps they needed to complete in order to achieve both their proximal and long-term goals. "Journal Entries" became a paramount factor in concluding their goal-setting plan. The experience also noted that, as students attempted to make a transition from teacher-directed learning to student-driven learning, they needed to overcome their familiarity with previously teacher-structured assignments. This process can also be somewhat of a "balancing act" as students comprehend the responsibility for activating the decision-making skills needed for the completion of the journal: selecting and comprehending learning strategies, developing goals and managing time, and choosing and

applying resources through curricular activities that provide substantial historical data to authentically construct their historical journals.

Although I assumed that students sought a “comfort level” in the research methods they chose, this process did not always follow a linear path. Through my daily observations, I recognized that the most demanding commitment of completing an authentic end product in this project was the extraction and synthesization of relevant information from resources. Finding relevant information was a tedious task for students; several students repeatedly needed guidance in the process of identifying “relevant” information. This proved to be a somewhat arduous process for me. Therefore, to assure students that they were using productive data collection techniques, I initiated one-on-one mentoring with these students. I allocated a portion of the time in our scheduled Computer/Lab visits with each student to explain how they could 1) link information from one resource to another; 2) scan information from a resource to pull out information they could use as a “springboard” to investigate other information; 3) identify similarities in different resources; and 4) synthesize information to incorporate into their historical journals. In the project, this curricular activity proved to be the most time-consuming portion of my role as mentor.

I also realized students’ deciphering what relevant historical information to include in their journals was actually a decision-making process for them. I expected students personally to master this process after a few weeks into the project. However, it became evident that those students who experienced difficulty with extracting relevant historical information from the curricular activities were actually experiencing difficulty with risk-taking and deciding which pieces of data to incorporate into their journals. Students posed the following questions about decision making processes to me: 1) “What kinds of information am I supposed to include in my

journal?"; 2) "Is this (researched information) important for me to put in my journal?"; and 3) "Is this enough information, or should I look up more for my journal?" Perhaps those students unaccustomed to having input in the curriculum were unable to actively participate or take responsibility for making decisions about the content of their journals.

In researching learners, learning and teachers, and teachers' intended learning strategies, Bransford et al. (2000) note three key findings: 1) Children bring to the classroom preconceptions about the world; these preconceptions must be addressed so that students grasp new concepts and information that is taught; 2) In order to become competent in an area of inquiry, students have to develop a deep understanding of factual knowledge, understand facts and ideas in the context of a conceptual framework; and organize knowledge in ways that facilitate retrieval and application; and 3) Metacognitive skills must be integrated into the curriculum to help students learn to take control of their own learning (p.18).

Bransford et al. (2000) remind educators that "in most areas of study in K-12 education, students will begin as novices; they will have informal ideas about the subject of study, and will vary in the amount of information they have acquired" (p. 17). They add:

A key finding in the learning and transfer literature is that organizing information into a conceptual framework allows for greater 'transfer'; that is, it allows the student to apply what was learned in new situations and to learn related information more quickly. (Bransford et al., 2000, p. 17)

Those students not readily able to identify relevant information in their research methods needed more guidance in connecting historical information to their research through other curricular activities. It can also be assumed that synthesizing information from multiple resources and interweaving this information into their own personal framework (finding their "voice" in the journal) was a monumental task for some students. An important point to observe about students

engaged as apprentice researchers in this journal project is found in a Bransford et al. (2000) comment about “experts” and “novices” in the learning process:

A pronounced difference between experts and novices is that experts’ command of concepts shapes their understanding of new information: it allows them to see patterns, relationships, or discrepancies that are not apparent to novices. They do not necessarily have better overall memories than other people. But their conceptual understanding allows them to extract a level of meaning from information that is not apparent to novices, and this helps them select and remember relevant information. (p. 17)

As students developed an understanding of how to interpret and synthesize information, a question emerged: “As students reflect on their work, how are they approaching and evaluating the effectiveness of their learning strategies to achieve a task?” This inquiry raised another question: “Are students’ research techniques effective?” I used scaffolding techniques in order to help students utilize productive research methods. I provided examples of how to investigate and organize research, specifically Internet usage, in order to equip students with procedures of how to investigate information they needed for their journals.

Students self-identified notetaking as an area of self-improvement. To complete their journals, students needed to first collect sufficient historical information from resources to craft the entries, illustrations, maps, and artifacts included in the finished product. Students realized their long-term goal of completing their journals through establishing and achieving ongoing proximal goals of information gathering from one or more resources. The self-correcting method for re-evaluating the success of their learning strategies resulted in their notations regarding switching self-regulatory strategies to complete these proximal goals.

4.2.1.1.3 Notetaking

I considered students’ notetaking as the raw material for their journal entries. Students’ notetaking responsibilities encompassed a variety of features acquired from: guest speaker

presentations, research conducted in the library, resources on the Internet, students' data acquired from resources outside of class, my class lectures, videos, and information from textbooks and reference books in the classroom. Students assumed the responsibility for keeping their notes organized, bringing them to class for discussion and feedback from their peers, and using them as resources for writing their journal entries.

Even though students' responses indicated "Notetaking" as the second most used teacher-intended curricular activity (see Table 1), they did not significantly rank "Notetaking" as a "Most Helpful Project-Based Learning Activity" (see Table 6). After I reviewed students' responses to the specific question on the SWRF, "What learning strategies did I use this week that worked well for me?", the data led me to believe that students were implementing short-term goals for their completion of notes so that they could finish a specified number of journal entries for a particular week. I asked students to reflect on all of the curriculum activities in the question I posed to them: "What was the Most Helpful Project-Based Learning Activity?" The data indicate that they did not perceive "Notetaking" as a priority. This led me to believe that students interpreted "Notetaking" as a learning strategy, perhaps something that helped them structure their journal entries, rather than as a curricular activity. It is difficult for me to determine what quantity of notes students considered satisfactory in order to complete their journal entries. As I observed students taking notes during my lectures as well as other settings throughout the project, it was interesting to see the diversity in the quantity and characteristics of notetaking each student possessed. In their study, Wilson and Korn (2007) addressed students' notetaking during teachers' lectures. They investigated the claim from many authors that students' attention declines approximately 10 to 15 minutes into an instructor's lectures (Wilson and Korn, 2007, p. 85). After conducting extensive research, they concluded that there is "little

support for the belief that students' attention declines after 10 to 15 minutes;" even though the quantity of some students' notes had declined, the students' "retention of the material did not" (Wilson and Korn, 2007, pp. 85-86). Further, they assert that as instructors lecture, they should be mindful of students' differences in attention control and students' ability to record relevant content from the lecture in their respective notes (Wilson and Korn, 2007, p. 85). This research suggests that instructors' perceptions of students' notes may not be true indicators of students' retention of what they are recording from lectures.

4.2.1.1.4 Computer/Internet

This technology-based curricular activity was potentially multidimensional as students could access the Internet in order to collect data and generate notes, directly type their journal entries, or create hand-made items such as maps, charts, and replicas of documents from the information obtained from the Internet. Throughout the project, I impressed upon students that in order to become managers of their information, they had to 1) prudently determine the information they were seeking; 2) develop a notetaking system to record information they obtained from resources; and 3) responsibly maintain the notetaking system for adaptation into journal entries, maps, illustrations, and other uses in their journals.

In this project, repetitious usage of the Internet did not necessarily indicate a student's proficiency in locating and interpreting relevant information for a particular topic in his/her journals. As students embarked on their investigation of historical information, I realized that most students were comfortable with choosing search engines on the Internet. It is likely that previous experience either from computer usage at home and/or previous teachers' visits to the computer labs in our schools had acclimated students to the fundamental elements of the

Internet. I instructed students on how to use key words and phrases to facilitate their investigation of information on the World Wide Web. Caine and Caine (1991) discuss students' unfamiliarity with the constructive use of technology: "Regrettably, most schools do not engage students in the reflection, inquiry and critical thinking needed to help them cope with and take charge of the influences of technology and the media" p. 19).

For some students, investigating data on the Internet proved to be challenging. These students either persevered with a vague notion of what historical or fictional character would act as their voice in the journal and/or experienced difficulty navigating the Internet to find specific data that would support their response to the project's focus question. For those students who were undecided in their approach to Internet exploration, time management became a critical factor in computer lab visitations. I closely mentored these students to assure they developed strategies to use their time wisely. Two students' responses indicative of this scenario stated: "One strategy that I got stuck on was identifying important historical information to include in my journal;" "Identifying important historical information to include in my journal didn't work well, and I can improve it by looking harder and paying more attention." At this particular juncture in the project when these students knew they needed to make a definitive decision and proceed with a plan to accomplish a goal, I intervened and closely guided the students' research methods by assisting them in constructing a plan for their inquiries, thereby making their research time purposeful. The process consisted of working backwards from the students' envisioned end result for their historical journal. Basically, students sought a structure for their data collection so that they could have some expectation of reaching their set goals. However, I made a careful distinction to students as I guided them in the project: My guidance in the

structure of their data collection was not to be construed by students as completing the work for them.

In the project-based learning experience, I closely monitored each of the students' research techniques in the Computer Labs to assure that they were 1) linking their personal interests to their chosen time era for their historical journals, 2) monitoring their time in relation to scanning articles for applicability to their project goals, 3) using multiple sources on the Internet to verify accuracy of information and 4) disciplining themselves to use the allocated class time wisely for research, specifically in the Computer Lab. Due to the time restraints of the class, students had to be prepared to begin their investigation at the onset of class. I observed that students struggled to maintain self-discipline and concentration, especially in a computer lab setting, in order to stay on task. Students could easily be distracted by their peers who 1) required assistance navigating the computer's search engines, 2) needed help in identifying relevant information to use in their journals, 3) sought clarification on the project's focus question, or 4) simply wanted to chat during class time. With all of these distractions in mind, students especially needed to devise a "game plan" of how they were going to budget their visits to the computer lab within the time constraints of the class to gather necessary information.

I asked students to investigate historical documents such as maps, legal documents, treaties, and correspondence on the Internet to clarify historical events. To accomplish this, students had to implement the self-reflection skill of thinking about what they intended to research and how they would productively use their time in the library and computer lab. Both the librarians and I modeled this investigative process for the students. After successfully employing search strategies on the Internet, students were excited to share their discoveries with peers. The information-sharing occasions in the computer labs with peers proved helpful in two

ways: 1) students had the opportunity to communicate successful strategies for searching the Internet and 2) students potentially developed a sense of community in the computer labs where each student in class was involved in a common project goal. After students had the opportunity to visit the library and the computer labs to research information at least once, I observed the various pieces of information students were compiling and how they were transforming this information into journal entries. I posed this question in my first interview with students: “What procedure(s) are you using to convert the information you gathered in your research into journal entries?” Table 2 exemplifies how the interview responses of 20 students could be organized.

Table 2: Teacher-Student Interviews: Procedures Utilized in Conversion of Research to Journal Entries

<u>After reviewing research material, students:</u>	<u>n</u>	<u>Percent</u>
Recorded notes first, then typed journal entries	10	50
Typed journal entries directly from research	6	30
Highlighted material, then typed journal entries	3	15
Prepared outline, then typed journal entries	2	10
Organized materials, then typed journal entries	1	5

n=number of times students indicated this response in the teacher-student interviews

Percent=the percentage of students' responses out of the total 20 teacher-student interviews

This examination of the process students implemented to create their journal entries provided insight into how the students responded to the tasks of the project. It also yielded information on how students reflected on the tasks at hand, developed strategies to complete the tasks, and recognized what strategies they needed to implement to complete their proximal and long-term goals. In order for students to develop learning strategies that are considered “fully self-regulated,” teachers must give students the opportunity to independently practice strategies (Zimmerman, 1998). Furthermore, Zimmerman (1998), mentions that “students cannot develop

or display their self-regulatory skill in settings where they cannot exercise personal choice or control” (p. 11). In this project, I gave students the freedom to organize their research and develop their journal entries that were relevant to their individualized goals. Three students’ used their highlighted notes and handouts to complete a rough draft and ultimately the final copy of their journal entries.

The prominent methods for students’ conversion of research into journal entries was 1) recording notes first and 2) typing journal entries directly from research material. Six students used information they gathered from resources to directly type their journal entries. This method usually involved students’ reviewing information, formulating the content of the journal without any written drafts, and typing their journal entries into final copy. One student shared his method: “I just write them (journal entries)—I go from my head to a rough—maybe a rough draft—and then a final copy. Usually just a final copy.” Another student, Anita, wrote: “What I do is I read the paper and then I see what I want to say about my guy and then I type that into the computer.” Lynn mentioned: “Well, I kind of just bookmarked it in my computer and I just kind of looked at it when I needed to get something.”

As evidenced by these student-developed methods of composing journal entries, students were interested in utilizing the most expeditious path toward completing the assignment. An examination of students’ responses yielded the following question: Were students continually self-reflecting on their work so they were confident to formulate all of the information “from their heads?”

The journal entries epitomized the process of using higher-order thinking skills as students 1) employed decision-making skills to select relevant data, 2) synthesized data they accumulated from a variety of curricular activities, 3) created a system for creating the journal entries, and 4)

composed the journal entries into a logical structure for their historical journal. As students investigated the focus question, “How did the French and Indian War and the Revolutionary War affect individuals?”, they worked with a variety of research materials to determine their usage in their journal project. Students moved beyond recall and memorization of facts as they chose topics they wanted to explore toward incorporating data from one or more curricular activities into their final products.

4.2.1.1.5 Blueprint

As students reviewed their notes, I instructed them to prioritize their research by sifting through all of their data and excluding extraneous information which did not relate to answering the focus question. I instructed the students to create a “game plan” in order to attain an overall perspective of the final copies of their journals; I achieved the plan by instructing students to complete a “blueprint” of their journals. To demonstrate the concept of a blueprint, I drew small blocks on the chalkboard to represent each page of a journal and identified the content of each page: descriptive paragraphs, illustrations, or artifacts such as hand-made items or maps. This process not only helped students plan the number of pages necessary for the overall construction of their historical journals, but it also suggested a strategy for the placement of information, maps, illustrations, and artifacts in their journals.

As the project progressed and students became more adept in articulating the differences between the various learning strategies, they began to identify which strategies contributed to their goals. For example, students used the Project Calendar to anticipate what would take place in class in the future or my intended teaching strategy for a particular day (i.e. lecture, video, guest speaker). Knowing a guest speaker from the Beaver County Historical Society would demonstrate cooking techniques on May 10th, students anticipated that they would be

participating in hands-on-activities as well as recording notes for reference in their journals. For many students, the guest speakers proved to be a beneficial resource and enrichment to the regular curriculum I presented. After the first guest speaker visit, students became more familiar with the idea of acquiring information from a primary source; therefore, they formulated questions pertinent to their historical journals in anticipation of the future guest speakers' visits. Kim, one of the students, mentioned: "During the guest speaker, I asked questions and paid attention, and I came in during tutorial and got even more information from the guest speaker."

Through a disciplined, sequential process of self-reflection and self-recording their actions and goals on the SWRFs, students could realize their accomplishments in terms of goal setting, time management, and success in chosen learning strategies. Moreover, the focus question, which provided students with a purpose and long-range direction, kept students oriented to their goals in the project.

4.2.1.1.6 Student-Developed Strategies

In addition to the twelve distinct curricular activities I implemented in the project, students developed their own strategies, termed "student-developed strategies," to help them achieve their set goals. The student-developed strategies also provided insight into the processes students developed to achieve success in the project. Once some students discovered which strategy worked well for achieving their goals, they then directed their efforts to refine this strategy. Table 2 illustrates this student-developed strategy as "Monitoring" in Table 2.

As evidenced by students' responses on their SWRFs, students independently monitored and recorded learning strategies that indicated how successfully they 1) maintained their focus; 2) formulated questions; 3) developed organization skills; 4) developed an awareness of the need to switch learning strategies throughout the project; 5) participated in social/group work or

worked by themselves; 6) became aware of any lack of effort; 7) developed new learning strategies; and 8) developed an awareness of their lack of effort in the project.

To organize students' responses identified in the student-developed learning strategies, I grouped similar students' responses together and titled them for Table 3 as follows: "What learning strategies did I use this week that worked well for me?" The categories included Monitoring; Maintaining Focus; Formulating Questions; Organization; Awareness of Need to Switch Strategies; Social/Group Work; Working Sessions; and Awareness of Lack of Effort. Table 3 indicates the frequency of students' developed strategies for learning.

Table 3. "What learning strategies did I use this week that worked well for me?"

<u>Student-Developed Strategies</u>	<u>n</u>	<u>Percent</u>
Monitoring (Students realized their applied learning strategies worked or did not work)	134	37.4
Maintaining Focus	63	17.6
Formulating Questions	61	17.0
Organization	60	16.8
Awareness of Need to Switch Strategies	27	7.5
Social/Group Work	22	6.1
Working Sessions	13	3.6
Awareness of Lack of Effort	11	3.0

n = number of times students indicated this response on their SWRFs
Percent = the percentage of responses out of the total 358 SWRFs

Formulating questions became a critical thinking process for students as they referenced this in their goal setting procedures. Namely, the frequency of students formulating questions accounted for 8.4% of student-developed strategies on their SWRFs (See Table 3). Furthermore,

as Table 3 shows, in response to what learning strategies worked well for students, formulating questions accounted for 17% of the student-developed strategies. This data indicate that the students' methodology of translating my teaching strategies into strategies which they comprehended and implemented in order to accomplish their goals resulted from their continued self-reflection and self-monitoring with the SWRF usage.

4.2.1.1.7 Categorization of Student-Developed Strategies

To openly discuss pertinent ideas related to their research, one of my classes created the concept "working sessions." This requested time set aside in class could also be defined as a time for "open" self-reflection. I found it interesting that students recognized the necessity to brainstorm ideas and assist classmates with problem solving strategies.

One of the student-developed learning strategies, "Monitoring," yielded more student responses than any other strategy. Based on students' responses, it appeared that students internalized the self-reflection process. They asked themselves questions about 1) their depth of understanding of the researched material, 2) the success of the learning strategies they utilized, and 3) what changes were necessary to improve their learning strategies. Flavell, et al. (2002) indicate that metacognition can be considered a "tool of wide application" in solving many problems. As evidenced in the students' responses in the "Monitoring" category, students' self-reflective monitoring increased their awareness of their self-regulatory behaviors. Flavell, et al. (2002) explains this development: "...learning, from feedback during problem solving, which strategies work and which do not, contributes to cognitive development itself" (p. 166). The large number of responses in the "Monitoring" category is a positive indication of the utilization of the Student Weekly Reflection Form in the self-reflection process in this project. By students'

chronologically recording their progress in project-based learning on the SWRF, they could develop a fuller understanding of their development of self-regulatory skills. This was the primary purpose of the SWRF.

As students identified strategies they successfully implemented, they also recognized the need to adjust unsuccessful learning strategies in an attempt to complete their goals throughout the project. As the 27 responses in Table 3 exemplify, students identified the necessity to alter their strategies; this indicates their increasing level of understanding and maturity acquired through the self-monitoring process. Students inhibited inappropriate behavior in the project (Blakemore and Frith, 2005, p. 118). As evidenced by the 11 responses indicated in Table 3, some students recognized by themselves that they were not working up to their potential; Students' "Awareness of Lack of Effort" identifies this behavior. Similar to an artist rethinking the purpose of his/her work of art after beginning it, the students needed to continually engage in a reflective process that entailed references to the focus question and goals that were fashioned in the project.

The following research question focused on those teaching strategies that affected students' development of learning strategies, goal setting, and time management.

4.2.1.2 Research Question Two

To determine the students' acknowledgement of my teaching strategies with respect to their development of learning strategies, ability to set goals, and manage time, I asked, "Which learning strategy, goal setting, or time management skills as reported by the students contributed to their overall capacity for self-regulation?"

Dynamic and enduring teaching strategies form the keystone for implementing project-based learning in a classroom. It is believed that a teacher's careful consideration and

implementation of teaching strategies within the design of a middle school setting have the potential to empower students to develop a better understanding of their becoming contributors to their curriculum as well as self-examiners of their learning style needs.

A point must be addressed at this time in the data analysis. I found that I need to communicate to my students my acknowledgement of the strengths and weaknesses of their learning strategies. This mutual understanding affords both the teacher and students a means to consider what students' academic needs must be addressed in order for the students to embrace success in the middle school classroom. Hoy and Davis (as cited in Pajares and Urdan, Eds., 2006) note that in order for teachers to be successful, they "must feel confident in their abilities to read and interpret students' verbal and nonverbal communications; to identify, express and cope with their own emotions; and to help their students learn to manage and cope with the emotions they experience in the classroom" (p. 123).

Zimmerman (1998) reminds educators that "academic self-regulation is not a mental ability, such as intelligence, or an academic skill, such as reading proficiency; rather, it is the self-directive process through which learners transform their mental abilities into academic skills" (pp. 1-2). Throughout this study, I deliberately conveyed to students that their decisions and manageability of their resources and time were pivotal determinants in the success of their journals. I guided them to possible choices and encouraged them to become self-disciplined in their self-reflection of how they approached the project, established goals for themselves, and followed through with their envisioned outcomes. Schunk and Zimmerman (1998) emphasize the relevance of students having the opportunity to be in control of a task and to make choices as critical elements in motivating students to become self-regulated. As exemplified by students' voices reported on their SWRFs, daily activities, including their personal selection of peer

groups in cooperative learning practices and the freedom to make choices, were key elements in maintaining the students' interest in the project and sustaining self-discipline in achieving their goals. I expected that, by the end of the school year, my seventh grade students and I would develop a mutual understanding of the quality of research the historical journal warranted. I also hoped that my students would perceive their journals as exemplifications of their successful endeavors to comprehend and apply their historical knowledge as well as opportunities to demonstrate their understanding of their self-regulatory skill development process.

I derived the answer to this research question on learning strategies by examining the students' responses on their Student Weekly Reflection Forms (SWRFs), through teacher-student interviews and the Teacher's Daily Log. I counted a response on the SWRF each time a student identified a learning strategy, goal setting procedure, or time management skill on his/her SWRF. The hypothesis for this research question was: Students will identify which learning strategy, goal setting, or time management skills contributed to their overall capacity for self-regulation as demonstrated by students' responses on the Student Weekly Reflection Forms, teacher-student interviews and the Teacher's Daily Log. Therefore, the hypothesis was accepted.

The results for this research question are reported in the following order to determine which learning strategies, goal setting, and/or time management skill(s) contributed to students' overall development of self-regulation.

4.2.1.2.1 Learning Strategies

Because I hoped the students would develop self-regulated behavior in this project, I suggested that they could accomplish this through the use of the project calendar and the SWRF. The project calendar, a teaching tool I initiated, was used to inform students of daily activities in the project so that they could prepare and organize their materials accordingly. The SWRF enabled

students to self-monitor their progress; through students' self-observations, data were collected and used to understand the students' utilization of self-regulated behaviors. An integral component of the project-based learning experience was the students' completion of the SWRF on a weekly basis, thus motivating students to become disciplined in the self-reflection process. As the weeks progressed in the project, the students' responses on their SWRFs became more articulate and detailed in regard to their awareness of effective learning strategies and goal plans. This emerging pattern indicated that students were using the SWRFs as ways to reflect on and improve their work each week and to re-evaluate and modify their set-goals. Table 1 indicates the students' cumulative weekly reflections of their progress in terms of their use of effective learning strategies I implemented.

Students first completed the SWRFs individually and then concluded the same evaluation with their peers. As students finished these forms for the first time, I encouraged them to be completely honest with themselves. I frequently reiterated to the students that these forms, which I would not grade, would only be seen by themselves and the peer(s) working with them to evaluate their progress throughout the project.

For the first few weeks of the study, it was obvious that students were not accustomed to a routine self-evaluation process. Some of the comments and questions from the students were: "This is hard--am I doing this correctly?"; "How much stuff do we have to write?" One area in particular where students needed close guidance was helping them identify learning strategies they typically used in the classroom to determine which learning strategies proved beneficial in the completion of their goals. As the project progressed, the weekly self-reflective process I initiated became an automatic self-reflective process by the students on a daily basis. This was evident in a number of ways as students focused their comments on how effectively they

managed their time so that they would be able to research information for their journals. Of interest is that as students formalized plans for their historical journals, they wanted each of their journals to be unique, therefore, the search for special artifacts in research, such as a copy of an original, detailed map or document and/or a hand-created duplicate of an historical artifact, turned into a somewhat competitive endeavor among students. This competitive inclination proved to be a positive force as it motivated students to stay focused and persevere in their research.

In Table 1, it is interesting to note that the top four project-based learning activities students most mentioned on their SWRFs were external sources: Guest Speakers, Notetaking acquired during guest speakers' visits, the Computer/Internet and Video. One of the reasons that the Guest Speaker as a curricular activity was successful with students is that the guest speakers and I collaborated with hands-on-activities that involved the students. As opposed to typical classrooms where teacher-directed instruction disseminates knowledge to students, students actively engaged in the learning process by interacting with the guest speakers and by participating in such demonstrated hands-on-activities as cooking and the handling and use of artifacts.

One of the students' most frequently noted responses, "Notetaking," in Table 1 is indicative of the students' ability to diligently record their thoughts—which includes brainstorming, planning, and recording information from various resources: library, Internet, guest speaker, and peer conversations. The frequent number of times that students mention notetaking on their SWRFs with regard to Learning Strategies also indicates their interest in self-monitoring, a self-reflection process. I emphasized from the beginning of the project that notetaking was an essential tool for interpreting information presented in class through guest

speaker visits, computer lab and library visits, lectures, demonstrations, and videos. Notetaking also served as a tangible piece of evidence that the students grasped the concepts presented in class and recognized that notes were useful raw data to weave into journal entries. Notes became a reference point in the self-reflection process in that students could review their written notes and determine whether or not they were focusing on the information they planned to collect for their historical journals. Paul, one student, noted: “Taking good notes is better than the best memory.”

In contrast to the seven student responses which expressed the Project Calendar as a teacher-initiated curriculum activity strategy that worked well (as exemplified in Table 1), data obtained from the teacher-student interviews presented in Table 4 illustrate that a greater percentage of students determined that the project calendar was the most beneficial teacher-initiated curriculum activity.

Table 4. Teacher-Student Interviews: Most Helpful Teacher-Initiated Curriculum Activity

	<u>n</u>	<u>Percent</u>
Project Calendar	13	65
Blueprint	7	35

n = number of times students indicated this response in the teacher-student interviews
Percent = the percentage of responses out of the total 20 teacher-student interviews

One student commented on the SWRF that the project calendar helped him stay organized: “I used my project calendar to help me mentally map out what I have to do.” Students also mentioned other teacher-implemented curriculum activities in their interviews. In determining the most effective teacher-initiated curriculum activity in the project, I found it

interesting that the students' responses in the teacher-student interviews were more elaborate and detailed in comparison to their notations on the SWRFs. Perhaps this stems from the ease of speaking directly to me rather than taking time to record their thoughts.

The more students considered the teaching strategies I originally initiated in the project, the more they internalized and labeled these as "their" learning strategies that facilitated their acquisition of knowledge in the course. As previously mentioned, in Table 2, I grouped students' suggested ideas for learning strategies and named these "student-developed strategies." These student-developed strategies indicate that students recognized their efforts in identifying the learning strategies that proved to be successful for them in the project as well as those strategies that were unproductive in achieving self-efficacy.

In Table 3, the "Monitoring" category (my label) accounts for 134 student responses, or 37.4% of the total SWRF. This notable transition from student dependency on teacher-intended strategies toward independent student regulation of learning strategies is an important step in students maturing as autonomous learners. Students were "taking charge" of their learning. Several students honestly admitted to themselves that they needed to become more efficient managers of their historical journals and find alternative ways to succeed in their goals. Greta mentioned, "I comprehend a lot more on watching videos than hearing lectures." Jed noted: "I recorded a lot of data, but I need to organize better." Students' self-awareness of their successful learning strategies enabled them to better discriminate which learning strategies were most productive for them. Mary stated: "I think I am doing better. I asked some questions and I think it is helping because I wrote more in my journal. Also, the movie we watched helped a little." Adam explained: "I can pull good information off the Internet and organize it so I can succeed in the project. Movies don't help." Jen re-evaluated her learning strategies to develop

new goals for herself: I used concentrating on my work and setting a goal for myself. I used the computer a lot for my research. The research went better when I asked questions and got answers to find a person.”

These students’ comments suggest that the SWRFs facilitated students’ perceptions of their accomplishments by structuring a chronology of their thoughts and observations during the life of the project. One of my students’ SWRF responses as she consecutively reflected on her strategies to accomplish her goals throughout the project exemplify this process:

Week 1: I thought about who I wanted to be.

Week 2: Find an idea on how my journal will look.

Week 3: I know what exactly is going to be in my journal.

Week 4: The checkpoint helped me move through the journal easier.

Week 5: This week the checkpoint motivated me to work on my journal.

Week 6: A rough draft helped me move through my journal faster.

Week 7: This week I set a goal to finish my journal and I did.

This student used the SWRF in conjunction with the Project Calendar to monitor her goal-setting strategies in order to complete the project one week early since she would be out-of-town the weekend preceding the due date of the journal.

4.2.1.2.2 Goal Setting

The students’ responses to goal setting on the SWRFs indicate that they used self-reflection to evaluate their organizational and decision-making skills to establish and modify their goals. Their responses on the SWRFs progressively conveyed that they interpreted the events occurring in their environment according to what tasks they needed to accomplish in their project. The following students’ responses exemplify the students’ recognition of their interpretations: Kim stated, “I set a goal that would be hard to reach, but possible. I was prepared for another

journal check.” Edwin noted, “My goals for the computer were to find new pieces of information every trip.”

For many students, their awareness and initiative to develop short-term goals proved to be a successful method to finish their historical journals. I continually emphasized to students to work backwards to achieve their long-term goals. Through the self-reflective process and feedback from their peers, some students recognized that they needed to take shorter steps and develop less comprehensive goals in order to complete this long-term project. They also recognized that their goals had to become more manageable and realistic. Jan stated, “I set up a short-term goal for myself over and over again.” Terry said, “My long-term goals were impossible, but my short-term goals were possible to reach with hard work.” Adam acknowledged, “I set smaller goals instead of trying to do too much at one time.”

I subdivided the students’ responses on the SWRFs for goal setting into teaching strategies I initially proposed and into goal setting strategies the students proposed. Subdividing the students’ responses, highlights the variety of goal setting strategies self-identified by students. It is apparent from the results in Table 5, “Goal Setting Procedures that Students Reported Worked Well,” Part 1, that students found “Journal Entries” to be an effective teacher-initiated strategy. In Part 2, students recognized their strengths in goal setting strategies to be a result of their ability to independently recognize and utilize their organizational skills and to study strategies to achieve their goals. These results confirm that students moved from teacher-directed goals to student-directed goals in the project. Table 5 exemplifies how students successfully self-managed their goal setting skill success.

Table 5. Goal Setting Procedures that Students Reported Worked Well

<u>Part 1</u>		
<u>Strategy (Initially Proposed by Teacher)</u>	<u>n</u>	<u>Percent</u>
Journal Entries	68	19.0
Blueprint	28	7.8
Notetaking	23	6.4
Journal Checkpoint	16	4.5
Artifacts	15	4.2
Internet/Computer	15	4.2
Guest Speaker	8	2.2
Rough Draft	8	2.2
Video/Movie	6	1.7
Project Calendar	6	1.7
Library	4	1.1
<u>Part 2</u>		
<u>Strategy (Developed by Students)</u>	<u>n</u>	<u>Percent</u>
<u>Involving Self</u>		
Organization/Tracking	113	31.6
Setting a Goal	100	27.9
Solving	10	2.8
Focusing, Paying Attention, Concentrating	7	2.0
Studying for Tests/Quizzes	4	1.1
Procrastinating	3	.8

<u>Involving Others</u>		
Feedback	30	8.4
Questioning	5	1.4
Listening	2	.6
Talking	1	.3

n = number of times students indicated this response on their SWRFs

Percent = the percentage of responses out of the total 358 SWRFs

As Table 1 notes, the concept of the blueprint in this project did not appear to be a favorable learning strategy; when it reoccurred in Table 5, however, it proved to be the second frequently recorded goal setting procedure by students. The possible reason for this notation of blueprinting as an ineffective learning strategy is the fact that out of all of the students interviewed, a majority favored typing their journal entries directly from resources. Since many students used the computer features to organize their writing, they may have considered the blueprint an obsolete method in terms of journal organization. Yet, the reason the blueprint's effectiveness as a goal setting skill may be that students understood it as a step-by-step process which paralleled their preference for using short-term goals in the project.

As part of the self-regulatory process, 31.6 percent of the students self-identified the organizational skills necessary for establishing goals; 27.9 percent of the students noted that they self-instructed themselves to set goals throughout the project (see Table 5). In Table 5, Part 1, 19% of the students' responses indicate that some students still used the concept of a teacher-initiated task, which in this study is Journal Entries to set their goals. By also mentioning notetaking in their goal setting strategies, students indicated that they valued the teacher-directed task. I emphasized to my students that they would be responsible for keeping legible, historically accurate notes in their journals.

The greater percentage of student responses in the student-developed goal setting strategies (refer to Table 5, Part 1), reveals that students successfully internalized this self-regulatory skill. Moreover, I assumed that after students recognized and assessed what was necessary to accomplish their goals, they then constructed a method for completing these goals. Table 5 also notes, the students' self-identified goal setting strategies were further subdivided into strategies that the students independently implemented in the project and strategies in which

they sought assistance from others. This multi-level segment illustrated the influence of students' peers on the formulation of their goals.

Students' responses in the teacher-student interviews suggest that students understand the goal setting process in order to complete their journals (see Table 6: Teacher-Student Interviews: Most Helpful Self-Regulatory Skill in the Project). As previously discussed, students primarily perceived Time Management primarily in terms of the completion of "Journal Entries." I assumed that students equated quantity of completed journal entries within a specified time period (i.e. a week) with their ability to complete their long-term goal—the finished product.

Table 6. Teacher-Student Interviews: Most Helpful Self-Regulatory Skill in the Project

	<u>n</u>	<u>Percent</u>
Goal Setting	9	45
Learning Strategies	7	35
Time Management	6	30

n = number of times students indicated this response in the teacher-student interviews
Percent = the percentage of responses out of the total 20 teacher-student interviews

Through the analysis of the data from the SWRFs, the student-teacher interviews, and the Goal Orientation Index data, I discovered that the students' constructive planning and self-reflecting capacity prevailed in the understanding of their development of self-regulatory skills. The data suggest that students comprehended the value of self-monitoring their progress in order to create goals that were meaningful to them and that would fit their individual needs for their historical journals. Through self-evaluation, they independently recognized that by setting proximal goals, they could attain academic success.

To further emphasize the autonomy students achieved in establishing self-regulatory skills in the project, in Table 7, “Students’ Plan of Action to Accomplish Goals,” students identified study strategies 171 times (47.7%) as necessary in order to plan and formulate their journals.

Table 7. Students’ Plan of Action to Accomplish Goals

Description	n	Percent
Study Strategies	171	47.7
Short Term Goals	92	25.6

n = number of times students indicated this response on their SWRFs

Percent = the percentage of responses out of the total 358 SWRFs

Students’ intentions for accomplishing their goals are recognized as the “Plan of Action” on their SWRFs. Among the students’ responses to the specific request posed on the SWRF for this process, “Describe in two sentences what your Plan of Action will be for the following week,” 22 out of 56 students (indicated by 92 responses shown in Table 7) in the study recognized short-term goals as a method to complete their work. Students’ recognition that by setting and achieving proximal goals would result in a successful completion of their long-range goals is important (Alderman, 1999).

Among the students’ responses, regarding each of the project activities, students cited that the use of the project calendar enabled them to structure their short-term goals and reflect on what kind of information they needed to complete their journals. Tim said: “The project calendar told me what events were coming up so that I could get ready.” Another student, Jeff, noted: “The project calendar was easily the best thing—I like knowing what’s going to happen and then that helped me out and then I knew what I had to do and when I had to do it.” In order

to facilitate students' organization in this type of project, a curriculum activity associated with organization is warranted.

One of the methods I used to facilitate students' organizational skills was to provide a file cabinet with a folder for each student. I allowed students to store research materials, artifact materials, and any other items related to their historical journals in the cabinet. In addition, I set up three computers in the classroom so that students could access information before and after class and during the working sessions. As managers of their learning, students were responsible for collecting, storing, and using the information acquired through guest speaker presentations, class demonstrations, teacher lectures, class discussions, videos, independent research in both the library and the computer lab, and data from resources acquired outside of the classroom. In this project, I created a classroom environment whose organization was conducive to helping students develop and maintain organization skills.

4.2.1.2.3 Time Management

To better understand how students developed and regulated their use of time to achieve their goals, I divided students' SWRF responses to this self-regulatory strategy into four primary areas: 1) student preparation and completion of journal entries; 2) student utilization of the project calendar; 3) student identification of work location throughout the duration of the project; and 4) student description of time usage and time organization.

Table 8 illustrates students' self-evaluation of time management.

Table 8. Time Management: “What project milestone did I complete this week?”

<u>Teacher-Initiated Strategy</u>	<u>n</u>	<u>Percent</u>
Journal Entries	108	30.2
Project Calendar	68	19.0
Guest Speaker	10	2.8
Artifacts	8	2.2
Journal Checkpoints	6	1.7
Blueprint	5	1.4
Video	5	1.4
<u>Student-Developed Strategy</u>		
Location of Work	24	6.7
Organization of Time		
Keeping Track	15	4.2
Organizing Information	10	2.8
Outline/Rough Draft	5	1.4
Notes	5	1.4

(Usage of Time: Descriptives)	185	51.7
Positive Descriptives		

n = number of times students indicated this response on their SWRFs

Percent = the percentage of responses out of the total 358 SWRFs

Students’ interpretation of time management in response to teacher-intended strategies was basically task-oriented. Among all of the SWRF responses to self-reflection of their time management, students noted 108 times that the preparation and completion of journal entries concerned them. For example: Kim stated, “Only having three days to work in the library forced me to work hard so I could finish my project on time.” Lynn said, “I promised myself that I would complete at least five journal entries this week.” It is not surprising that tasks drove students’ self-observations. Students are familiar with teacher-directed assignments that are structured with a specific due date. With this eight-week project, I gave students the responsibility for adhering to the due date and for tailoring a suitable plan to establish short-term goals. Apparently, students’ familiarity with teacher-initiated plans for students’ successful

completion of tasks by a required due date led the students to continue these same plans for this project. Students' SWRF responses indicated a continual overtone of "getting done by the due date" and "finishing up on time." Lynn's comment exemplifies this:

I would have more (journal checkpoints) throughout the project because if people procrastinate, they never get anything done which means more work for them at the last minute, but if a teacher has a checkpoint, then that means they have a goal set. You (teacher) set the goal and they (students) have to accomplish the goal by the time the checkpoint comes in.

Lynn's statement typifies the students' expectancy that I would assume the goal setting methods for students.

As students engaged in collecting data for their journals, they were cognizant of the assigned class time to ask me questions, identify relevant information, and check for comprehension. Students' understanding of class time could also lead to the assumption that, when students noted "Journal Entries" (see Table 8, n = 108) in their interpretation of Time Management Skills, they were mindful of the time constraints that existed both during class and outside of class. A similar pattern emerges in how students' managed their time as indicated in the students' Plan of Action that incorporated both learning strategy use and goal setting (see Table 7). Student-developed strategies registered more responses on the SWRFs than the teacher-initiated strategies. Again, this high level of response is indicative of the students' use of self-reflective processes to critique the effectiveness of their utilization of time.

4.2.1.2.4 Journal Entries (Teacher-Initiated)

Students' interpretation of time management was not only linked with the teacher-initiated requirement of the journal project due date, but was also associated with the requirement to complete journal entries on a systematic basis. Similar to time management, tasks drove students who probably compared this project with a concept familiar to them: daily classroom

assignments that adhere to a routine format. Students are accustomed to the teacher-directed and structured assignments with teacher-directed instruction and specific due dates.

4.2.1.2.5 Project Calendar (Teacher-Initiated)

Through scaffolding, I provided measures that ensured students would have a sense of time as they proceeded through the project. I facilitated the students' time management plans by asking students to adhere to two journal checkpoints. Additionally, I instructed students on how to use the project calendar as a reference point throughout the project. With this curriculum activity, students could anticipate various project-based learning activities such as guest speaker engagements, lectures, videos, library/computer visits, and demonstrations, and prepare any questions or notes for their journals. One student expressed his reliance on the project calendar: "I used my project calendar to help me mentally map out what I have to do." Several students, aware of accomplishing their long-term goals by establishing self-imposed schedules throughout the project, stated: "I'm not trying to crunch things at the last minute" and "I need to stop putting off to the last minute." One of the students, Tom, admittedly recognized his ineffective use of time: "One day, I barely worked at all." The students' responses suggest that through their self-awareness of their time management skills, the responsibility had shifted from me to them for developing an accountable time table to complete the project.

4.2.1.2.6 Location of Work (Student-Developed)

I did not request students to acknowledge the identification of a suitable work area for the project. Students independently selected an environment in which to complete their work. According to the students' responses on their SWRFs, some chose the library while others preferred their homes, the computer lab, the classroom, or their tutorial class. These responses,

which indicate that the students identified a suitable work area without my suggestion, validate that their environment was a contributing factor in their learning.

4.2.1.2.7 Organization of Time (Student-Developed)

Another student-developed strategy to identify their progression of time management was simply a descriptive word or phrase that captured their awareness of time organization. The majority of students who indicated a positive response to their self-awareness of their time usage presumably had confidence in the way they managed their time. The positive responses ranged from “I used my time well” to “I managed my time amazingly.” On the negative side, other students simply admitted, “I didn’t use good time management” or acknowledged their procrastination, “None, I didn’t complete anything” and “I don’t think I managed my time as well this week. I was extremely busy so I just put it aside until Wednesday.” Several students identified their lack of time management skill development by acknowledging, “I need to use my time wisely. I need to get more information and work harder.”

4.2.1.3 Research Question Three

It was important to determine if my intended teaching strategies coordinated with my students’ perception and recognition of which curricular activities were effective in helping them achieve realistic goals. Therefore, the data obtained from the following research question provided feedback on my teaching strategies and insight into how the curricular activities were meaningful to my students: What curricular activities of the project-based learning experience are identified by both the teacher and the students as being helpful in accomplishing the students’ goals?

I did not use the number of times I implemented a curricular activity during the project as a criterion for a mutually identified curricular activity. Instead, I determined that mutually identified curricular activity by the number of student responses to this question on the SWRF: “What project-based learning activity helped you the most in achieving your goals this week?” as contrasted with the number of times I implemented the curricular activity during the project.

The students’ responses in Table 9 enhanced my understanding of what maintained my students’ interests in the classroom, what they perceived as relevant to them, and what motivated them to learn. I encouraged my students to see relationships in their learning and to take participatory action in their learning by identifying and defining those curricular activities that were instrumental in their academic success. The hypothesis for Research Question Three was: Both the teacher and the student will identify curricular activities of the project-based learning experience that helped students accomplish their goals as demonstrated by the students’ responses on the Student Weekly Reflection Forms. This hypothesis was accepted.

Table 9. Students’ Perceptions of “Most Helpful Curricular Activities Compared with Occurrences during Project”

Most Helpful Curricular Activity (teacher-initiated)	Frequency of Students’ Responses	Occurrences during Project
Guest Speakers	102	4
Computer/Internet	53	7
Video	56	8
Notetaking	14	33
Project Calendar	1	2
Library	36	6
Journal Checkpoints	8	2
Blueprint	3	1
Demonstration	6	8
Artifacts	3	10
Lecture/Discussion	18	18
Most Helpful Curricular Activity (student developed)		
Working Session	20	8
Organizational Skills	34	

After revisiting students’ responses on the SWRFs and carefully discerning students’ assertions, these data results found in Table 10 suggest that social interaction (e.g. interacting with guest speakers) was an important contributor to students’ goal accomplishment. The students’ responses obtained from student-teacher interviews also indicate the students’ perceptions of the guest speakers as mentors in this project. From my observations in the classrooms, students looked forward to the guest speakers’ visits and anticipated these speakers clarifying information they found in their research and answering questions about information they wished to include in their journals. Guest speakers provided students with a deeper understanding of the content discussed in class and the material students independently researched. Glasser (1998) emphasizes that if students’ needs are fulfilled in the classroom, they will become interested in their curriculum and engaged in learning.

Table 10. “What was the Most Helpful Project-Based Learning Activity?”

<u>Strategy (Teacher-Initiated)</u>	<u>n</u>	<u>Percent</u>
Guest Speakers	102	28.5
Videos	58	16.2
Computer/Internet	53	14.8
Library	37	10.3
Lecture	18	5.0
Notetaking	14	3.9
Journal Checkpoints	8	2.2
Handouts	7	2.0
Demonstrations	6	1.7
Artifacts	3	.9
Blueprint	3	.9
Project Calendar	1	.3

n = number of times students indicated this response on their SWRFs

Percent = the percentage of responses out of the total 358 SWRFs

The data suggest that students valued activities in which they engaged in collaborative learning and discussion with others. The top five teacher-initiated curricular activities identified by students which involved students’ communication of ideas with others were: Guest Speakers, Computer/Internet, Video, Library, and Lecture/Discussion. It appears the students identified less with those teacher-initiated curricular activities which entailed the students independently completing work: completion of notes (Notetaking) and the Project Calendar. Journal Checkpoints involved my review of students’ progress on a one-by-one basis. The low number of responses for the teacher-initiated curricular activities of Demonstrations and Artifacts could possibly be attributed to students incorporating these curricular activities into the Guest Speakers’ curricular activity. All four of the guest speakers demonstrated and discussed the utility of artifacts in their presentations.

I wanted my students to challenge themselves to try different teacher-initiated curricular activities to gather data and to include one or more of these activities in their weekly goal plans.

In designing the project, I expended most of my efforts in planning the Guest Speaker, Computer/Internet, and Library curricular activities. Considering the importance of students' active engagement in learning, social interaction, and understanding content, I found it necessary to create curricular activities that would attract and maintain students' interests for the duration of the project. Therefore, the confirmation of my assumption that students would react positively to the living historians' visits and the value of knowledge that they would share with students did not surprise me. As the research (Zimmerman and Kitsantas, 1996) indicates, students who possess an intrinsic interest in a task have more interest in planning and using learning strategies in their efforts to study.

Table 11 illustrates the students' value of the teacher-intended curricular activities as compared to their interpretation of activities (noted as student-developed). The data lead me to believe that the guest speakers' visits to the classroom intrinsically motivated students to achieve their goals. This teacher-intended curricular activity proved to be a successful strategy for students in the project. Students also reported the usefulness of Internet/Computer usage and videos as resources. Included in this data were organizational skills that students perceived as an activity which enabled them to achieve their goals. Based on this data, it can be assumed that students understood how they organized the information they secured from a curricular activity.

Table 11. Most Helpful Curricular Activity - Student Value

Most Helpful Curricular Activity (teacher-initiated)	Value		
	Positive	Negative	Indifferent
Guest Speaker	76	0	26
Videos	38	3	17
Computer/Internet	40	0	13
Library	26	0	11
Lecture/Discussion	13	0	5
Notetaking	11	0	3
Most Helpful Curricular Activity (student developed)			
Working Session	18	0	2
Organizational Skills	29	4	1

By examining the students' responses to determine why students found guest speakers to be most helpful, I theorized that this teacher-initiated curricular activity afforded students the opportunity to exchange information they researched and to discuss real-life experiences living historians encountered in their historical re-enactments. The guest speakers' visits were more conducive for students to get their questions answered readily as opposed to library research. I also believe the presence of an "outsider to the classroom" was somewhat of a diversion to the typical classroom routine. Students enjoyed the flexibility of the daily classroom schedule.

Students included many comments regarding this teacher-initiated curricular activity, ranging from comments that the guest speakers were "very interesting" to praise for the amount of information the speakers conveyed. Students' comments about the guest speakers suggest that students developed a utilitarian perspective of these living historians as they shared authentic information with them. Each living historian created a rapport with students by inviting them to participate in class demonstrations, encouraging them to ask questions, and providing information through presentation for students' research and as an enrichment to the knowledge presented by the other living historians in the project. This link created among all of the living

historians was important as it exemplified to students how individuals interface, exchange information, and share knowledge. The living historians' communication with each another impressed upon students the significance of how individuals learn from one another. A few students commented: "The guest speakers coming in gave me an excellent idea of life back then."; "Guest speaker helped by giving first person information."; "The guest speakers helped me the most in this project because I got a perspective of that period time."; "This week I liked the guest speaker because she helped us on how to cook like the colonial people and the food was pretty good."; and "The guest speaker motivated me the most."

The guest speakers were a motivational force in this project. From my observations in the classroom and student feedback in interviews in which the students identified guest speakers 13 times out of 20 responses as the most effective curriculum activity, I welcomed the living historians as a refreshing source of information. These individuals engaged the students in the process of reflective thinking. Scheduling the guest speakers in incremental steps throughout the project gave students an opportunity to reflect on the information discussed in class as well as information they independently researched. It also gave students opportunities to formulate questions and draw conclusions about the historical information and strategies they were using to complete their projects. Through the guest speakers' detailed lectures and fascinating demonstrations, students thought about how they could use this information to answer the focus question as it applied to the authentic framework they were creating for their historical journals. Mary said, "I think when the guest speaker came in, I got a lot of information from him, instead of just reading, him actually talking" and "The speaker put more thoughts in my head." These comments particularly suggest that students reflected on the classroom experience and how they created meaning out of the guest speakers' dialogues and demonstrations.

I perceived the guest speakers as a positive influence in enabling students to accomplish their goals in the project. According to the frequency and number of student responses, guest speakers emerged as the most favorite learning strategy. (Refer to Table 1). This preference for guest speakers in curricular activities shows the students' conceptualization of learning through social interaction. Students recognized the significance of collaborating with their classmates and the guest speakers in order to comprehend the historical knowledge presented in the curriculum and in order to accomplish their envisioned goals for their journals.

Aside from both the teacher's and students' congruent ideas about the guest speaker, it is noteworthy to acknowledge interpretations of self-regulatory skill categories that students created themselves. As previously noted, I embedded in each curricular activity self-regulatory skills for students to develop throughout the project. I hoped that students would grow as experienced risk-takers and decision-makers in their project goals and develop autonomy separate from me. As I compared each of the self-regulatory skill categories noted on the SWRFs, Learning Strategies, Goal Setting, and Time Management, to determine the most frequently recorded students' responses, I discovered a pattern which is beneficial in this discussion of both teacher and student identification of curricular activities (Refer to Figure 1).

By comparing the student-developed strategies to the teacher-initiated strategies for each of these three self-regulatory skill categories, I inferred that students were developing a knowledge base of what was occurring in their environment. (See Figure 1).

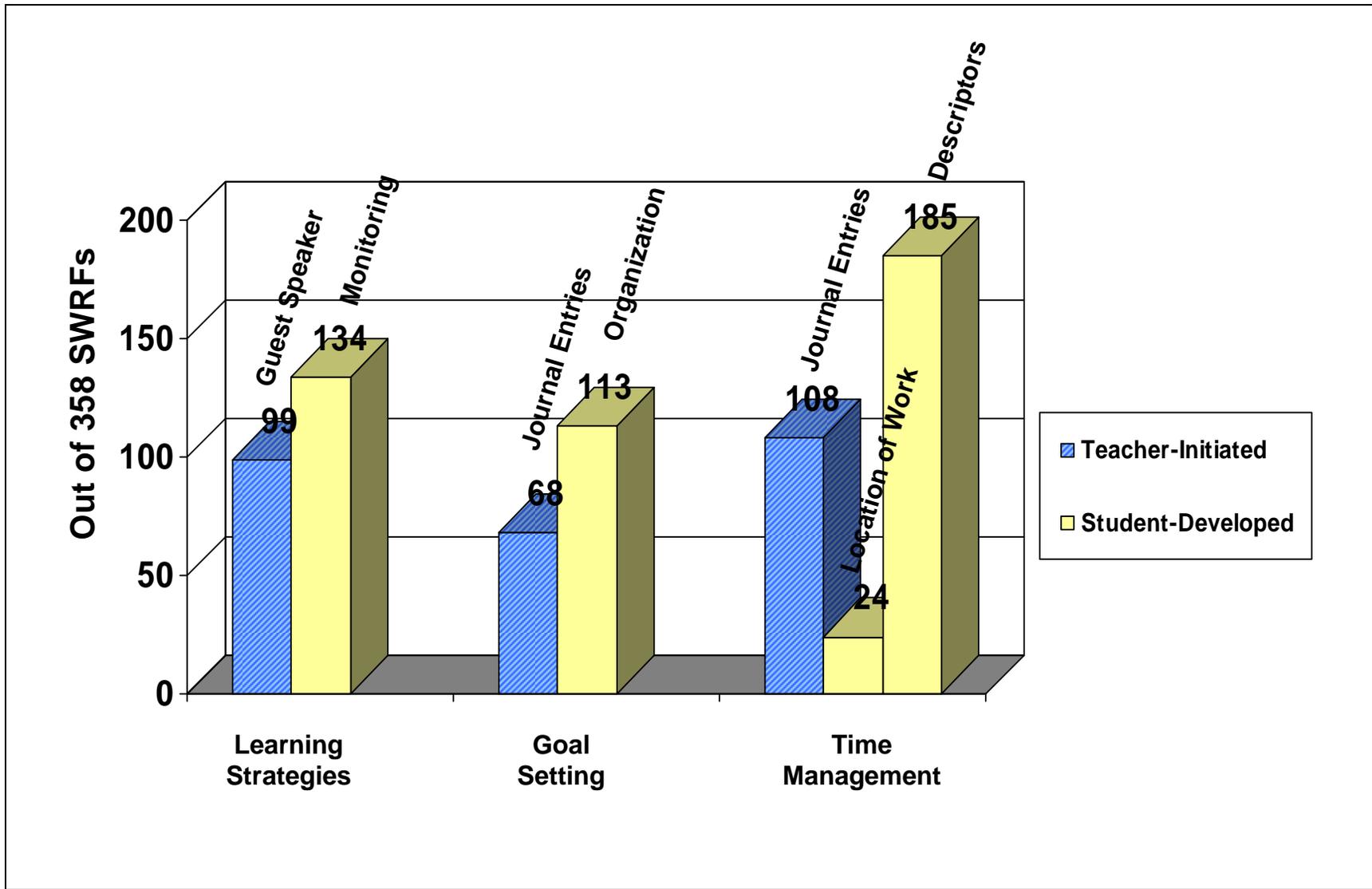


Figure 1. Student-Developed Learning Strategies

By identifying and evaluating their own behaviors, students contributed to their self-efficacy. Students recognized the necessity to self-monitor their progress (Learning Strategies), organize their goal-setting procedures (Goal Setting), and describe the result of their efforts in terms of subgoals and the environmental factors that are conducive to helping them achieve their goals (Time Management). In Table 12, which identifies the “Most Helpful Project-Based Learning Activity,” I grouped the following students’ responses according to similarity and what students identified as strategies they developed.

Table 12. “What was the Most Helpful Project-Based Learning Activity?”

<u>Student-Developed Strategies</u>	<u>n</u>	<u>Percent</u>
Organization	34	10.53
Working Session	20	5.6
Journal Entries	6	1.7
Student Discussion w/Teacher/Interview	4	1.1
Research	3	.8
Paying Attention	3	.8
Setting Goals	2	.6
Social/Group Work	2	.6
Formulating Questions	1	.3
Listening	1	.3
“My Imagination”	1	.3

n = number of times students indicated this response on their SWRFs
Percent = the percentage of responses out of the total 358 SWRFs

Accumulated student responses which are categorized as student-developed strategies in Table 12 are lower than the teacher-initiated strategies indicated in Table 10. The teacher-initiated strategy, Guest Speaker, prevailed as the most helpful project-based learning activity; however, the student-developed strategies indicate that students valued learning in a social context as they noted working session second to organizational skills in Table 12. The working

session involved peer-to-peer and peer-to-teacher communication to comprehend concepts in the curriculum.

4.2.2 Section Two Summary

I implemented a variety of teaching strategies in the classroom so that students had the opportunity to choose and modify strategies most helpful to them. As evidenced by students' responses on their SWRFs, students could actively construct knowledge for themselves by identifying with a particular strategy that proved to be a successful venue for them to achieve their goals in the project. For many students, the guest speakers provided a popular resource of information; the students considered each guest speaker as an additional mentor who suggested different approaches to the project. Students commented that the guest speakers' presentations and demonstrations yielded information which helped them bridge the data they independently researched or read in a textbook. Students' correlation of their research with the guest speakers' information and suggestions and with peer collaboration to exchange information is noteworthy as this was a progressive step toward achieving their goal accomplishments.

It should be emphasized that if a students' research skills were weak, I immediately intervened to assist students in creating a structured method for research inquiry. Students' weaknesses could be attributed to a variety of causes and, in this study, some students who experienced difficulty appeared to have a superficial understanding of the historical content presented and discussed in class. Without confident knowledge of the historical material that was the basis for the historical journals, students found themselves wandering without direction during the scheduled computer lab and library sessions.

One of the most difficult aspects of the journal project appeared to be the students' information-seeking methods. Sifting through, analyzing, selecting, and applying historical data, all pertinent to the students' choice of a historical timeframe in their journals, required students to structure their learning. At times, the quantity of historical information that students confronted seemed to become an unmanageable challenge from their point of view.

When students first began their research, some of them felt overwhelmed by the large amount of information they received/gathered. My reiteration and reminders of the focus question provided at the beginning of the project helped students stay grounded amidst all of the historical information they researched. This question pulled them back and directed them to focus if they felt they were straying from the direction they chose for their historical journal. An open-ended inquiry posed as a focus question was a more conducive and opportunistic way for students to creatively approach the project than my reciting a uniform approach for all students to follow. As students researched information for their journals, they found various paths that led them to additional interesting story lines to explore. They also found that, as the project progressed, they were able to incorporate each guest speaker's information and, in some occasions, create more of an authentic flavor in their journals. Each time students came to an impasse in crafting a "Plan of Action" for their goals, I prompted them to use prior knowledge and personal experience as a springboard for brainstorming ideas or creating goals. For example, one student decided to portray a young lady in her journal who accompanied her mother to military camps to cook for soldiers in the Revolutionary War. She drew her inspiration from her own family as she recalled cooking experiences in her kitchen with her mother and grandmother. Her family shared many favorite family recipes; she described and illustrated some of their favorite herbs utilized in their recipes in her journal.

At this point in the project, I perceived my role as a mentor who guided students through a selection of historical data that would be relevant to their chosen journal theme. I found it necessary to teach students how to prioritize information so that they could determine which resources provided them with the best possible information that was applicable to their journal theme. As students conducted research, their ability to engage in decision-making about the relevancy of data pertinent to their journal topics emerged as a paramount concern. This challenge caused insecurity for some students. Perhaps the reason for this insecurity comes from traditional classroom instruction in which teachers expect students to comprehend and recite information from a designated classroom textbook. In this process, students forfeit the freedom to choose and self-plan their classroom work. Unlike the traditional approach, this project, especially the popular guest speakers, provided the assurance for students to develop decision-making skills. The project empowered students to discriminate the most applicable pieces of information presented through various teacher-initiated curricular activities.

I encouraged students to use scanning techniques to filter out material that was beneficial in completing their goals for their project. Basically, I taught each student how to review information to determine its pertinence to his/her particular storyline. Since each student had his/her self-designed historical theme, this scanning technique can be the most challenging and time-consuming portion of the project for both the teacher and the student. However, this portion of the project was rewarding since many students enjoyed sharing aspects of their personal heritage, an interest in a craft such as woodworking, cooking, etc. By permitting students to make choices within the historical content, I gave them the liberty to tailor their research to the characters they were portraying. This approach proved to be a motivational factor for the students. Students, allowed to choose their own topics, became interested in pursuing

research that interested them. From my day-to-day observations of students' progress in the project, I recognized that they were more compelled to investigate historical information when they had the liberty to choose a topic related to their particular journal interests.

Through the project, students became progressively more responsive to the differences between the various learning strategies; they began to discriminate which strategies contributed to their set goals. Students also used the Project Calendar to anticipate curriculum activities and teaching strategies in order to prepare themselves for obtaining information they deemed necessary for the completion of their historical journals. In this sense, they set both a long-range goal of completing their journal and identified proximal goals that helped them develop self-regulatory skills of goal setting and time management. This critical thinking process for students was facilitated by self-reflection and self-monitoring through the use of the Student Weekly Reflection Forms.

I noted a common thread among the students' responses of their self-monitoring of self-regulatory behaviors. Across data found in student-teacher interviews and Tables 1, 4, and 5 from the SWRF responses, students consistently mention the Project Calendar as facilitating their regulation of time.

Students' responses to Research Question One identified which strategies implemented by the teacher were most effective in helping them craft their historical journals. Most importantly, students proceeded independently in recognizing which strategies were most and least beneficial in helping them achieve their goals. Students moved from recognizing outside resources and teacher-imposed strategies (Refer to Table 1) to embracing internal resources and student-developed strategies. (Refer to Table 2 and Table 5). This transition, which demonstrated that students had moved from teacher-directed learning in the project to student-

directed learning, addressed the problem in the study: "...to examine project-based learning as a potentially viable means of promoting self-regulatory behavior in middle school students." The students' responses in Tables 3, 4, and 5 led me to believe that students interpreted the strategies provided by me, but, through their weekly self-reflections, they recognized that their own thought processes as the effective venue to achieve their goals in the project. This self-reliance on student-developed learning strategies and goal setting measures indicates that students became independent learners. The higher number of student-developed strategy responses in Tables 3 and 5 demonstrates that the weekly self-evaluations were successful in helping students identify which learning strategies, goal setting, and time management skills were effective in developing self-regulated learning. In essence, the SWRFs proved to be a valuable means for students to monitor their progress and record their self-reflections of their weaknesses and strengths in developing their self-regulatory skills.

The end goal of this project was the product--ultimately created by the students. The products represented the students' synthesized collection of research data, newly acquired knowledge in the curriculum combined with personal experience, and an awareness of environmental factors, time, and collaborative efforts of peers. Zimmerman's (1998) second step in the self-regulatory cycle involves students' performing a task. With this step in mind, as students became more absorbed in the production of their historical journals, they became more aware of how to select information pertinent to their journals and how to integrate their research into the journal. Students grew in their realization of the process involved in creating the journals and decided upon individualized measures to reach their goals. One student equated the construction of the journal to that of a categorization process:

...I put them (information) in certain groups like what the soldiers looked like...
recipes, the winter to fall to the summer.

Rich expressed a similar comment about categorizing information:

I am going to keep whatever notes belong together—the soldier notes—and then like the maps are going to go together.

Chris reflected on the work she completed in the library and computer lab:

Well, I read over it and just picked out parts that I thought could go along with each other and work in my journal.

Students exemplified their unique interpretations of the characteristics of the project in their SWRF responses; these responses provided insight into their understanding of both the product and the process.

In this project-based learning experience, the unexpected twists and turns of the students' paths of learning resembled the curled branches of the *Corylus Avellana Contorta* shrub, commonly known as the Crooked Cane or Harry Lauder's Walking Stick. When students chose to set goals, there was the idea of a "beginning point" and an "ending point" whereupon goals had been achieved. On the students' curious journeys to realize their goals, they may have experienced instances where they strove to overcome obstacles that may have arisen. Being focused and dedicated to achieving their goals and persevering to the end yielded a sense of satisfaction in students' accomplishments.



Figure 2. The Path of Learning

4.3 QUANTITATIVE DATA ANALYSIS

I compared the quantitative data results obtained from the Bandura Self-Efficacy for Self-Regulated Learning Scale (Bandura, as cited in Pajares and Urdan, Eds., 2006) and the Goal Orientation Index (GOI) (Atman, 1986) with information obtained from the SWRFs and the teacher-student interviews. Specifically, I used data from the GOI subscales related to “Reflecting” and “Planning” in conjunction with the SWRFs and the student interviews to understand students’ self-reflective processes. I intended to use this layering of the data analysis processes to elicit a greater depth of understanding of the students’ perceptions of their development of self-regulatory skills in the context of completing their projects.

4.3.1 Research Question Four

At the conclusion of the study, I sought to determine whether students developed self-regulatory skills, set goals, and maintained behaviors to achieve their goals. Bandura (as cited in Pajares and Urdan, Eds., 2006) mentions that an individual’s belief of personal efficacy is the most central mechanism of human agency. Furthermore, the individuals’ beliefs in personal efficacy affects goals and how they motivate themselves, and their determination when facing difficult situations (Bandura, 2006, p. 4).

The following question addressed students’ self-efficacy:

Is there a significant increase from the beginning to the end of the project-based learning experience in students' Bandura's Self-Efficacy for Self-Regulated Learning Scale mean scores?

The Bandura Self-Efficacy for Self-Regulated Learning Scale has a possible range of 11 – 77, with the higher scores indicating that learning is more self-regulated toward the attainment of goals. This scale rates students' responses from 1 – 7, with a response of 1 indicating “Not well at all” to 7, indicative of a student's perceiving his/her self-efficacy for self-regulated learning capacity as “very well.” The null hypothesis for Research Question Four was: There will be no change from the beginning to the end of the project-based learning experience in students' mean scores on the Bandura Self-Efficacy for Self-Regulated Learning Scale using a one-tailed t-test. Data presented in Table 13 indicate no significant difference between the pre- and post-test scores as measured by a one-tailed t-test. Therefore, the null hypothesis was accepted.

Table 13. Bandura Self-Efficacy for Self-Regulated Learning Scale Pre- and Post-Test Scores

	<u>n</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>p</u>
Pre	56	52.70	11.68	-.39	.35
Post	56	51.88	10.82		

Students' pre-test scores ranged from 18 to 76. These pretest scores indicate a great deal of variability within the classroom. The pretest scores also indicate that some of the students' self-efficacy perceptions were very high with a score of 76. Students' post-scores ranged from

28 to 72. On average, the data suggest that students had some self-regulated skills at the beginning of this eight-week project.

The table indicates that the t-value was not significant at the .05 level. The lack of significant increase could be attributed to a variety of factors. At the beginning of the study, students were somewhat on the positive side of the scale, and the lowest scores increased. My teaching practices prior to this project-based learning experience reflected diversified instruction, and I encouraged self-empowerment with my students. Educators who enlist diversified classroom structure result in “students who are more likely to compare their rate of progress to their personal standards than to the performance of others” and “produce higher perceived capability and less dependence” on the teachers’ opinions and classmates (Bandura, 1997, p. 175).

The Bandura Self-Efficacy for Self-Regulated Learning Scale contains 11 items. The scores on this test are reflective of all of the questions collectively analyzed. Therefore, even though all the test items are analyzed as one factor, only six of the items on the scale had direct applicability to the project-based learning activity. These particular questions pertained to students’ study habits as they related to the project, such as “How well can you organize your school work?” and “How well can you take class notes of class instruction?” Unfamiliarity with the content of some of the questions and the questions’ lack of applicability to the project-based learning experience, particularly involving social studies content, may have affected students’ responses. Perhaps an instrument that specifically measured the students’ perceptions of their self-efficacy or their ability to understand the historical content would have led to different results. Pajares (1996), in examining “the relationship between self-efficacy, motivation constructs, and academic performances,” found that “particularized measures of self-efficacy that

correspond to the critical tasks with which they are compared surpass global measures in the explanation and prediction of related outcomes” (p. 543).

A salient consideration which possibly contributed to the students’ mean scores consisted of the physical, social, and emotional changes typical of adolescents (Bandura, 1997; Alderman, 1999; Feinstein, 2004). Bandura (1997) asserts, “The transition to middle-level schools involves a major environmental change that taxes personal efficacy” (p. 178). As students move into new situations that present a change in curriculum and class structure in preparation for high school, they have to adjust their sense of efficacy, “social connectedness,” association with groups of peers, and instruction with many teachers (Bandura, 1997). Context is significant in learning, and individuals construct meaning from authentic experiences in the world around them (Caine, Caine, and McClintic, 2002). Moreover, Bandura (as cited in Pajares and & Urdan, Eds., 2006) insists that from an agentic perspective, “people are self-organizing, proactive, self-regulating, and self-reflecting” in that they contribute to situations around them and are not “products of them” (p. 3).

The relationship between the project-based learning curricular activities and the students’ perceptions of self-efficacy on the Bandura scale incorporates assumptions about the students’ interpretation of the “Journal Entries” activity. Students could have entered the project with certain conjectures of the word “journal.” Preconceived notions that “journal” meant the project would basically be a writing assignment may have led them to believe they would be evaluated on their writing skills. Also, students may have been apprehensive of how their work would be evaluated. Students frequently inquired at the onset of the project if the progress of their work would be acceptable to achieve an “A” at the conclusion of the assignment.

The structure of the project encouraged students to take risks and to seek alternative means to connect to the curriculum. The project's structure challenged students to create self-identified goals in order to construct a product rather than complete a test to assess their knowledge. I believe that some students viewed the project as an invitation to examine perhaps unfamiliar concepts such as how they approached research and collected information, how they reflected on the purpose of what they were doing, and how they learned to move forward if the risks they took were not facilitating their goals. Throughout the project, students attempted to interpret and evaluate information for themselves.

A possible explanation for the minimal increase in these scores may be linked with the students' varied responses to the SWRF question pertaining to "Plan of Action." Exemplification of students' responses on the SWRFs include: 20% of the SWRFs were incomplete for this response; 3% indicated a response relating to long-term goals; 18% indicated a short-term goal strategy; and 50% indicated some type of strategy for achieving goals. Those students' responses which formulated strategies included: "I plan to do more work in school and, if not accomplished, finish at home."; "I want to say what I'm going to do and keep up with it."; "Listen to other people's ideas, also try harder, and think ahead more."; and, "Write out my thoughts and change them as I figure it out. Keep information organized." Although a few of the students' responses were unspecific, such as, "I would like to read more," most of the students' responses indicated an awareness of a task that corresponded to their intended goals. It is interesting to note the low percentage of responses relating to short and long-term goals. As previously evidenced, students appear to associate goal accomplishment with specific tasks rather than as a weakness or strength in a particular skill. Students' completion of the peer-prompted feedback portion of the SWRF decreased towards the end of the project. Perhaps

students at the conclusion of the project were more concerned with their individual efforts to complete their journals rather than with taking time to complete portions of the peer-prompted feedback on the SWRFs. It is significant to note that mid-point to the end of the project, the students' exchange of information became more verbal; the students tended to advise each other more freely on how to construct their journals.

4.3.2 Research Question Five

Is there a significant increase from the beginning to the end of the project-based learning experience in the mean scores of students who scored high (the top 20%) on the Bandura Self-Efficacy for Self-Regulated Learning Scale on the pretest?

With 56 students participating in this study, the top 20% consisted of 11.2 students; therefore, 12 students were included in this group. Two students scored the same on their pretest scores; therefore, both students were included. Table 14 shows the results of a one-tailed t-test.

Table 14. Students Who Score High (Top 20%) on the Bandura Self-Efficacy for Self-Regulated Learning Scale

	<u>n</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>p</u>
Pre	12	67.33	4.07	2.27	.025
Post	12	62.00	7.85		

The mean scores of these students decreased significantly from the beginning to the end of the study. The Null hypothesis for Research Question Five was: There will be no change

from the beginning to the end of the project-based learning experience in students' pre/post mean scores on the Bandura Self-Efficacy for Self-Regulation Learning Scale for students who scored high (top 20%) on the pretest using a one-tailed t-test. Therefore, the null hypothesis was rejected. However, this is not surprising since using the top 20% of the student population in this study again highlights the statistical artifact of regression toward the mean. In the student rating of learning strategies, the Bandura Self-Efficacy for Self-Regulated Learning Scale, considers a "5" "Pretty Well," while it places a "6" between "Pretty Well" and a "7," "Very Well." Students' scores started at a high level of self-efficacy at the beginning of the study. At that initial point, out of a possible high score of 77, the student average score of 67.33 indicates a high level of self-efficacy. Although the scores showed a significant decrease, this group of students can be considered to be self-regulated both prior to (mean = .67) and at the conclusion (mean = .62) of the project-based learning experience. The students participating in this eight-week study indicated to the teacher that they had never before experienced this type of project-based learning process. At the conclusion of the study, students were perhaps more cognizant and discriminating of the process by which they developed self-regulatory skills and recognized the challenges inherent in developing these skills.

The study poses a question to determine whether students who initially perceived themselves as having a high degree of self-efficacy in accomplishing their goals will have this same perception at the conclusion of the project. Both Bandura (1997) and Schunk (1998) note that students who perceive themselves as having a high sense of self-efficacy usually maintain high expectations of themselves in their achievements.

Pajares (2006) notes the significance of the students' sense of self-confidence and sense of personal outcomes in their academic endeavors. Pajares (2006) further explains that the more

self-confidence students possess in their capabilities, the greater their academic successes. Students should be commended for their “effort and persistence” rather than their ability (Pajares 2006, p. 350). Research has shown the positive relation and influence of self-efficacy beliefs with academic achievement (Schunk and Pajares as cited in Pajares and Urdan, Eds., 2002). Even though the data suggests a decrease in students’ scores, it is important to note that some of these students set high expectations for themselves throughout the project. These top achieving students were conscientious about completing the goals they set for themselves. They were more critical in their self-reflecting practices throughout the project as they questioned the progress of their goals.

Interestingly, after reviewing all of these twelve students’ goal setting procedures on their SWRFs, I discovered that nine out of 12 students noted in their SWRFs that hard work was necessary for them to attain their goals. Examples of students’ comments pertaining to setting high expectations for themselves include: “Set them high and try to achieve it.” (Lindsay); “I set harder goals every week and try to achieve all of them.” (Lynn); “I need to work on this project a little bit each day and not be worried to get started on the good copy. I need to make goals that are harder to reach so I can get more done.” (Tara); “I have to take the journal one entry at a time and it is a ton easier. I focused on the whole journal too much and thought of how much work I had ahead of me. Now, I focus on one little entry.” (Hannah) At the conclusion of the study, one student whose score decreased mentioned in her SWRF that she recognized her time management skills were weak: “I think I could have used my time a bit more wisely.”

Students’ responses reflected their awareness of their performance in comparison with completing tasks in the project and establishing benchmarks for themselves. This self-initiated process of forming goals is explained by Zimmerman (1998), “By forming their goals into

hierarchies that are sequenced according to their achievability, self-regulated learners ensure the continued availability of challenging but achievable goals to guide them” (p. 6). Perhaps this comparison validates why students frequently mentioned their concerns about completing their journals by the “due date.” As previously mentioned, most students benchmarked their progress by what tasks they completed to attain the ultimate goal of finishing their end product. The scores on the Bandura scale suggest that at the onset of the project, students confidently interpreted self-efficacy as simply finishing an assignment. Many of the students who scored in the top 20% of the Bandura pre-test, had already established a way to maintain the expectancy of their goals by creating a goal plan in which they set attainable benchmarks at various increments in the project as opposed to some students who continually set challenging goals that they struggled to achieve. Many students also recognized that by setting reachable goals, they were able to attain milestones in the project. As Katrine stated, “I worked well independently to achieve my goals. I developed realistic short and long-term goals. I was always ready for journal checkpoints. I used my blueprint.”

4.3.3 Research Question Six

I hoped that students who possessed a low self-perception of their ability to complete their goals at the beginning of the project would have improved their self-perception at the end of the project. I assumed the following research question would provide insight into these students:

Is there a significant increase from the beginning to the end of the project-based learning experience in the mean scores of students who scored low (the bottom 20%) on the Bandura Self-Efficacy for Self-Regulatory Learning Scale pretest?

I analyzed the scores of 12 students for this research question. The null hypothesis for Research Question Six was: There will be no change from the beginning to the end of the project-based learning experience in students' pre/post mean scores on the Bandura Self-Efficacy for Self-Regulation Learning Scale for students who scored low (the bottom 20%) on the pretest using a one-tailed t-test. Table 15 indicates no significant increase in the mean scores of these students, therefore, the null hypothesis was accepted. Mean scores began at .36 and were .38 at the end of the study. Students rated their self-efficacy for self-regulated learning on a 7 point rating scale. As noted on the Bandura Self-Efficacy for Self-Regulated Learning Scale, a rating of learning strategies by students ranged from "1," "Not well at all," to "5," "Pretty Well."

Table 15. Students Who Score Low (Bottom 20%) on the Bandura Self-Efficacy for Self-Regulated Learning Scale

	n	M	SD	t	p
Pre	12	36.083	7.83	.82	.213
Post	12	38.333	7.30		

Although the group mean scores of the low 20% showed no significant increase, eight of these twelve students who showed an increase in their self-regulated learning skills improved their articulation of ideas from the beginning to the end of the completion of their SWRFs. Through their self-reflective notes on the SWRFs; students specified what skills they needed to improve from week to week. They progressively set more task-oriented goals, and they focused their direction on specific self-management skills. For instance, at the beginning of the project, students identified broad goals as evidenced by these examples of students' responses: "I try to

do everything I'm supposed to do" and "Getting all my entries done." As Matthew noted, these comments narrowed into more specific tasks: "My goal was to take notes and listen to the movie and speakers"; Kim stated, "I made a goal to get twelve journal entries done and go through them and get organized." In the "Plan of Action" category of the SWRF, one student in particular realized, "Need to get the notes faster and more often." As most of the students' comments reveal, students articulated their progression from the concept of teacher-imposed directives to self-initiated directives.

The experience of one student in the project is worth mentioning. Paul, a low achieving student who received intervention strategies and was more closely monitored than other students, improved from a score of .28 to .46 on the Bandura scale. Over a year after the study, Paul stopped me in the school hallway and said that six months after the study, he realized as an eighth grader his need to improve his study habits in order to succeed in school. In our conversation, he also asked if I was continuing to do project-based learning in class and inviting living historians to my classroom. I was excited to learn that Paul grasped the purpose of self-reflection in the project-based learning experience and that the rethinking process brought him to a sense of responsibility for his own success.

Schunk (1998) notes that "effective self-regulation does not require that self-efficacy be exceptionally high" (p. 142). Schunk (1998) adds that those students who question their ability to succeed may put forth less effort to improve their strategies than those students who have more confidence. Mary exemplifies one student who doubted her efforts. She noted on her SWRF, "My goal setting procedures weren't that good. I tried to make goals, but I would never follow through." Within all of the students' responses, seven of the twelve students specifically

identified organizational skills and keeping track of their progress as reasons for success in the Goal Setting category of the SWRF.

As students engaged in conversations with their peers to complete the peer-prompted reflection portion of their Student Weekly Reflection Forms, they had the opportunity to share strategies and goal action plans with one another. This exchange of feedback with peers resulted in a two-fold outcome: students discussed their progress with their peers, and this discussion encouraged students to use peer feedback in their self-reflection process. As Schunk (1998) notes: “Observing similar peers succeed (fail) at a task may raise (lower) observers’ efficacy. From teachers, parents, and others, learners often receive persuasive information that they are capable of performing a task (e.g., ‘You can do this,’)” (p. 141).

Student encouragement is noted from one student to another in the Student Weekly Reflection Forms as both positive feedback: “Keep up the good work,” and as critical observation of a student’s past weekly performance, “Stop procrastinating...”. The candor expressed by some students to their peers about their work ethic emerged as an influential, motivational force.

4.3.4 Research Question Seven

I considered the students’ perceptions and plans to achieve their goals over the length of the project-based learning experience through the Goal Orientation Index (GOI). To determine the strength of students’ goal setting measures, I posed the following question: Is there a significant increase from the beginning to the project-based learning experience students’ goal accomplishment style mean scores on the Goal Orientation Index (GOI) subscales, Part 1 (Acting, Planning, and Reflecting) and the twelve goal-oriented behaviors, Part 2?

The GOI is based on a 12-step problem-solving decision-making process that is related to how an individual sets and accomplishes goals. The twelve steps include:

1. Recognize needs, problems, challenges, opportunities.
2. Set a goal.
3. Brainstorm alternatives.
4. Assess risks.
5. Decide what to do.
6. Visualize the goal as accomplished.
7. Organize.
8. Make it happen.
9. Don't procrastinate.
10. Wrap it up (finish what you start).
11. Evaluate.
12. Have a purpose, long-range direction.

Table 16, "Goal Orientation Index (GOI) Subscales Comparing Pre- and Post-Test Scores," presents study data related to the three subscales. Overall, two subscales of the GOI, Planning and Reflecting, showed a significant increase in the goal-oriented behaviors. The hypothesis for Research Question 7 was: There will be an increase from the beginning to the end of the project-based learning experience in students' goal accomplishment style mean scores on the Goal Orientation Index (GOI) Part 1: the subscales (Acting, Planning, and Reflecting) and Part 2: the twelve goal-oriented behaviors using a one-tailed t-test. Therefore, the hypothesis was accepted for the Planning and Reflecting Subscales and rejected for the Acting Subscale (Part 1). For the GOI Part 2, the hypothesis was accepted for five out of the twelve goal-oriented behaviors.

Table 16. Goal Orientation Index (GOI) Subscales Comparing Pre- and Post-Test Scores (Part 1)

Subscale	Pre		Post		t Value	Probability Value
Acting	Mean 107.54	SD 17.264	Mean 108.6250	SD 17.743	.82	.203
Planning	Mean 103.20	SD 21.713	Mean 107.9643	SD 20.537	2.28	.013
Reflecting	Mean 91.14	SD 22.782	Mean 98.6786	SD 21.465	2.96	.005

In this study, the Acting section related to students' doing the work needed to complete their journals; the Planning section of the GOI focused on the students' accomplishments in terms of organizing themselves (planning) in order to accomplish their long-term goals; and the Reflecting section of the GOI focused on how well students considered alternatives, addressed risks for each alternative within the goal setting process, and evaluated their progress as the project proceeded.

Three subscales of the GOI, Acting, Planning and Reflecting, with each subscale containing four goal-oriented behaviors, were examined using a one-tailed t-test to determine the level of significance. Table 17 presents the pre- and post-GOI scores for the twelve goal-oriented behaviors. Overall, two of the three subscales of the GOI showed significant improvement. The five goal-oriented behaviors included in the Reflecting and Planning Subscales that showed significant improvement are: Brainstorm alternatives; Assess risks; Evaluate; Organize; and Purpose, having a long-range sense of direction.

Table 17. Expanded GOI Subscales Comparing Pre and Post Test Scores (Part 2)

Subscale	Pre		Post		t Value	Probability Value
	Mean	Standard Deviation	Mean	Standard Deviation		
<u>Reflecting</u>						
3: Brainstorm alternatives	21.95	5.72	24.63	6.23	4.12	.0005
4: Assess risks	21.52	6.64	23.95	6.34	2.88	.003
6: Visualize	24.73	6.52	25.55	5.96	1.08	.143
11: Evaluate	22.95	6.79	24.55	5.97	1.91	.030
<u>Planning</u>						
1: Recognize needs, problems, challenges, opportunities	27.57	5.95	27.75	5.91	.27	.394
2: Set a goal	27.14	6.08	27.63	5.43	.93	.178
7: Organize	22.70	6.33	25.41	6.51	3.41	.0005
12: Purpose, long-range direction	25.79	7.35	27.18	6.02	1.83	.036
<u>Acting</u>						
5: Select strategy	25.47	6.41	25.71	6.57	.37	.356
8: Make it happen	28.13	5.78	28.45	5.27	.49	.313
9: Don't procrastinate	25.68	6.22	25.34	6.24	-.47	.321
10: Wrap it up (finish what you start)	28.29	5.76	29.13	5.58	1.57	.06

The three behavior subscales of the GOI will be discussed separately.

4.3.4.1 Acting

In the Acting Subscale, students did not show a significant increase in their pre/post goal setting. Overall, students' scores on the Acting Subscale of the GOI reflect the challenges to do the work they faced in this project. These challenges included responsibility for identifying successful strategies and finding methods to assure that these strategies would be effective in their journal completion. The process of selecting an effective strategy included the students' ability to decipher which strategies yielded the most useful information for their historical

journals. This became an individualized, independent research journey for each student. Students were cognizant of being self-motivated throughout the project since I encouraged them to develop self-regulatory skills in order to become self-managers in achieving their goals. One student reflected and commented on self-motivation: “In order to get done with the project, I had to pull myself through.” A key element of “pushing on” involves the individual finding something that motivates him/her. My providing students with opportunities to make personal choices that were relevant to them proved to be a rewarding experience for students.

Although no significant increase occurred in the GOI Acting Subscale in this study, researchers recognize the idea of student decision-making as a positive influence on attempts to engage and motivate students (Belfiore and Hornyak, as cited in Schunk and Zimmerman, Eds., 1998; Gibbons, 2002; Glasser, 1990; Csikszentmihalyi, 2002; Dewey, 1933; Alderman, 1999).

The length of this project may have been a factor in the students’ perceptions of how well they perceived their abilities to “Push On” in which the p value is .64 for this subscale. This category indicates the students’ abilities to reflect on the project-based learning process. In this process, they made decisions about what they learned as well as how they learned.

Students need to realize self-efficacy in terms of knowing how to use skills consistently, persistently, and effectively in a situation where things were going well and to understand that a poor performance carried a negative consequence (Bandura, 1997). In this sense, some students would have been aware of their shortcomings in not reaching their desired goals each week or at a teacher-imposed journal checkpoint in the project. Some students needed individual guidance to diagnose what difficulties they were experiencing and, with my help, to create intervention strategies that began with a short-term goal that was both reasonable and attainable. These intervention strategies were intended to help students develop a sense of self-efficacy. In this

study, two students required intervention strategies; both students increased their scores on the Bandura Self-Efficacy for Self-Regulated Learning. One student increased his Planning subscale score on the GOI by .9%, and the other student increased his Planning subscale score by 58% and his Reflecting subscale score by 40%. Self-reflection and self-recording of students' work were instrumental in encouraging students to develop a framework for longitudinal goal accomplishment.

4.3.4.2 Creating Structure within the Goal Setting Process

The repeated, disciplined practice of self-monitoring goals on a weekly basis through the use of the Student Weekly Reflection Form, resulted in students' understanding the necessary strategies to implement in order to achieve their goals. Lynn's student response reflected her recognition of the value of setting an independently styled framework of goal setting: "Setting goals helped me most because it was more like I'd set a goal for myself; but, then I'd try to accomplish it. So, it's just like an assembly line of all the goals and I'd try to accomplish each one, one at a time."

The self-determination required for setting and following through with goals was particularly significant due to the time period of this project. The more setting goals became a challenging task for some students, the more imperative it became for students to engage in the process of self-reflection and self-monitoring their progress on the SWRF each week. Even those students who comfortably and easily developed the setting of goals still faced unexpected obstacles and problem-solving challenges in their journey to complete the project.

The focus question, "How did the French and Indian War and the Revolutionary War affect individuals?" which was intended to strengthen the students' sense of purpose, coordinates with the Planning Subscale, Purpose: long-range direction, of the GOI.

4.3.4.3 Planning

The Planning Subscale of the GOI focuses on the students' accomplishments in terms of recognizing problems and developing organizational methods in order to establish goals. Overall, students raised their ability to use planning skills in the project with an increase at the .05 level of significance shown in Table 16. The specific goal-oriented behaviors that rose significantly are shown in Table 17: Category 7: Organization, with a p value of .0005, and Category 12: Have a Purpose, a Long-Range Direction, with a p value of .036. On average, students' use of organizational skills increased from the beginning to the end of the project. Based on this data, it is apparent that students realized that by developing and maintaining consistent organizational skills, they were implementing a key strategy to achieving their goals. Students displayed this skill development in their SWRF responses by recognizing organization 16.8%, in the Learning Strategies category in Table 3. Table 5 shows that 31.6% of the SWRF students' responses in their goal setting procedures mentioned organization. Organization was a student-suggested strategy second to Journal Entries, a teacher-intended strategy. As a student-suggested strategy, organization is significant because students autonomously recognized and internalized the importance of this behavior.

The repeated use of the focus question at the beginning of the study may have influenced the significant increase in the student scores on the goal-oriented behavior, Have a Purpose, a Long Range Direction (Planning Subscale). I purposefully repeated the focus question to the students at appropriate times when the project began to ensure their complete understanding of the requirements of the long-term project goal. The focus question was intended to stimulate students' self-reflection of how they interpreted and answered the question throughout their research. This self-reflective process contributes to self-management (Belfiore and Hornyak, as

cited in Schunk and Zimmerman, Eds., 1998) as students learn to reevaluate their outcomes based on a criterion. In this sense, the focus question serves as a standard upon which students can relate the work they are attempting to independently complete.

4.3.4.4 Reflecting

The Reflecting Subscale of the GOI indicates the students' ability to formulate various strategies, determine and evaluate the application of these strategies, and visualize plans. It also focuses on how well students utilize metacognitive skills. In Table 16, the Reflecting Subscale mean of the GOI increased significantly with a p value of .005. The entire project-based learning experience encouraged students to think about their thinking. This process, one of metacognition, is defined as the students' ability to think about how they are thinking (Flavell, 2002).

An integral component of self-regulated learning is reflection. It is assumed that the students' progression of articulated ideas throughout the project proves that systematic self-reflection of their work encouraged self-regulatory skill development. Students completed this self-reflective process by self-monitoring their progress throughout the project via the SWRFs. Schunk and Zimmerman (1998) note that "monitoring one's thinking and academic behavior is an essential aspect of self-regulated learning." Therefore, it was important to determine whether students increased their ability to plan and implement effective strategies to finish their journals and to reflect on their progress toward the completion of both their short and long-term goals in the project. Hofer, Yu, and Pintrich (as cited in Schunk and Zimmerman, Eds., 1998) state that "students' metacognitive knowledge and use of metacognitive strategies can have an important influence upon their achievement" (p. 67).

Corno, and Zimmerman and Martinez-Pons (as cited in Schunk and Zimmerman, Eds., 1998) mention that “most models of metacognitive control or self-regulatory strategies include three general types of strategies—planning, monitoring and regulating” (p. 67). These metacognitive control strategies resemble the GOI Subscales of Planning, Reflecting, and Acting.

Students’ scores in Category 3, Brainstorm Alternatives, found in the GOI Reflecting Subscale (Table 17) showed an increase at the .0005 level of significance; Category 4, Assess risks, showed an increase at the .003 level of significance; and Category 11, Evaluate, showed an increase at the .03 level of significance. Throughout the project-based learning experience, students engaged in reflective behavior as they decided on alternative ways to reach their goals or considered possible answers to the focus question. A response by one student epitomizes students’ awareness of utilizing self-reflection in the project: “Thinking...then doing.”

The Brainstorm Alternatives area of the GOI is closely linked to one of the categories in the Learning Strategies area of the Student Weekly Reflection Form. From the students’ responses, it can be assumed that as students completed the SWRF, they realized which teacher-initiated and student-developed learning strategies were successful and unsuccessful in the project. In addition to teacher-imposed strategies, students identified their own strategies which I grouped as: “Monitoring: Students Realized Their Applied Learning Strategies Worked” and “Monitoring: Students Realized Their Applied Learning Strategies Did Not Work.” Since students independently developed these strategies, the methods became a good indication that students were reflecting on the effectiveness of the choices they made in the project.

Students’ self-awareness of their abilities to identify ineffective learning strategies is a critical component of developing self-regulatory skills in project-based learning. The study

assumed that after students engaged in the metacognitive process, they would determine whether it was worth the risk to choose alternative strategies to accomplish their goals.

The development of these students' responses is noteworthy since they represent the students using metacognitive skills to review their performance in the project and to face the reality that they might need to change their learning strategies to achieve success. Students noted on 134 occasions, or 37.4% of all SWRF (Refer to Table 3) responses, which of the student-suggested learning strategies allowed them to achieve their goals. The ability to change and/or attempt new strategies also requires a degree of self-confidence within the students; this self-confidence emerged in the students' expressions categorized as "Awareness of Need to Switch Strategies" in 7.5% of the SWRF students' responses.

Bandura (1997) observes the necessity for testing students' ability to change skills that students perceive as ineffective:

Metacognitive training aids academic learning...The independent contribution of expected utility and self-correction skills to academic achievement and their transfer-ability to situations where students have to assume major responsibility for their own learning has yet to be systematically tested. There is every reason to believe that adding these forms of self-management to strategy instruction improves scholastic learning (pp. 227-228).

Bandura (1997) further adds that the self-corrective use of cognitive strategies comprises a small portion of the way individuals self-regulate their personal cognitive development and functioning.

The Reflecting Subscale of the GOI also yielded a significant increase at the $p = .003$ level in the Assess Risks Category (Table 17). This increase is indicative of students independently determining possible outcomes among available choices. As students assessed choices, they developed an awareness of strategies that proved to be successful in the project-

based learning experience. This decision-making process required self-reflection in which students assessed which strategies promised to produce a positive or negative outcome in their goal setting. It can be assumed that each experience helped to determine which risk-taking strategies proved successful and beneficial as students completed both their short-term goals and long-term goals for the project. Jan affirmed the significance of self-reflection in the self-regulatory skill of goal setting: “It (setting goals) was the most important thing because I would look back and see what I set goals for, and I would try to accomplish them by the end of next week.”

Marzano (1998), in his report on *A Theory-Based Meta-Analysis of Research on Instruction* by the Department of Education, notes that “relatively few studies were identified that focused on instructional techniques designed to enhance the metacognitive system per se.” This study shows the significance of students’ use of metacognition in assessing their strategies. Furthermore, the data indicate that through self-reflective practices, students independently constructed learning strategies based on their needs in the project-based learning experience.

Students’ independent creation of learning strategies is important in students’ development of self-regulatory skills because it encourages them to identify and further modify the skills that empower them to become managers of their learning. As students became knowledgeable of the strategies that were ineffective in attaining self-efficacy, they recognized that they had to remedy bad choices in order to achieve success. Ginny stated: “I need to organize my data a little better because I have so many papers and I don’t know what to write. I also need to record my information better.” Adam mentioned on his SWRF: “I can pull good information off the Internet and organize it so I can succeed in the project. Movies don’t help.”

I encouraged students to conscientiously plan their goals and visualize how they intended to achieve their goals, specifically the interpretation of the focus question and completion of their historical journals. The self-regulatory process emphasizes goal setting, specifically the forethought phase of Zimmerman's self-regulated learning cycle (Zimmerman, 1998, p. 2). As indicated in the GOI, as students prepared to "get their act in gear," they not only had to discipline themselves each week to reflect on their progress throughout the project and to establish both short-term and long-term goals, but they also had to daily reflect on what they needed to do in order to achieve their desired goals.

The data substantiate that students re-examined the mechanisms they used to reach their goals and assessed the potential hazards associated with their choices in order to complete their goals. Flavell, et al. (2002), who discuss the process of metacognition children use in learning, state, "Children not only think when solving a problem, but they also learn to think about thinking and about tasks, strategies, and the process of solving a problem" (p. 164). Flavell, et al. (2002) categorize metacognitive knowledge into three areas: knowledge about persons, tasks, and strategies. Flavell, et al. (2002) refer to knowledge of persons as 1) an understanding of how humans are similar to cognitive processors and 2) a recognition of individual differences.

The responses on the SWRF indicated that the students thought about various factors as they established goals for themselves. As the students deviated from the teacher-imposed goal-setting strategies, they independently developed strengths in identifying and using self-reflective skills as indicated in Table 5, Part 1 (total of 197 responses). In addition, Table 5, Part 2, identifies student-developed strategies (total of 275 responses) which the students completed individually and strategies which the students carried out with the help of their peers. Students' initiative to develop independent strategies is evident in one student's self-reflection of the

journal checkpoints that I initiated: “I think two (journal checkpoints) were enough, and then you have a little bit of independence you know and you get to change things.”

As previously discussed, self-reflection emerges as a critical factor in the development of self-regulatory behavior. As students became empowered to think about how they learned and as they readjusted their learning strategies, they used both cognitive and metacognitive skills. Bandura (1997) states that “an integral part of effective instruction is teaching students how to regulate their own their own learning” (p.111). By routinely completing the SWRFs each week, students evaluated themselves and engaged in the metacognitive process of determining how they solved problems that arose in the project-based learning experience. The depth involved in assessing personal learning strategies and becoming aware of how to construct a solution is more valuable than “simply understanding the factual knowledge and reasoning operations for given realms of activities” (Bandura, 1997). Bandura (1997) adds, “Metacognition involves thoughts about one’s cognitive activities rather than higher order cognitive skills” (p. 223). However, Bandura (1997) cautions, “Knowing what to do is only part of the story” (p. 223).

I found the peer feedback an invaluable resource for redirecting a less-motivated student toward a more positive academic performance. The project itself became more than an academic assignment by engaging students in social and motivational skill interactions that facilitated their learning. Bandura (1997) emphasizes the process of cognitive development in terms of social relations: “Skill in using social resources and managing the social consequences of one’s school experiences, therefore, is another important facet of self-directed learning” (p. 228). He (cited in Bandura, 1997) adds, “Social cognitive theory integrates the cognitive, metacognitive, and motivational mechanisms of self-regulation” (p. 228).

Included in the cyclical phase of Zimmerman's self-regulated learning cycle, which I adapted to create the instructional framework for students in this study, is self-reflection. Zimmerman (1998) notes that this phase influences students' forethought in which students prepare themselves to master a concept and review their study strategies. According to Zimmerman (1998), various methods exist for engaging students in the metacognitive process: namely, self-evaluation, attributions, self-reactions, and adaptivity.

In Zimmerman's self-reflection phase of the self-regulatory process, students actively evaluate the effectiveness of the learning strategies they had utilized in the project, the goals they previously established for themselves, and the goals they will have to develop in order to complete their historical journals. This self-reflection process was necessary in order to continue the next phase of the cycle, the forethought phase, in which students set goals for the upcoming week on their Student Weekly Reflection Forms and devised strategies in the Plan of Action portion of the form in order to follow through with their intended goals. After thinking about their work performance each week, students also had the opportunity to reevaluate their self-efficacy beliefs and determine whether they were truly achieving what they believed they could achieve in the project. Some students stated that after reflecting on their previously established goals, they set their expectations too high; they recognized the need to take the project "day by day" or "take smaller steps" in order to reach a major milestone in the project. Once she reflected on which self-regulatory skill enabled her to achieve goals in the project, Carrie mentioned: "I think the Goal Setting 'cause you can plan what you are going to do for the next week, and you can know how much you have to do to get it done on time."

Developing self-awareness within the self-regulatory process enabled students to evaluate their successes or failures in the learning strategies they had chosen throughout a week and to

determine what worked and did not work for them. Those students familiar with how they learned did not identify the strategies, such as those utilized in the long-term historical journal projects that helped them effectively achieve their goals. Students consistently evaluated several skills through the self-regulatory process in this long-term project-based learning experience: goal setting, time management, and effectiveness of learning strategies. While most students were familiar with day-to-day, teacher-directed assignments or short-term assignments, confronting an eight-week project that required them to independently create their own parameters was a relatively new learning experience. It became, however, a learning experience that disciplined them to examine their skills and evaluate their abilities to succeed.

The deliberate process of choosing and implementing the best possible strategies and ultimately reflecting on the entire experience was an ongoing one. An increase in this particular category is noteworthy as this process was a valuable factor in the overall development of self-reflection. By assessing potential risks, students were internalizing the outcomes of the choices they made and identifying what modifications were necessary to improve future choices.

Students' self-confidence in assessing risks and choosing strategies to proceed with their goals is indicative of proactive, competent decision-making. After surveying the results of actions they had taken thus far in the project, the students reflected on these past decisions and anticipated what future steps were necessary. By students' self-directing their strategies, they used cognitive skills necessary to make their project goals become a reality. It should be noted that the increase in student mean scores in Category 12, the Purpose, long-range direction category of the Planning Subscale of the GOI (see Table 17) indicates that students made a significant increase in their commitment to setting long-range goals.

Individuals need to realize a sense of self-efficacy in terms of knowing how to use skills consistently, persistently, and competently, especially in a situation where either things are going well or a poor performance carries a negative consequence (Bandura, 1997). In this sense, some students were aware of their shortcomings in not reaching their desired goals each week or at a teacher-imposed journal checkpoint. At this point in the project, students needed individual guidance to diagnose what difficulties they were experiencing and develop intervention strategies that began with a short-term goal that was both reasonable and attainable. There were two less motivated students in the project who needed specific intervention strategies. Bandura (1997) proposes that the social cognitive theory includes a “multifaceted approach to promoting student achievement”, and with this in mind, the intervention strategies included both teacher monitoring and peer involvement. I placed each of the two students who were less motivated with a group of students who engaged in productive self-reflection each week. I hoped that these students could encourage the intervention-targeted students to become self-motivated to independently construct goals for themselves. While observing one of the less motivated students who I placed in a highly motivated group of students, I noticed that student feedback given to the less motivated student became quite frank. One student suggested: “Stop procrastinating and get to work!”

Students succeeded in comprehending the purpose of self-reflection in this project as they identified and created more student-suggested responses than teacher-intended responses for two out of the three self-regulatory skill categories on the SWRF: learning strategies and goal setting procedures.

4.3.5 Research Question Eight

Students reflected on how they engaged in learning strategies, goal setting procedures, and management of time throughout their work on their historical journal projects. To understand the development of those students who perceived their self-reflection as high from the beginning of the project, I asked the following question: “Is there a significant increase from the beginning to the end of a project-based learning experience in the goal accomplishment style mean scores of students who scored high (the top 20%) on the pretest Reflecting Subscale of the GOI Subscales?”

The following Table 18 concentrates on self-reflection, one of the critical components of self-regulatory skill development. The Reflecting Subscale of the GOI Subscales was considered to be indicative of the students’ metacognitive development in the project-based learning experience.

Table 18. Change in Mean Reflecting Score for Students Who Score High (Top 20%) on the Goal Orientation Index (GOI)

	<u>n</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>p</u>
Pre	12	122.417	12.35	-.603	.28
Post	12	120.333	11.40		

As reported in Table 18, no significant increase occurred in the mean score of the 12 students who scored higher in their GOI scores in the Reflecting area from the beginning to the end of the study. The hypothesis for Research Question Eight was: There will be an increase

from the beginning to the end of the project-based learning experience in students pre/post goal accomplishment style mean scores on the Goal Orientation Index (GOI) who score high (the top 20%) on the GOI Reflecting Subscale pretest using a one-tailed t-test. Therefore, the hypothesis was rejected. The mean scores of these students decreased, but this was not surprising since using the top 20% introduced the statistical artifact of regression toward the mean.

4.3.6 Research Question Nine

To determine how those students who perceived themselves as having low self-reflection engaged in learning strategies, goal setting procedures and management of time in the completion of their historical journal projects, I investigated the following research question: Is there a significant increase from the beginning to the end of the project-based learning experience in the goal accomplishment style mean scores of students who scored low (the bottom 20%) on the pretest Reflecting Subscale of the GOI Subscales?

Table 19 presents students' perceptions of their abilities to self-reflect on their progress. The Reflecting Subscale of the GOI Subscales was considered to be indicative of the students' metacognitive development in the project-based learning experience.

Table 19. Change in Mean Reflecting Score of Students Who Score Low (Bottom 20%) on the Goal Orientation Index (GOI)

	<u>n</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>p</u>
Pre	13	61.385	11.780	+3.001	.005
Post	13	77.385	16.205		

As Table 19 illustrates, there was an increase at the .01 level of significance in the pre- to post-scores of the students who scored in the lower 20% of the pre-GOI test in the Reflecting Subscale at a one-tailed level of significance using a paired samples t-test. The hypothesis for Research Question Nine was: There will be an increase from the beginning to the end of the project-based learning experience in students' pre/post goal accomplishment style mean scores on the Goal Orientation Index (GOI) who scored low (the bottom 20%) on the GOI Reflecting Subscale pretest using a one-tailed t-test. Therefore, the hypothesis was accepted. Students' comments indicated that their goal setting strategies were the most overall beneficial strategies they developed within the self-regulatory skills in the project. The increase in the pre/post scores of the low achieving students is important as it demonstrates that students with a low sense of self-efficacy can learn specific skills that will improve their level of self-perceived competence. These results support students' comments concerning peer feedback on their Student Weekly Reflection Forms.

4.3.7 Research Question Ten

To understand if a relationship exists between students' perceptions of their self-regulatory abilities to complete goals in the project-based learning experience and students' development and implementation of goals, I explored the following question: Is there a positive correlation between the students' total post-test scores on the Bandura Self-Efficacy for Self-Regulated Learning Scale and the students' post-test scores on the Goal Orientation Index?

Each of the three GOI Subscales, Acting, Planning and Reflecting, was correlated with the Bandura Scale at the .01 or higher level using a one-tailed t-test. I also found moderate correlations between the students' post-test scores on the Bandura Self-Efficacy for Self-

Regulated Learning Scale and nine of the goal-oriented behaviors as measured by the Goal Orientation Index. The hypothesis for Research Question Ten was: There will be a positive correlation between the students' post-test scores on the Bandura Self-Efficacy for Self-Regulated Learning Scale and the Goal Orientation Index using a one-tailed t-test. Therefore, the hypothesis was accepted for nine of the goal-oriented behaviors. The correlation data from these two instruments are found in Table 20:

Table 20. Correlations Between Bandura Self-Efficacy for Self-Regulated Learning Scale and the Goal Orientation Index (GOI)

<u>GOI Category</u>	<u>r</u>	<u>p</u>
<u>Three areas of goal oriented behavior</u>		
Reflecting	.42	.01
Planning	.68	.0005
Acting	.64	.0005

<u>Reflecting</u>		
3: Brainstorm alternatives.	.34	.01
4: Assess risks.	.24	.05
6: Visualize the goal as accomplished.	.41	.01
11. Evaluate.	.50	.0005

<u>Planning</u>		
1: Recognize needs, problems, challenges, opportunities.	.65	.0005
2: Set a goal.	.63	.0005
7: Organize.	.54	.0005
12: Have a purpose, long-range direction.	.53	.0005

<u>Acting</u>		
5: Decide what to do.	.28	.05
8: Make it happen.	.57	.0005
9: Don't procrastinate.	.42	.0005
10: Wrap it up (finish what you start).	.68	.0005

The Bandura Self-Efficacy for Self-Regulated Learning Scale and GOI correlation data indicate that the more often students perform the nine goal-oriented behaviors, identified by the GOI, the stronger their belief will be that they can achieve something, thereby demonstrating self-efficacy.

4.3.8 Summary of Qualitative and Quantitative Data

The data has demonstrated that project-based learning supports self-regulatory behavior development. This pedagogical strategy afforded students many opportunities to weave their personal knowledge of the subject with the historical content that I anticipated students would learn from the curriculum. The process of completing the product, the goal of the project-based learning experience, caused students to use goal-oriented behaviors. The data indicate that the more often students use specific goal-oriented behaviors in a project-based learning setting, the more likely they will perceive themselves as being able to do the necessary work.

Supported by students' responses in this project-based learning experience, external resources contributed to students' comprehension and application of knowledge. It is significant to note that, when given the opportunity to participate in curricular and assessment decision-making within the class, students created a support system among their peers to formulate strategies as a means to understand content and attain self-imposed goals. This empowerment emerged in a unique student-developed learning strategy: working sessions. Students' responses on their SWRFs suggest that as I gave students freedom in the classroom environment to negotiate meaning with their peers and manage their own learning, their actions supported the social cognitive theory that a social environment enhances the students' learning.

5.0 CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

Learning is not something that can be done *for* students,
Rather it is something that is done *by* them.
(Zimmerman, 2002)

5.1 CONCLUSIONS

The research framework for this study was an investigation to determine how students might develop self-regulatory skills within a project-based learning experience. Students becoming managers of their own learning processes formed the theoretical rationale for incorporating project-based learning in the curriculum. An integral part of project-based learning involves the teacher's willingness to grant students new learning opportunities and to empower students to make their own choices.

In order for students to gain a sense of “where they were starting from” in this project, they first had to identify the level of their self-regulatory skill capacity in terms of how well they managed time, how they established goals for themselves, and what kind of learning strategies they utilized in their school work. I targeted these skills as being instrumental in each student's success in autonomously completing an end product.

Zimmerman's self-regulated learning cycle anticipates that students can become aware of which learning strategies contribute to successful outcomes in their academic work. In this study, students identified these strategies through a weekly self-monitoring process. This self-monitoring process was a deliberate approach which enabled students to self-identify their weaknesses and strengths in terms of three self-regulatory skills: learning strategy use, goal setting, and time management. As students engaged in this metacognitive process, they sought feedback from peers regarding their endeavors. Constructive peer feedback was a reciprocal process in this study and as Newman (as cited in Schunk and Zimmerman, Eds., 1994) points out, small cooperative learning groups work together for a "common goal" and this contributes to students having "control over their own academic outcomes" (p. 284).

Through using social cognitive theory as a framework for project-based learning, teachers can encourage students' self-regulatory skill development and create a classroom environment that facilitates students achieving self-monitored academic success. A project-based learning experience should be well-organized so that students can construct meaning for themselves with the assistance of their peers. The concept of social cognitive theory was inherent in this study as students were involved in an in-depth, long-term project requiring both the self-identification of learning strategies as well as the management of environmental factors. Bandura (1997) states, "Human adaptation and change are rooted in social systems. Therefore, personal agency operates within a broad network of sociostructural influences. In agentic transactions, people are both producers and products of social systems."

Students directly made decisions that affected the outcome of their projects by monitoring and changing their strategies to achieve their desired outcomes. These strategies

included the students' responses to the feedback they received as well as how they integrated environmental factors into their goal setting procedures.

I used social cognitive theory (Bandura, 1977, 1997; Zimmerman, 1998) as the basis for understanding students' development of self-regulatory skills in this project-based learning experience. Zimmerman (as cited in Pajares and Urdan, Eds., 2002) explains that as adolescents acquire self-regulatory skills, they developmentally "change their capability to self-regulate both internal processes and external forces proactively" (p. 4). Students in this project received guidance in the development of three specific self-regulatory skills: learning strategy use, time management, and goal setting. As a result, the findings in this study support Zimmerman's ideas. The student-developed learning strategies that emerged in this project-based learning experience substantiate my observation that, after I implemented scaffolding techniques to encourage the students' understanding and monitoring of self-regulatory skills, students internalized the cognitive processes to manage various tasks in the project. Based on students' responses on the collected SWRFs, self-reflective practice proved to be instrumental in students realizing success in the use of their learning strategies. Students reflected on both their interpersonal and intrapersonal skills in the project. The importance of this self-reflection is evident in the students attempting to understand the cause and effect relationship of applying self-regulatory skills in the project-based learning experience.

An unexpected outcome in the study was the emergence of student-developed ideas for both learning strategies and goal setting procedures as students engaged in their own self-monitoring skills in contrast with teacher-initiated strategies. This outcome is indicative of students recognizing and modifying their attempts to manage themselves in the project. The outcome suggests that students moved from relying on the teacher-initiated strategies for

developing self-regulatory skills to utilizing their own strategies for self-regulatory skill development. Specific curricular activities encouraged the transition from a teacher-directed to a student-centered learning environment. I designed these activities to encourage students to 1) utilize higher-order thinking skills to assess risks and 2) to change their strategies, when needed, to achieve their intended goals.

This study adds to existing social cognitive understandings that, in order for students to identify and develop self-regulatory skills and become managers of their self-directed learning, they first have to receive the opportunity to participate in their own learning processes as managers. To accomplish this, I initially had to address the maturational development needs of adolescent students. I encouraged students' engagement in tasks which were academically and intrinsically motivating to them by creating opportunities for students to have a voice in their learning and to participate in decision-making associated with the curricular activities.

The overall findings in this study suggest that students can be successful in using metacognitive processes to self-monitor the development of their self-regulatory skills. An outcome of the study, however, indicates that some students, to facilitate their development of self-regulatory skills, need to be supported through a scaffolding process built into the project-based learning experience. In addition, I recognized that careful attention to individual students' needs is necessary to teach students how to synthesize information from a variety of external sources. Some students specifically required my guidance to become more efficient in adopting methods for sifting through collected data. The most difficult challenge for students was to synthesize ideas from multiple resources.

In teacher-directed classrooms, it can be assumed that students traditionally rely on the teacher to extract important information and convey this information to students. The outcome

of this process can be students relying on the teacher's interpretations of content rather than students developing the skill themselves. I believe a teacher-filtered process of conveying information causes some students to initially lose ground in their conception of their own abilities. Moreover, it undermines student self-confidence and decision-making skill potential.

I also found that students' self-regulatory skill development was not a simple, easily defined process. Since students were familiar with teacher-directed learning in previous teachers' classes, they had to learn how to self-manage their learning and diminish their reliance on past practices of a spoon-fed, teacher-directed curriculum content. Rather than controlling adolescents' social and academic behavior, I recommend that teachers develop flexibility and tolerance so that students will have the time to 1) gradually develop a conceptual understanding of a project and 2) grasp the development and implementation of self-regulatory skills to facilitate goal accomplishment. Taking time to develop this conceptual understanding is invaluable as it affords students the opportunities to recognize the importance of their own effort in achieving their goals as well as their need to be vigilant in weeding out ineffective learning strategies. For students to be successful in engaging in the self-reflection of their abilities (i.e. to engage in metacognition), teachers have to provide both the time for students to assume responsibility for the interpretation of their own learning processes and an array of teaching strategies which affords students the opportunity to do so. Typical teachers' agendas may include professional responsibilities such as coverage of curriculum-driven content within the school year. This study has demonstrated that students can learn to manage their own learning process through disciplined self-reflection. However, students need time to develop reflective thinking and to learn thoughtfully.

This chapter is apportioned into two areas. Section One, Lessons I Learned From this

Project-Based Learning Experience, discusses how teachers can implement project-based learning as a means to develop adolescent self-regulatory skills. Based on the findings in this study, Section Two presents recommendations for future research in self-regulatory skill development in a project-based learning experience with middle school students.

5.2 SECTION ONE: LESSONS I LEARNED FROM THIS PROJECT-BASED LEARNING EXPERIENCE

Teachers must realize that project-based learning is “learner-centered.” I intended students to become autonomous managers of their learning through this project-based learning experience. To accomplish this, I gave students the freedom to make independent decisions as to the development of their short- and long-term goals, to create the framework of their research, to manage their time throughout the project, and to identify effective learning strategies that worked well for them. This learning experience provided an ideal forum for students to develop self-regulatory skills. I initially mentored students so they could develop their potential to become independent evaluators of their learning practices. Entrusting students with the opportunity to become active decision-makers in their learning empowered them with the responsibility to follow through with their ideas of envisioned goals; this student empowerment was an ongoing process that supported self-reflection. Students’ feedback on their Student Weekly Reflection Forms in this project-based learning experience demonstrated that reflective thinking skills facilitate students’ self-regulatory skill development. The content of the students’ feedback pointed out that the majority of students in the study progressively moved from teacher dependence to student independence as the students assumed personal responsibility for goal

accomplishment. My observations led me to realize that the students' completion of the project was not happening because of my continually instructing the students what to do but because they were motivating and organizing themselves.

To facilitate students' development of self-regulatory skills in a middle school classroom, teachers need to incorporate three components of project-based learning into the educational experience: 1) teaching strategies, 2) communication, and 3) self-reflection supported by peers. This study has shown that students consistently engaging in self-reflective practice makes possible the transfer for ownership of learning from teacher to students.

5.2.1 Teaching Strategies

To maintain student motivation in achieving self-efficacy, I recommend a variety of teaching strategies utilizing student-centered activities for inclusion in a project-based learning experience. Considering adolescents' social and intellectual changes, these activities should be assigned to meet each student's individual learning needs.

Project-based learning is a creative approach to teaching; however, it can present challenging tasks for the teacher. These tasks include inventive and dynamic teaching strategies which have the potential to encourage flexibility in the curriculum's daily activities. As students become engaged in a project and feel comfortable managing their work, the teacher's role is to foster each student's independent beliefs and attitudes related to academic achievement. The teacher also has to be resolute in the delivery of effective and diverse teaching strategies that encourage individual student growth. A teacher does not walk a different path from that of the students—the ideal classroom learning environment is a point in the teaching process where the two paths join together.

The development of self-regulatory skills, which demands that the students take responsibility for their own learning, can challenge those students who depend on teacher-directed learning. Even though I felt that I strongly prepared my students before they began their independent research in a computer lab, library, or during a guest speaker's presentation, I recognized that I still needed to closely monitor some or many of them during the first few weeks of the project. I accomplished this process by answering their questions and guiding their research efforts. In classroom situations similar to this, a teacher has to be aware of an appropriate time to contribute his/her input so students realize and learn independency and responsibility.

Teacher self-efficacy is a key element in sustaining continuity in the project. The implementation of project-based learning demands that the teacher consistently maintain a balance of being both a proactive and reactive mentor in the classroom. Proactivity encompasses a mentor who helps students organize their resources and develop independent learning strategies. In this study, I supported students with a variety of means to facilitate their organizational skills development. The Project Calendar and the Student Weekly Reflection Form, both specifically designed curricular activities, helped students develop organizational skills and assess their self-regulated behavior. The results of the pre/post Goal Orientation Index data suggest that students were successful in both planning and reflecting on their learning outcomes in the project. I believe that both the Project Calendar and the SWRF were instrumental in this success.

In a proactive manner, a teacher has to anticipate a myriad of questions, including the teacher's expectations and the mechanics of the project, posed by the students. Typically, in traditional teaching methods, students are accustomed to the teacher's setting the parameters of

the learning experiences in the curriculum and the classroom. The teacher usually determines the students' success through the correct, routine recitation of answers from class lectures, a textbook assignment, and/or the completion of teacher-designed projects which include specific guidelines to be followed by students. In this process, the teacher's constructs for learning limit the students. However, in project-based learning, teachers have to be responsive to each individual student and his/her interests. This learning anticipates that teachers welcome students attempting to apply their personal experiences and knowledge to the content material. Teachers should use the students' contributions to the curriculum as a motivational factor in student learning. They should empower students to develop the means to achieve their goals rather than expecting the students to uniformly adhere to their agenda for completing goals.

This project-based learning experience, which encouraged students to be creative in tailoring the historical journal project to their individual interests, invited students to take ownership in making decisions about the outcome of the project. The completion of a product was the long-term goal in this project. An integral part of students' project assessment was their application of prior knowledge, use of personal experiences, and content knowledge in the classroom. Marie, one of my students, exemplifies how I fostered students' personal experiences in their learning process. Marie was particularly interested in incorporating her family heritage and ethnic cooking skills into the project. Because she recalled stories of three generations in her family who enjoyed cooking in their small kitchen and sharing family recipes, Marie expressed an interest in using these stories as part of the theme in her historical journal. Marie had found the motivational force she had been searching for in the project; in discussions with her, she told me that the stories eventually framed her research for her journal.

Other students, like Marie, valued including their personal experiences in the project.

When I asked them what they enjoyed about the project, many focused on this personal component. Chris asserted, “I really like doing that—it shows more of me instead of just this regular person.” Jon gave a more detailed response:

Well, like, I guess sort of like because if I have an opinion, I don’t just lay low and let it go past. I’ll tell people what it is...Well, I liked doing the journal because I could half kind of express myself not just like a written project like if you do a project in science it’s all right from the book. I could actually use my writing skills in this instead of just copying a picture.

Lin’s response to her experiences in this project also illustrated her reaction to the self-reflection of students’ goals rather than following the teacher’s goals.

I learned to be more outgoing by this project like do a lot of stuff, work harder, like make it fun like don’t take it as, “Oh, it’s another project, I don’t want to do this. It’s going to be so boring...more lectures. You have to make it fun. That’s why I like the videos and everything you have done with this project because it’s fun and learning at the same time.”

Student choice and self-expression in this project proved to be a motivating factor for many students. Becoming managers of their own projects gave my students the opportunities to creatively structure their time to complete self-designed goals. The completion of these goals in this long-term project challenged some students. For those students experiencing difficulty in planning goals, I intervened by recommending the implementation of journal checkpoints and closer teacher supervision of their self-monitoring processes. I provided journal checkpoints to assure that my students stayed on-task. The checkpoints became a “safety net” for some students who needed additional assistance in completing their historical journals on time.

From my teaching experiences, I realized that students would value mentorship in this project-based learning experience. Many students in the project recalled the effectiveness of demonstrations and discussions with guest speakers to reinforce the concepts discussed in the

curriculum. For instance, students asked the guest speakers/living historians how individuals prepared foods, made clothing, and survived in the wilderness. I demonstrated the practice of calligraphy and mentored students throughout the project on the use of calligraphy in their journal entries. One student, after receiving my guidance on the proper technique of using a quill pen, further researched various styles of writing in historical documents. I mentioned to her, “After I showed you, you practiced more on your own...Once you learn something, you dig out more information.” She revealed a self-reflective comment, “Yeah, I’ve been digging out since kindergarten.”

Based upon my previous project-based teaching experiences, I continued to employ self-monitoring and self-reflection of self-regulatory skills, even after this study ended. At the conclusion of this past school year, one of my students, Deanna, voluntarily wrote me a thoughtful note describing her social studies class with me:

We had fun and we still got work done. I’ll never forget that fashion project me and Sandy did. It was so fun and I learned a lot! Like I realized history isn’t all dates and facts, it’s common sense too and I learned how to finally use mine! Like I was making inferences and basing answers off them without it being spelled out for me in a textbook—‘cause that doesn’t bring it to life and you brought it to life. I’m a lot better at history because before, I hated it and well, I wasn’t very good either. Now, I love it and I’m good at it. Thanks for setting the foundation for me.

Deanna’s reflections of her academic progress are reinforced by her positive understanding of personally-applied learning strategies. Based on Deanna’s comments, I believe she perceived the classroom environment to be supportive of her efforts; she welcomed the opportunities that enabled her to constructively and candidly reflect on her learning experiences.

5.2.2 Communicating with One Another

Dialogue associated with a task or concept in the project provided invaluable insight into students' perceptions of what was occurring in the environment. As I presented students with various concepts and activities in class, they often described these concepts and activities with their own terminology (Frawley, 1997; Diaz, Neal, and Amaya-Williams as cited in Moll, Ed. 1990). This terminology took the form of a phrase that they used repeatedly in discussions with their classmates and me: working sessions. Students defined a "working session" as the opportunity during class to discuss and exchange information about each other's historical journals and brainstorm ideas for each other's plan of action. If they reached a "roadblock" in their research, they were able to move on through the "roadblock" as a result of their open class discussions with both their peers and me. Students also used working sessions to voice any comments about the project or their weekly self-monitoring process.

Several students depicted a motivational phase, "pulled me through," to convey their sense of tenacity and self-efficacy in the project. They achieved self-efficacy through the strength of the strategies they chose to accomplish their goals. In both my student interviews and on the Student Weekly Reflection Forms, students associated the phrase, "pulled me through" with particular learning strategies or ideas that empowered them to become more motivated to complete their goal of finishing the project. David, one of my students, used this phrase to explain how he maintained his focus and effort toward completion of the project, "Well, I do finish stuff on time. I found that out like sometimes I don't feel like I can but usually I just pull through and finish it." Since students frequently used this expression, I began to use it in my dialogue with students as a familiar reference point for them.

To provide a deeper understanding of curriculum concepts, I encouraged my students to

engage in reflective feedback through dialogue with peers, a teacher, parents, and members of the community involved in the same class project. Dialogue became an important element in “connecting” students as participants in the project itself. Each day of the project included conversations as part of the classroom climate. As students became absorbed in the project, our social studies classes became communities of learners where students looked forward to exchanging ideas with their peers and receiving feedback on the work they completed in their historical journals. Throughout the project, students recognized the classroom as their “working ground;” they felt comfortable moving about the classroom as they finished making artifacts for their journals, interviewing guest speakers in the class, and participating in the working sessions. This environment contributed to the students’ sense of community within the classroom. The importance of this open classroom climate became evident in my discussions with students several months after they completed the project. They were enthusiastic in their descriptions of how everyone “worked together” in the project-based learning experience.

5.2.3 Self-Reflection Supported by Peers

Through students’ voices in their weekly recorded self-reflections, I saw that students recognized the importance of peer support as they developed their capabilities to accomplish their set goals. Some students developed a support system of peers throughout the project. This support system evolved as students met on a weekly basis to receive feedback from their peers on the progress of their historical journals.

Two important aspects of students becoming self-regulated in this project-based learning experience were their observed ability to increasingly reflect on their learning strategies and their acceptance of the constructive feedback they received from others as they worked toward the

completion of their goals. The feedback process, an integral component of project-based learning, gave students the opportunity to check the success of their progress at various intervals and, therefore, to determine if they needed to adjust their learning strategies to achieve their goals.

Peer evaluation reinforced the self-reflective process. As one student stated:

It's like watching a videotape of yourself. They're watching a videotape of you, so, therefore, they know more. 'Cause whenever you're inside of yourself, you can't exactly really see what you're doing. The time goes past so quickly. So they really help you find out what you need to do, what you need to do better; what you did very well and how you can improve.

My classroom environment supported peer interaction during curricular activities. Through these opportunities, I observed peer support which reinforced students' motivation to complete their goals and to establish a form of peer networking within the classroom.

One of my students, Phil, developed a partnership with three other students in class. As he reflected on his peer-prompted suggestions on his Student Weekly Reflection Form, he recognized how he could contribute to his classmates' goal setting strategies: "...I saw how their weaknesses and their strengths were and stuff like that."

Another group of students independently decided to meet outside the scheduled class times to discuss the project. They worked collaboratively on the project and shared information: "...we're all getting together and helping each other with the notes like if we find a good website, we'll give it to each other and we get all of the different information and I asked one of them what I should do in a particular situation." One of the girls in this group spoke positively of the development of collaboration. When I asked her if she ever had the opportunity to work on projects with other students, she responded, "Not really, we usually can't talk with our friends and discuss what we're going to do."

One group of four boys worked diligently and cohesively throughout the entire project. They supported each other's efforts and conscientiously completed the SWRFs in their group. They frequently asked for permission to meet in my classroom during lunch time so that they had the opportunity to further exchange ideas outside of the regular class time. One of these students commented:

The thing that really worked for me is when we talked about stuff in class and we took notes on it in class—that really worked for me and the Internet time, and to get information in the working session.

All of my students cohesively shared a vision and became empowered to make independent decisions in the project. I orchestrated a supportive classroom environment which empowered students to accomplish their goals by working collaboratively in groups.

5.2.4 The Power of Reflective Thinking in Project-Based Learning

Students have become accustomed to their teacher's directive of: "Think about what you are doing." I question whether students really know how to think about what they are doing in the absence of a teacher's specific direction. On the basis of students' voices in this study, I realized that metacognitive strategies were one of the most critical processes in this study which heightened students' awareness of how they would accomplish their goals. Alderman (1999) notes, "If students are to learn independently and manage their lives, metacognitive strategies are essential" (p. 127). To enable my students to move toward self-management in this study, I asked them to utilize the Student Weekly Reflection Form (SWRF) as a reflective means to understand how they were developing self-regulating skills within the project-based learning experience.

I suggest that teachers model and incorporate a systematic means for students to chronologically monitor and record their progress when involved in project-based learning. The SWRFs provided insight into students' self-awareness of how they assessed the progress of their collected work from the beginning to the completion of the project. In analyzing best teaching practices, I relied upon my students' assessment of how they integrated all of their experiences in the project.

After comprehensively reviewing the SWRFs and my comments on the Teacher's Daily Logs, I realized that during the first few weeks of completing the SWRFs, students commented on their self-regulatory skills in a rather nonspecific fashion. However, after a few weeks of completing the SWRFs, prominent patterns emerged in students' comments pertaining to guest speakers' visits. This led to my belief that external sources influenced the students' perception of the learning strategies they implemented in the study. Students, also citing external sources as the most helpful project-based curricular activity, were mindful of how they would utilize information obtained from the speakers in their projects. Self-reflection encompassed the students' views of themselves and their social interactions with other students and visitors to the classroom as well as how these interactions facilitated their goal accomplishment process.

Self-monitoring became the primary means for students to recognize strategies they had chosen and to correct any unsuccessful learning behaviors that occurred in the content of the project (Refer to Table 3: "Monitoring"). Results of this data lead me to believe that students monitored, assessed, and regulated the cognitive learning strategies that the completion of their envisioned goals implemented. Zimmerman (1994) affirms that one of the attributes of self-regulated learners is "their reliance on a planned or an automatized method of learning" (p. 11). Zimmerman (1994) further defines this self-regulatory characteristic in terms of learning

strategies and the inclusion of self-monitoring academic performance. The data further suggest that students understood the goal of the project and implemented self-regulatory behaviors in the context of their academic learning.

Almost a year after I completed this study, I had the opportunity to meet with some of the students who participated in the study. They were a year older and, I believe, from an academic perspective, a year wiser. My former students communicated to me how much they enjoyed the opportunity to participate in the project-based learning experience regarding the French and Indian War and the Revolutionary War. One student who had not been reaching his goals in the study and who received my intervention strategy expressed how much he grew as a student in the year following the study:

I realized that I had to start focusing on what I needed to do to start doing well in school. I wished I had done better in my studies, but I know now what I have to do. Are you still doing projects in your class?

Another one of my former students in the study mentioned that she had to complete a social studies project, on a smaller scale, a year following this project-based learning experience. Reflecting on the guest speakers' realistic historical interpretations in the project, Paula commented that her research experiences in my class helped her successfully complete her current project. She explained: "The guest speakers motivated me. I could see if I could achieve as much realism as they did in class." With regard to my social studies classroom, she liked that "the class was never uniform, it struck the creative juices, and I looked forward to the class because you learned more stuff." As she reflected on the self-regulatory skills that she developed during the project in this study, she said: "I learned how to manage information better...put in interesting information and sort out important information." From these students' comments and others, I understood that my intention to encourage students to reflect on their

skills through their SWRFs evolved into a voluntary self-reflective practice. Moreover, even after leaving my class, the students applied the concepts of self-regulatory skill development in other academic contexts.

5.2.5 Rationale for Implementing Project-Based Learning

How can teachers empower middle school students to become self-regulated learners? What effective measures can the classroom teacher implement in order to help students develop the “I get it” moment in their educational journeys? Based on the students’ collective weekly responses of the development and implementation of self-regulatory skills in this project-based learning experience, I realized that the self-reflective, self-monitoring process contributed to the development of independent learning habits in students. These skills include a student’s ability to recognize effective learning strategies in the comprehension and application of knowledge, the student’s ability to discern and achieve goals, and the student’s ability to effectively and efficiently manage time in a student-driven project.

In this study, I engaged students in the process of creating something that interested them. For many, this enhanced their determination to achieve their goals. This project uses self-reflection to inspire the students’ self-motivation. As students paused to reflect in the midst of their project work, they gained a better perspective as to the purpose of a task, their responsibility in successfully completing that task, and their ability to effectively manage their resources and talents to achieve self-imposed goals.

Project-based learning can become a journey in which students are intrinsically encouraged to seek solutions and challenge themselves to respond to tasks with a vision of what needs to be accomplished to achieve personal goals. Project-based learning facilitates self-

regulation when students independently recognize the skills they must develop, control, and utilize. When this happens and students become interested and absorbed in learning, they experience “flow” (Csikszentmihalyi, 1990).

Project-based learning also provides students the opportunities to make personal choices that direct their learning experiences. With the teacher’s guidance, students are encouraged to self-discover their creative energies and contributions to their own learning in a new educational situation. As Csikszentmihalyi (1990) found in his studies, this process propels students to succeed in their goals:

...that every flow activity, whether it involved competition, chance, or any other dimension of experience, had this in common: It provided a sense of discovery, a creative feeling of transporting the person into a new reality. It pushed the person to higher levels of performance, and led to previously undreamed-of states of consciousness. In short, it transformed the self by making it more complex. In this growth of the self lies the key to flow activities. (p. 74)

When students confront risks in their decision-making process in a project-based learning context, they will ask themselves questions and grapple with the correct choice to make. As the risks increase, the teacher needs to provide more guidance. The more students overcome obstacles and accomplish tasks, the more they will presumably develop confidence and skills to meet new and more demanding challenges. Cognizant of the maturational development implications of students at the middle school level, the teacher must understand the impact of students’ voices in their learning. To do so, the teacher must establish a supportive climate in the classroom that is conducive to students’ constructively sharing the teacher’s authority to make curricular choices and decisions. Otherwise, students will have no stake in participating in activities that are (for them) meaningless.

5.2.6 Project-Based Learning through a Nautilus Shell Lens

The sequence of self-regulatory skills that the project-based learning experience can develop are comparable to a logarithmic spiral in nature which is created by sequential self-organized patterns. Each new growth within the logarithmic spiral is regulated and organized in a precise pattern. Self-regulatory skills can be developed through a deliberate, self-monitored, and self-reflective process. These skills, built upon experiences, enable the students' maturational development to proceed. The circular nature of maturational growth through project-based learning experiences can be illustrated in the form of the logarithmic spiral found in the nautilus shell (see Figure 3.).

From the onset to the accomplishment of a goal, each phase in a project-based learning experience can be compared to each chamber of the nautilus' growth as the closure of one chamber leads the construction of another. In a similar manner, the construction of another chamber corresponds to the beginning of a new project-based learning experience. As the nautilus grows and its body moves into its new, living chamber to accommodate its growth, the previous chamber is sealed; however, previous chambers contribute to the nautilus's efforts to stay afloat (Titlow, 2007). Each chamber of the nautilus, a self-sufficient creature, contributes to its buoyancy ability just as each project that students complete contributes to their competence and confidence by providing them with the skills and knowledge to complete future goals.

Teachers seeking innovative teaching methods to engage middle school students in autonomous learning might consider the Project-Based Learning Model I have cited in this study.

Project-Based Learning Through a Nautilus Shell Lens



Figure 3. Project-Based Learning through a Nautilus Shell Lens

This model potentially affords a systematic means for students to visualize and to practice both self-monitoring and self-reflection of their self-regulatory skill development through project-based learning. The combined practice of visualizing and practicing leads students to become self-managing learners.

The model illustrates the process of self-regulatory skill development in a project-based learning experience using a structure similar to that of the logarithmic spiral of the nautilus shell. Recognizing that the nautilus chambers are organized in a precise pattern with new growths built one after another in a cyclical fashion, students may use the following phases, beginning with the application of students' personal experiences, to accomplish their goals in a project-based learning experience.

Personal Experiences – students' real life experiences and background

Prior Knowledge – students' accumulated knowledge of a subject

Goal Setting Procedures – students' development of a plan to accomplish a task

Identifying Learning Strategies – students' recognition of the strengths and weaknesses of methods used to acquire knowledge

Time Management – students' effective use of time for proximal and long-term goals

Working with Peers for Feedback – students' engagement in collaborative dialogue with peers to receive and use constructive feedback

Goal Accomplished – students' integration of all above behaviors to accomplish a goal.

In a project-based learning experience that capitalizes on students' maturational growth, students have the potential to develop self-regulatory skills through a deliberate, self-monitored, and self-reflective process in a cyclical fashion similar to the nautilus' growth. Students develop and perfect their self-regulatory skills from one project-based learning experience after another.

After each student's goal setting/accomplishment cycle, students move on in terms of their depth of personal experience and breadth of prior knowledge. This new depth and breadth occur simultaneously; whether the experience was positive or negative, maturational growth always takes place.

5.3 SECTION TWO: FUTURE RESEARCH

This study's results of students' capabilities to reflect, monitor, and record their self-regulatory skill development provide insight for teachers' pedagogy. Based on the data derived from this study, I developed the following recommendations for future research:

1. More research needs to be conducted in the area of student-centered learning versus teacher-directed learning. Many schools across the country are concerned with teaching standards-based curricula and uniform teaching practices in preparation for assessment tests. However, this does not constitute best teaching practices in terms of preparing adolescents for life outside the classroom where independent thinking skills are valued in the work force. I recommend the investigation of pedagogy which encourages student decision-making and incorporates assessment of the students' ability to direct their learning. If teachers intend to implement project-based learning with student empowerment of decision-making skills both in curriculum content and assessment, it is recommended that self-regulatory skill development become integrated into the learning process. Those teachers who are successful in using project-based learning should be encouraged to share their experiences with others.

2. Further investigation needs to be conducted in the area of teacher-efficacy in project-based learning. School administrators must consider best teaching practices to ensure and

sustain the teacher's role of facilitator in this pedagogy in the classroom. I recommend support for project-based learning in teacher education programs. Collaboration within learning communities will contribute to a greater understanding of adolescents' maturational needs and encourage the generation of innovative ideas to engage students in learning.

3. Research needs to be directed toward a better understanding of the nature of middle-school students' self-efficacy and its impact on the level of student academic achievements. Project-based learning can promote learning environments that encourage reflective thinking not only for students but also for teachers. Both the students and teachers need to work collaboratively to support the students' understanding of the significance of self-regulatory skills in achieving students' goals. This type of in-class collaboration needs to be examined in more detail.

4. Future research on students' notions of a learning environment with respect to self-regulatory skill development is warranted. The atmosphere of the classroom is important in establishing a supportive, positive climate for everyone. Therefore, further exploration into constructing positive learning contexts that promote classroom communities in which students develop an understanding of cognitive and social skills is necessary.

5. I deem further investigation as necessary to examine the relationship between student self-efficacy and student goal-oriented behavior in a project-based learning experience.

The implementation of project-based learning in a middle school curriculum potentially engages students in active learning and encourages them to practice decision-making skills which contribute to their maturational growth as global citizens.

APPENDIX A

STUDENT WEEKLY REFLECTION FORM

STUDENT WEEKLY REFLECTION

Student Name: _____ Date: _____

Directions: 1. Refer to the Weekly Reflection Prompts posted on the chalkboard. 2. Use these questions as a guide to respond to the following questions in complete sentences.

Learning Strategies

What learning strategies did I use this week that worked well for me?

Goal Setting

What goal setting procedures worked well for me this week?

Time Management

What project milestone did I complete this week?

STUDENT WEEKLY REFLECTION

Page 2

Learning Strategies

What learning strategies did not work well, and how can I improve them?

Goal Setting

What goal setting procedures do I need to improve?

Time Management

What do I need to do to improve my time management ability to meet my project milestones?

Plan of Action: Describe in two sentences what your Plan of Action will be for the following week. This is a plan of how you intend to accomplish both your short-term and long-term goals for this project.

What project-based learning activity helped you the most in achieving your goals this week?

APPENDIX B

TEACHER'S DAILY LOG

TEACHER'S DAILY LOG

Date: _____

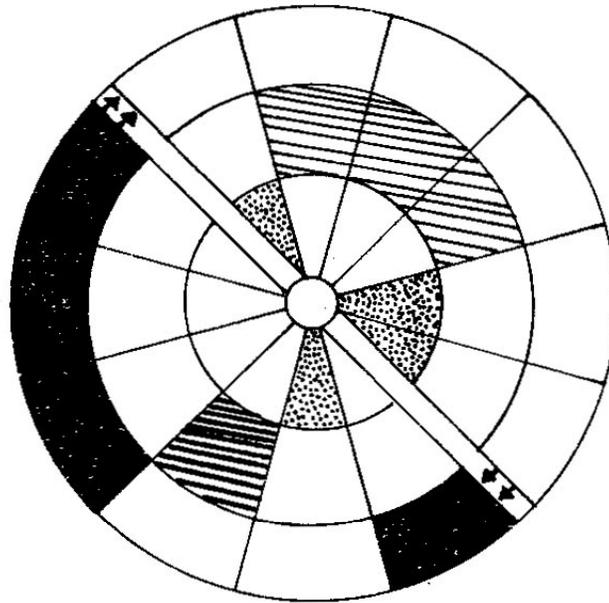
Teaching Strategies	Teacher's Expectation of Students' Use of Lesson Plan and Goal Setting Procedures	Teacher's Expectations of Students' Time Management
<p><i>What teaching strategies are used in the classroom today?</i></p>	<p><i>Are students demonstrating learning strategies to complete this lesson plan?</i></p> <p>_____ Yes _____ No</p> <p><i>Are students demonstrating goal setting procedures to complete this project?</i></p> <p>_____ Yes _____ No</p>	<p><i>Are students demonstrating effective use of their class time?</i></p> <p>_____ Yes _____ No</p>
<p>Teacher's Comments to Encourage Reflective Thinking</p> <p><i>What was said to students to ask them to think about what they are doing in class?</i></p>	<p>Students' Feedback on Day's Activities</p> <p><i>Teacher will record any students' comments and/or reactions about the class activities.</i></p>	
<p>General Observations on the Flow of the Progress of the Project:</p>		
<div style="border: 1px solid black; height: 100px;"></div>		

APPENDIX C

GOAL ORIENTATION INDEX

GOAL ORIENTATION INDEX

Kathryn S. Atman, Ph. D.



INSTRUCTIONS

USE NO. 2 PENCIL

DO NOT WRITE ON THE TEST BOOKLET

Read each item carefully and then answer according to the frequency with which it describes you **as a person**. Although many of the statements may apply to you in your particular work or school setting, you will receive the most useful information from this inventory if you answer according to the way the statements describe you, personally. To complete the inventory, answer each of the items by indicating whether the statement describes you:

A=RARELY B=SOMETIMES C=FREQUENTLY D=USUALLY E=ALMOST ALWAYS

For example, if your answer to the first item is FREQUENTLY, you would fill in the circle under C on the answer sheet with a #2 pencil in the following manner.

1. A B C D E
 0 0 ● 0 0

The same key is used for every item, thus every time you fill in the circle under A you are indicating RARELY, etc.

There are no "right" or "wrong" answers. The purpose of the **GOAL ORIENTATION INDEX** is to provide **you** with information about yourself. So - tell yourself the truth!

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A=RARELY B=SOMETIMES C=FREQUENTLY D=USUALLY E=ALMOST ALWAYS

1. I finish jobs on time.
2. I have set some long range goals for myself.
3. When I recognize a problem, I decide what to do.
4. I think of various ways I can do something before I start.
5. When I see that I'm on the wrong track, I change my strategy.
6. When I have to make a choice, it is difficult for me to decide what to do.
7. Prior to starting something, I imagine how successful I will feel when I have finished it.
8. I take advantage of opportunities when I see them.
9. As a project goes along, I am able to make minor adaptations in my plans.
10. I can recognize problems at the time they occur.
11. When I see an opportunity, I think of several ways to take advantage of it.
12. I start projects on a strong note but lose momentum as I go along.
13. Before I do something, I think of all of the problems that might come up along the way.
14. I look to the future with confidence.
15. When faced with a problem, I list my options.
16. I write down the list of things I need to do.
17. I have set guidelines for my future development.
18. I get overwhelmed by details
19. I identify all of the tasks I need to do for a project so I can plan enough time for each one.
20. I complete projects ahead of schedule.
21. I can maintain the effort needed to finish a project.
22. When I see something to be done, I think of several ways to do it before I take action.
23. After I finish something, I check to be sure that everything was done correctly.
24. I turn things in late.
25. When I see a chance to do something I want to do, I make plans to do it.
26. I finish what I start.
27. I think of more than one solution to a problem before I decide what to do.
28. After I reach my goal, I review what happened along the way.
29. I examine risks before I do something.
30. It isn't easy for me to decide what course of action I should take.
31. I know what I want to do with my life.
32. I can tell the moment that things start to go wrong.
33. I look ahead before I start something to identify things that might create a problem for me.
34. I plan my work in order to use time well.
35. When I finish a project, I look back to see what I liked and didn't like about it.

A=RARELY

B=SOMETIMES

C=FREQUENTLY

D=USUALLY

E=ALMOST ALWAYS

36. After evaluating many possibilities, I have trouble making up my mind which one is best.
37. I cross off the items on the list I have written to indicate what I have accomplished.
38. I have a plan for my personal development.
39. I organize the materials I will need for a job before I begin it.
40. I am aware when problems need to be "ironed out".
41. I imagine how I am going to do something before I actually do it.
42. It is hard for me to make up my mind.
43. Before I start to do something, I consider different ways to go about it.
44. I like to "figure the odds" of success for what I do.
45. Before I start something, I think of what I have "going for me" that will help me succeed.
46. I am well organized.
47. I like to know "where I'm going."
48. It is hard for me to choose which way to do something.
49. When I finish something, I stop and think back about how things worked out before I go on to something else.
50. I review past experience to avoid making the same errors again.
51. I finish what I am working on before I start something new.
52. As I work on a project, I pay attention to how things are going.
53. When I see something that needs to be done, I decide what I am going to do about it.
54. When I consider alternatives, it is hard for me to select one.
55. When I complete a project, I evaluate how things went.
56. I complete what I start.
57. I notice when something is unusual or out of place.
58. I become aware of problems before things get out of control.
59. I mentally go over the method I am going to use to get something done before I start.
60. I don't start things even though I know that they need to be done.
61. I rehearse in my imagination what I am going to do before I actually do it.
62. I can see opportunities where other people can't.
63. I set goals for myself.
64. Before I start a project, I figure out the chances I may have to take in order to accomplish it.
65. Before I take action, I think about the personal qualities (for example, determination, persistence, courage, patience) that I will need in order to be successful.
66. I procrastinate.
67. I have a plan for my career development.

A=RARELY B=SOMETIMES C=FREQUENTLY D=USUALLY E=ALMOST ALWAYS

68. I keep track of new information about a project as I am working on it.
69. Before I start on a project, I imagine how things will be when my goal has been reached.
70. When I see I am on the wrong track, I change what I am doing.
71. I can recognize needs that must be satisfied.
72. I get easily frustrated when there is too much to do.
73. I have a system for keeping track of things.
74. I can see when I face a challenge.
75. I think about the level of success I am going to achieve before I begin a project.
76. I consider any difficulties I may have before I start a project.
77. I have a clear idea of what I want to do before I start.
78. I get panicky when a deadline approaches.
79. I like to "play around" with different choices before I begin to do something.
80. I meet time deadlines.
81. I have a life plan that makes use of my specific talents.
82. I plan systematically to get things done.
83. I pay attention to new information and change my plan if need to.
84. It is difficult for me to make decisions.
85. I am good at coming up with new ways to do things.
86. I am aware when changes start to take place.
87. I notice when something doesn't work out the way I expect it to.
88. I encourage myself.
89. I achieve the goals which I have set for myself.
90. I feel overwhelmed when there are too many choices to consider.
91. When I finish a project, I identify which things went well and which things did not.
92. When I set a goal, I know how things will be when I have met the goal.
93. From time to time, I reevaluate my long-term goals.
94. When a project is finished, I see how close it comes to my original goal.
95. Before I start a project, I imagine how proud I will feel when it is finished.
96. I put things off.

APPENDIX D

PERMISSION LETTER TO PARENT OR GUARDIAN

Dear Parent or Guardian:

I am in the process of completing my doctoral degree in education at the University of Pittsburgh. My research project pertains to how middle school children can use self-regulatory skills to become successful learners and who set and complete goals for themselves. Self-regulatory behavior incorporates how well students manage their time with their educational studies, how well they develop and monitor their learning strategies, and how they develop and follow through with their plans to achieve their academic goals. I believe it is very important for students to recognize and use self-regulation in the goals they set and accomplish for themselves. It is hoped that as students acquire these skills, they will be able to use them throughout their academic and personal lives.

Participation in this study will be at school and will be completely voluntary on the part of your child with your permission. I will be in the classroom with your child during the study. Please be assured that your child's name will be anonymous, and his/her privacy will be protected. There will not be any information identifying your child in any publication.

I have received permission from -----, Superintendent of our school district, to conduct this study. The Institutional Review Board at the University of Pittsburgh has also reviewed and approved this study as appropriate for your child. This study has nothing to do with your child's performance in the classroom, and your child's individual results will be kept completely confidential.

Students will be working on a Pennsylvania Studies project for this study, and I have enclosed information about the project.

I would like to begin my study shortly, if you would like to ensure your child's participation in this study, please sign the enclosed Consent Form where indicated and return it to me by March 30, 2005 in the enclosed envelope. If you have any questions about this study, please feel free to contact me; I will be happy to talk with you. My voice mail number is: -----
--- ext. ----.

Thank you for taking the time to read this information and for your support in this educational study.

Very sincerely yours,

Darla L. Gerlach
Seventh Grade Teacher

enclosures

APPENDIX E

STUDENT WEEKLY REFLECTION FORM GUIDE

Weekly Reflection Form Guide

Student's Name:

Take a few moments to think about all of the ideas you are planning to complete for your historical project. Ask yourself the following questions before you complete the Student Weekly Reflection Form:

Learning Strategies

For example, "How well did I...?"

- *organize my data
- *follow guidelines
- *utilize a variety of resources (primary and secondary)
- *identify important historical information to include in my journal
- *record my information
- *ask questions when I needed assistance

Goal Setting

For example, "How well did I...?"

- *set appropriate and realistic goals
- *develop a short-term plan to achieve my goals
- *develop a long-term plan to achieve my goals
- *work independently to achieve my goals
- *solve problems as they occur or ignore them
- *use feedback from other to achieve my goal

Time Management

For example, "How well did I...?"

- *use my time
- *keep track of my progress each week to make sure that I will get done on time
- *use my Project Calendar to keep myself on task

After you have thought about these questions, complete your Student Weekly Reflection Form. You will then be meeting with a group of your peers. Discuss your responses to these questions with them, and ask them if they have any additions, deletions, or changes that they recommend to keep you on track for the following week. Review their feedback and incorporate their suggestions with your ideas to develop a Plan of Action for the following week.

What do you think was the most helpful project-based learning activity that assisted you in achieving your learning goals this week?

APPENDIX F

INTRODUCTION TO PROJECT

The French and Indian War and the American Revolutionary War Units

Dear Students,

We will be studying various aspects of the French and Indian War and the American Revolutionary War during the months of April and May, 2005. During this time, you will be specifically studying the causes and effects of the wars, the daily lifestyles of individuals during the time of these wars, and both the colonists' and England's perspectives of these wars.

Focus Question

Throughout your study of these wars, you will be focusing on an answer to this question: "How did the French and Indian War and the American Revolutionary War affect individuals?"

Assessment

For both of these units, you will be assessed on your knowledge of the historical content of these wars and how you apply your knowledge of the content. You will be assessed in the following manner:

- Historical Journal Project
- Quizzes on the French and Indian War and the American Revolutionary War
- Multiple-Choice/Essay Tests on the French and Indian War and the American Revolutionary War

Here is an explanation of the Historical Journal Project:

Historical Journal Project

Description:

You are being asked to create a product that represents your knowledge of the French and Indian War and the American Revolutionary War. This product will be a historical journal. You will be writing the journal as an individual who experiences first-hand the events that are occurring during both of these wars. This individual will be the author of your journal. In essence, your "voice" (your viewpoint) of these wars will be conveyed through your journal. You may choose to be any one. Some examples of the author of the journal could be: George Washington, Christopher Gist, Benjamin Franklin, a Native American, Mary Jamison, and Paul Revere. While you are

constructing the journal, think about unique contributions you can do to enhance this project. For instance, if you enjoy music, perhaps you could write a song representing events in the wars. If you enjoy drawing, you could pretend to be an artist creating pictures for a future book. If you are interested in printed documents during the time period of both of these wars, you could be a reporter for a local town newspaper and even think about how your newspaper was printed on a printing press. Use your imagination and a variety of resources to convey your knowledge of what was occurring in the lives of people during these time periods. You will have the opportunity to learn about these wars and the lifestyles of the Native Americans and colonists through various guest speakers to class, research in our school library, class reference books, and research through the Internet.

Construction of the Journal:

Your journal should be authentic looking—similar to a journal or diary kept by someone during these time periods. You will see examples of historical journals in class and receive instructions on how to use a brown paper bag to create the effect of a worn leather cover for your journal. You will also learn to write “fancy handwriting” (calligraphy) similar to the colonists by using a quill pen and homemade ink. You may want to use this handwriting in your journal project!

Assessment:

Refer to the attached Historical Journal Project Rubric to see how you will be graded. Remember to be creative with this assignment and have fun!

APPENDIX G

HISTORICAL JOURNAL PROJECT RUBRIC

HISTORICAL JOURNAL PROJECT RUBRIC

	Below Average Work	Average Work	Above Average	Superior Work
Historical Content 60 pts.	Insufficient background of history; lack of historical illustrations and dates; poor understanding of historical events	Satisfactory coverage of historical information; few examples of historical illustrations/ documents; sufficient understanding of historical events	Good coverage, insight, and usage of historical data; good understanding of historical events	Exemplary discussion of historical information; excellent interpretation of historical data; creative use of historical documents
Organization 30 pts.	Main ideas are not supported; lacks clarity; unorganized material	Logical presentation of ideas; accurate dates	Ideas are well supported and documented; accurate dates	Exceptional connection of ideas; data is well-documented; all material is very well organized
Mechanics/ Vocabulary 10 pts.	Writing is incoherent; poor sentence structure; many errors in spelling, grammar, and punctuation	Some errors in sentence structure, spelling, grammar, and punctuation	A few errors in sentence structure, spelling, grammar, and punctuation	Minor errors in sentence structure, spelling, grammar, and punctuation
Presentation 10 pts.	Assemblage of journal is not neat; information is not written and/or illustrated in a presentable fashion	Efficient assemblage of materials for project; writing/historical examples are satisfactorily completed	Effectively and neatly prepared pages; creative use of historical examples	Superior and creative presentation of material; neatly written and illustrated

APPENDIX H

FIRST JOURNAL CHECKPOINT

This is the first checkpoint for your project. Your assignment was to complete 5 journal entries. Based on the work submitted, here is an evaluation of how you are doing so far in this 2-month project:

Historical Content: (20 points)

Very good – You're "right on track." You are including sufficient historical facts and dates, and you have balanced this information with data about the everyday lifestyle of individuals at this particular time.

Satisfactory – You have included sufficient information about what is occurring during the war and in everyone's daily life.

Poor – You need to include more historical information. Your journal needs to reflect both historical data and information about the personal life(lives) of the individuals indicated in your journal.

Organization: (5 points)

Great – Keep up the good work!

Very good – Everything is neatly organized and presented.

Satisfactory – Everything is organized and presented in a satisfactory manner.

Poor –Your journal is difficult to read. You need to present it in a clearer, more organized fashion.

APPENDIX I

SECOND JOURNAL CHECKPOINT

This is the second checkpoint of the Historical Journal Project, and this is how you're doing:

Historical Content (10 points)

- _____ You are on the right track—you've included sufficient information about historical events to let the reader know what is going on in your journal.
- _____ You need to provide more historical information so the reader is aware of what events are taking place in the time era mentioned in your journal.

Organization (10 points)

- _____ Everything flows smoothly—your dates are well organized!
- _____ The events are not presented chronologically—you need dates to organize the material you are presenting in your journal.

Creativity (5 points)

- _____ Your journal is presented in a creative fashion—you have unique ideas for your journal!
- _____ Try to use a variety of information for your journal—"tell" the reader some interesting facts, such as the daily activities of your character, or include maps, artifacts, etc.

APPENDIX J

BLANK CALENDAR FOR APRIL AND MAY

STUDENT PROJECT CALENDAR

APRIL

					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

STUDENT PROJECT CALENDAR

MAY

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

APPENDIX K

YOUR BLUEPRINT FOR THE PROJECT

The Historical Journal Project

Your Blueprint for the Project

1. Envision Your Goal

- A. Think about the *Focus Question*: How did the French and Indian War and the Revolutionary War affect individuals?
- B. Who do you want to “write” your journal? (Who are you choosing to voice your information through your journal?)
- C. Are you incorporating any unique/creative approaches (i.e. music, illustrations, poetry) in your journal?
- D. Work backwards from where you want to be:
Draw a series of thumbnail sketches to show what you want your journal (final product) to look like: cover, dedication page, any maps or diagrams to include, etc.

2. How will you complete this project?

- A. Use the Student Weekly Reflection Form. This form will ask you to identify, monitor, and evaluate your plans to complete this project. You will be focusing on Learning Strategies, Goal Setting, and Time Management to keep you on track.
- B. Refer to the Historical Journal Project Rubric. This rubric will inform you on how you will be graded on this project. Carefully read the categories noting that Historical Content (i.e. the quantity of information you convey about your subject matter) is important.
- C. Use your calendar to help you achieve your goals. Be conscious of scheduled dates for guest speakers and opportunities to gather information at the library, in the computer room, and from interviews with experts in the community.

3. Reflect on your progress.

- A. “Look to see to remember to learn.” You should constantly be aware of your goals in this project and what you need to do to accomplish them. Ask yourself questions about how you are doing—“think about your thinking!” Take time to “step back and observe the big picture.” You need to pause from time to time and observe your overall progress in your historical journal. Are you going in the direction of where you want to be at the conclusion of this project?

APPENDIX L

PROJECT CALENDAR

Timeline for the Project

APRIL, 2005

Monday	Tuesday	Wednesday	Thursday	Friday
4	5	6	7	8
	Complete Survey	Complete Survey	Review Guidelines for Project *Focus Question	Lecture/Discussion/ Note taking of French & Indian War (F & I War)
11	12	13	14	15
Guest Speaker-John Debelak, Living History Group, Ft. Pitt Museum Review of F & I War	View the video, <i>When the Forest Ran Red</i> Note taking	Discussion of video, <i>When the Forest Ran Red</i> Note taking	Weekly Reflection/ Discussion with peers & teacher	Pittsburgh Zoo Trip
18	19	20	21	22
No School	Library Research (includes Internet)	Library Research (includes Internet)	Library Research (includes Internet)	Guest Speaker - Tom Vecchio, Native American Reenactor
25	26	27	28	29
Weekly Reflection/ Discussion with peers & Teacher	Calligraphy Demonstration Discussion of writing tools, stamps & seals	Demonstration of the construction of the journal cover, calligraphy practice	Internet Research Questions & Answers about the journal topic & contents	Guest Speakers - Mr. & Mrs. Tutino Depreciation Lands Museum, F & I War

(above info. may be subject to change)

Timeline for the Project
MAY, 2005/JUNE, 2005

Monday	Tuesday	Wednesday	Thursday	Friday
2	3	4	5	6
Weekly Reflection/ Discussion with peers & teacher	Library (includes Internet)	Library (includes Internet)	View the video <i>George Washington's First War</i> (describes the battles for Ft. Duquesne)	Weekly Reflection/ Discussion with peers & teacher
9	10	11	12	13
Review of F & I War Questions & Answers about the journal topic & contents	Guest Speaker - Brenda Applegate, Beaver County Historical Society, Review of Colonial Lifestyles	French & Indian War Test	Lecture/Discussion of causes of Revolution- ary War (Rev.) Note taking	Weekly Reflection/ Discussion with peers & teacher
16	17	18	19	20
Internet Research (search for original documents/ illustrations for Historical Journal)	No School	Library (includes Internet)	Lecture/Discussion of Rev. War Note taking	Weekly Reflection/ Discussion with peers & teacher
23	24	25	26	27
Lecture/Discussion of taxes; Boston Massacre; First & Second Continental Congress	View the video <i>Shhh! They're Writing the Constitution</i> Discussion/Note Taking	Lecture/Discussion of of Common Sense & Declaration of Independence	Revolutionary War Test	Weekly Reflection / Discussion with peers & teacher
30	31	(June) 1	(June) 2	
No School	Journals Due	Reflection/Discussion with peers & teacher	Surveys	

(above info. may be subject to change)

APPENDIX M

JOURNAL CHECK MEETING

Journal Check Meeting

We will have a brief meeting during class on _____, to review your progress on the Historical Journal Project. Please bring all of your research materials, your hand-outs from class, your blueprint, and your journal entries with you to class.

See you,

Mrs. Gerlach

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