THE EFFECTS OF AN INQUIRY-INTERNET RESEARCH PROJECT ON MOTIVATION, SELF-EFFICACY, AND ACADEMIC AUTONOMY IN HETEROGENOUSLY GROUPED HIGH SCHOOL LATIN I STUDENTS.

by

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Abstract

The purpose of this study was to analyze and induce change to lessen the achievement gap in heterogeneously grouped high school Latin classes, which included students at academic risk due to insufficient knowledge, inability to connect with the subject, and poor performances. The researcher engaged in action research, a branch of qualitative research, to determine if experiential learning methodologies, such as inquiry and research, could increase motivation, self-efficacy, and academic autonomy in two classes of Latin I students. The total number of student participants was 48, ranging from grades 9 through 11 with an even distribution between males and females and ethnicity predominantly dichotomized between students of European descent and African descent. Using the WebQuest model as the means to understand phenomena and facilitate change, the researcher created an inquiry-internet research project titled *Cur Latina?* The researcher recorded the participants' (teacher and students) ostensible behavior and perceptions concerning motivation, self-efficacy, and academic autonomy during their engagement in the *Cur Latina?* project. The researcher collected data via observations, performance assessments, a questionnaire, and interviews. The observation and performance assessment results of the study revealed that the *Cur Latina?* project helped students achieve competence in an interrelated area within the Latin I curriculum. Results from the questionnaire and interviews revealed that the students perceived their motivation, self-efficacy, and academic autonomy to have increased because their individual areas of expertise were integrated into the *Ecce Romani* Latin I textbook and would continue to be employed throughout the Latin I course. Additional results from student questionnaires and interviews revealed that many students

preferred holistically presented information with knowledge building upon itself in its relation to a greater whole. Perceiving the search for connected knowledge to be a personal as well as an accomplishable task enhanced the students' academic autonomy and motivation to learn. Recommendations for further study include additional studies that would elucidate affective elements of such subjects as Latin, Ancient Greek, Sanskrit, and Old English, where the emphasis is on the written language. Qualitative studies concerning affective states of mind, such as self-efficacy, motivation, and academic autonomy, which can function as catalysts to learning in the moribund and dead language classroom, would be beneficial in discerning similarities and differences from this study in order to note confluent patterns that teachers can use to enhance language learning in their classrooms. Qualitative studies on the effectiveness of integrating inquiry learning and technology would also be beneficial to understanding learning in the moribund and dead language classroom.

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CHAPTER 1. INTRODUCTION

For the things we have to learn before we can do them, we learn by doing them.
-Aristotle, Nicomachean Ethics

Introduction to the Study

The Tower of the Forty Dhrakos and the King of the Golden Apple is a Greek folktale whose various versions were orally transmitted for generations until Garnett (1913), retaining the theme of personal empowerment found in the versions collected throughout Greece, published her comprehensive written version in the early part of the twentieth century. The folktale recounts the story of an indolent young man named Phiaka who was good for nothing. He would neither work, nor learn a vocation. One day, as he was sitting outdoors eating bread and honey, a multitude of flies descended toward his food. He reached out with one hand and swatted fifty flies. With his other hand, he swatted one hundred more. He marveled at his dexterity and strength in killing one hundred and fifty flies, and his newly acquired confidence galvanized him to seek a new life in which he felt he could be so much more.

When Phiaka told his elderly mother of his plan, she provided him with a few essentials, and inwardly rejoiced that she was finally ridding herself of her useless son. Phiaka journeyed far from his beginnings. He met fearsome Dhrakos (latter-day Cyclopes), a three-headed serpent, a wild boar, and he engaged in arduous tasks. As he succeeded in each dangerous quest, his confidence, competence, wit, and dynamic ability increased. He believed there was so much he could do. Ultimately, he was rewarded for his assiduousness by being appointed king of all the Dhrakos.

Phiaka's tale is replete with metaphoric images that reflect the human condition. Phiaka perceives his experience with the flies to be an epiphany that transforms his life. As the embodiment of the reluctant student, Phiaka comes closer to defeating indolence and developing his inner sense of accomplishment and autonomy with each internal obstacle he vanquishes. Metaphoric analogies help students engage in relational learning, which is important in the retention and transfer of learning. Metaphoric thought derives from inquiry and divergent thought, which lie at the heart of connecting ideas that are seemingly unequivocal, but are actually analogous if one inquires and can perceive fundamental associations. Associations among ideas and experiences are endemic to the focus of this study, in which Latin students engaged in inquiry research as they increased self-efficacy, competence, and academic autonomy in a particular cultural or linguistic subject associated with their study of the Latin language.

Metaphorical analogies that reframe and transfer ideas and concepts to new situations require thinkers to compare, contrast, synthesize, and evaluate meaning (Pugh, Hicks, Davis, & Venstra, 1992). Metaphorical analogies not only exist in the shared themes of humanity, but in the individual cognitive and affective experiences of human beings, as exemplified in a student's comparison of newly learned material with prior knowledge in an attempt to transfer the unknown into the realm of the known, thereby creating meaningful knowledge. Students' attempts at contextualizing information have been discovered to be consistently successful in transferring learning from one context to another analogous context (Salomon & Perkins, 1989). Suchman (1972) also posited that human beings are intrinsically compelled to discover answers to create meaning and enhance autonomy in their lives.

A substantial, profound, and critically reflective learning experience is essential to developing an intrinsic and consistent desire to strive for mastery of specific learning goals. Information, however, can be imbued with intricate complexities, and its acquisition and transformation into something useful can be time intensive. Learning that is self-guided and heuristic compels students to think deeply, consider it from various perspectives, manipulate it, and use it to create personal meaning (Suchman, 1972). This is in accordance with Aristotle's conception of the realization of one's potential in developing one's moral and intellectual virtue by learning through authentic experience.

Students encounter varying levels of difficulty in making sense of complicated concepts. Providing students of varying abilities with the means through which they can inquire and develop their own perspectives on certain aspects of their learning is important for them to grow as self-directed learners. Possessing the motivation, self-regulation and self-direction to think about concepts in relation to phenomena that are entirely different is indicative of an independent and autonomous learner. This study attempted to understand the dynamics involved in the study of Latin I to determine if experiential learning methodologies, such as inquiry and research, could increase motivation, self-efficacy, and academic autonomy in Latin I students, and if these factors would transcend to other aspects of Latin study.

Background of the Study

The successful study of Latin in high schools with diverse populations can be impacted by various external factors. For example, approximately one third of the students in Latin I classes at a Georgia High School, located 30 miles southeast of Atlanta, are academically

disaffected or linguistically impoverished. This number is expected to increase as the population changes to accommodate the burgeoning city, which is enveloping the county. These students either selected or were placed in Latin I classes because they failed Spanish, French, or both languages. Students who are average to above average in language skills constitute the rest of the class.

Prior to this school year, students were allowed to drop a language after one term. This year, the students must stay a full year in language classes. In traditional Latin courses, which demand a sophisticated level of self-regulation and commitment, some students could or would not adapt, and they did not develop a strong reason to persevere. Consequently, they chose to fail or not pursue Latin II. The traditional environment was exclusive, in that only those personalities that naturally flourished or those personalities that were adaptive could regulate themselves to the traditional environment.

Statement of the Problem

Some students in heterogeneously grouped Latin classes are at risk due to lack of background knowledge, current academic abilities, or inability to connect with the subject. The Latin language contains more morphological forms than modern Romance languages offered in high school, and students can have difficulty allotting the time necessary for diligent study. Rather than risk appearing ignorant, they will not ask questions, and will fall further behind.

There are additional motivational factors that hinder some students' progress, such as the following:

1. Academic motivation can decrease as students approach and enter adolescence (Cordova and Lepper, 1996, Hidi & Harackiewicz, 2000, Lumsden, 1994).

2. Learning can become associated with monotony and isolation (Cordova & Lepper, 1996).

3. Students attribute their self-efficacy and self-esteem to past failures and successes; those who have failed (perceived or real) at one language are not often motivated to try again at another language (Hareli & Weiner, 2002).

Lack of knowledge and poor performances sustain and escalate one another until learners believe they also lack efficacy to be able to learn any aspect of Latin.

Research Question

Can experiential methodologies integrated into the core of the Latin I curriculum enhance student motivation, self-efficacy, and academic autonomy in a heterogeneously grouped Latin I class?

Purpose of the Study

If average and struggling learners substantially increase self-efficacy in one area, such as research strategies and specific knowledge developed through the *Cur Latina?* WebQuest, it can enhance self-regulation for studying vocabulary, grammar, and persevering through difficult translations (Deci, Vallarand, Pelletier, & Ryan, 1991). In the Latin classroom, the textbook is important because it offers a consistent knowledge base of vocabulary and readings that recursively employ morphological and syntactical patterns; however, to create an enhanced

environment in which the students could engage in inquiry and research concerning complicated issues with multiple perspectives, the students should look outside the textbook (Bruce & Bishop, 2002). Including alternative methods of teaching and learning can broaden the milieu in which many personalities and learning styles may thrive.

Linnenbrink and Pintrich (2002) suggested that instructors create instructional tasks that are challenging, yet achievable so that all learners could be successful in some aspect of the subject being studied. The *Cur Latina?* WebQuest (Appendix A) is an inquiry-based Internet research project designed to facilitate collaborative and independent critical thinking skills (Dodge, 1997; March, 2004). It is one model from a variety of inquiry designs, described by Hmelo-Silver (2002), created to help students develop proficient critical and creative thinking skills (Table 1). Lepper (1988) asserted that research has suggested that computer-based learning environments enhance motivation by prolonging engagement and, thereby, reinforcing learning. Aligning inquiry learning and technology to create a heuristic learning experience engages learners cognitively, behaviorally, and motivationally (Linnenbrink & Pintrich, 2002).

Table 1
WebQuest Inquiry Model

WebQuest Components	Description
Problem	A salient question forms the core of research.
Methodology	The schema emphasizes inquiry, information retrieval, reasoned analysis, and collaboration.
Process	The process focuses upon facts and ideas, which are analyzed logically, interpretively, and reflectively. The results are synthesized into a new perspective, product or project.
Instructor's Role	The instructor facilitates through observation and guided inquiry.
Materials/Equipment	Computer-based.

In a classroom with academically diverse learners, allowing them to work on additional projects, in which they may set their own level of proficiency, acknowledges student autonomy and intellectual inimitableness. Students display increased curiosity, competence, and autonomy when they engage in an activity or task as the impetus for learning; and interest in an activity or task greatly enhances a learner's cognitive memory (Lepper, 1988). Lepper also concluded that learners possessing intrinsic motivation would choose challenging activities that require a great deal of concentration and commitment. *Cur Latina?* allowed the students to connect aspects of ancient Roman culture to their personal interests, that is culinary, architectural, and so on.

Alternative methods that attract and retain students of varying abilities by appealing to their desires for personal "autonomy, competence, and relatedness" might also heighten their

motivation toward ancient literature and culture (Kasser, 2002, p. 137). Linnenbrink and Pintrich (2003) described two reciprocally occurring "motivational constructs" that could increase learning: interest and competence (p. 132). Previously held interests can increase an individual's tendency to engage in related learning, which can develop into self-efficacy; conversely, a learner's competence in an area can develop into interest in that area (Linnenbrink & Pintrich). Motivation could therefore be maintained through either catalyst: interest or competence.

The *Cur Latina?* project was designed to span several months during the first term of school to add a multi-modal dimension to inquiry learning, and to engage the students in academically self-autonomous behaviors. Young and Wilson (2002) emphasized the importance of integrating the WebQuest into the broader course curriculum. In its emphasis on the background and influences of the Latin language and classical culture upon Western society, the *Cur Latina?* WebQuest merged with the Latin I curriculum. It offered high school students a heuristic approach to learning in which the students could become classroom authorities (via inquiry, research, and presentation) on their chosen aspect of classical culture or Latin language.

WebQuest inquiry focuses on self-determined learning, and the strategies created by learners to manage and complete demanding tasks that threaten their self-efficacy (Hmelo-Silver, 2004; Young & Wilson, 2002). Hmelo-Silver (2004) mentioned that students often experience difficulty in problem solving before and during the research process; therefore, many first year Latin students need help structuring their research. The separating of each *Cur Latina?* task into a sub-task provided scaffolding necessary for students who possessed weak self-regulation (Hmelo-Silver, 2004).

Students could take advantage of the hyperlinks and the rubric embedded in the WebQuest, as well as collaborative inquiry with peers and the instructor. The scaffolding was available for those students who needed support in researching, extrapolating salient information, analyzing the data, and synthesizing it into relevant knowledge. The scaffolding was also present to accommodate the various developmental levels displayed by the students (Vygotsky, 1978) and to stimulate their metacognitive skills to realistically assess, plan, and monitor strategies for learning (Greene & Land, 2000).

Establishing a milieu where motivation could be induced and enhanced, thereby heightening elements that influence it, such as interest, competence (self-determination), goal orientation, temperament, anxiety, attribution, self-efficacy, and self-determination encouraged students to persevere through other difficult aspects of Latin study (Ormrod, 1999). Instituting aspects of experiential learning and technology into the Latin curriculum helped to create an environment where students cooperatively learned and supported one another while they used diverse materials and gathered resources in the goal of becoming self-determined learners (McLoughlin & Luca, 2002).

Significance of the Study

The Latin I teachers in the targeted school system are employing the WebQuest this year. One teacher was observed through action research to determine whether the project integrated well with the curriculum. Latin is academically challenging. Many students are capable of the challenge, but are not cognizant of their ability. There was a need to collaborate, observe, and document behaviors and attitudes of the students toward learning in order to gain a broader

perspective of the problem. The research was two-fold: understand the phenomena concerning what motivated the students, and help them develop academic autonomy. The *Cur Latina?* WebQuest was scrutinized to ascertain liabilities or assets incurred as a result of its inclusion into a high school Latin I course of instruction.

Nature of the Study

Action research is a form of qualitative research that attempts to understand a situation and make necessary changes. For this study, the researcher, teacher and students engaged in action research to understand and institute changes in teaching and learning in a heterogeneous environment. Gall, Gall, and Borg (2003) stated that action research conducted for personal reasons possesses a primary goal of enhancing the practitioner's practice. Prior to the *Cur Latina?* project being instituted as a countywide endeavor next year, it was important to ascertain its validity as an educational vehicle that adds to the Latin curriculum, not detracts due to the time invested in it. The results of the project were analyzed to ensure that the project retained its emphasis as a vehicle of intellectual value that prompted students to use their higher levels of cognitive thinking.

Assumptions

The assumptions a researcher possesses permeate his or her interpretations of a research study's results (Rowan, 2001). The qualitative data that derived from dialectic aspects of discussions compelled the researcher and the teacher to question and transform their assumptions

as the action proceeded. Including students as participants increased the richness of the data, and possibilities for the examination of personal assumptions.

Ideological Assumptions

The overarching ideological assumption that propelled this research was the researcher's belief that academic inclusion of all students within a Latin class is necessary to broaden their intellectual and ideological perceptions. A democratic milieu increases each student's accountability as a contributing member of the class (Hoover, 2000). Offering a fully inclusive learning environment enhanced the students' opportunities to engage in the questioning of personal assumptions and collaborative inquiry on an iterative and heuristic level. Knowledge about the past helped learners discern confluent and diametric beliefs on a continuum, which increased critical reflection concerning their own firmly held assumptions about the world.

Methodological Assumptions

In this study, statistical records of students' performances could not explain the reasons underlying students' behaviors and attitudes. Qualitative methodology, such as action research, allowed the researcher and participants to work together toward a solution in which understanding the problems and instituting progressive ameliorations was essential. Including the students' interpretations of phenomena compelled the researcher and teacher to alter their preconceived ideological and methodological assumptions. Observations, performance assessments, a questionnaire, and interviews provided reliability through the clarity and repetition of these instruments (Appendixes C, D, & E). Validity of the research results was

achieved through triangulation, multiple sources of data that derived from careful inspection and interpretation.

Limitations

The researcher conducted action research to explore educational practice in a localized setting, a county public school system. The purpose of the research was to understand and change the ways in which educators and students viewed their own practices. As participants in a dialectical approach to learning, they attempted to generate a distinct "epistemology of practice" (McNiff, 2002, p. 54). The research results cannot be generalized to a broad population, but must be localized to the Latin students attending the county public schools targeted in the study, where all language classes are heterogeneous, and the populations that constitute each high school are similar.

Definition of Terms

The following definitions are limited to their relevance within educational milieus.

Action Research. A type of qualitative or applied research in which practitioners seek to understand and improve their educational practice. It is often achieved through critical self-inquiry and reflection, and is participatory in its inclusion of participants as fellow researchers.

Affective Research. The study of perceptions, feelings, values, attitudes and resultant behaviors that are elicited from a student's academic experiences.

Alternative Assessment. Instruction and assessment are integrated and used as a subjective means of assessing each student contextually and interdependently. It allows

educators to construct higher-order thinking tasks in conjunction with assessments that have real-world application.

Andragogy. The theory and practice of learning and teaching. It is associated with the teaching of adults.

Authentic Assessment. Assessing students by how well they perform or solve real-world tasks or problems.

Case Study. Investigation and explication of interrelated factors inherent in a particular social entity, such as a specific group of students.

Collaborative Learning. A learning method, activity or learning environment in which learners of varying abilities provide each other with guidance and information to collaboratively achieve a mutual goal, arrive at a solution to a problem, or the culmination of a project.

Cognitive Research. The exploration of how people learn.

Constructivism. A form of experiential learning, in which students learn by constructing their own knowledge through the integration of new information into prior knowledge. It also emphasizes the contextual nature of learning and students' attitudes and actions toward a learning situation.

Contextualized Learning. The connecting of information so that learners perceive its real-world application and can relate that learning to their personal frames of reference.

Critical Reflection. Explicit awareness and examination of one's own assumptions.

Decontextualization. The teaching and learning of information as separate units disconnected from one another, and the real world.

Experiential Learning. A theory in which individuals learn by interacting with their environment and connecting new experiences to past ones. Learning is increased by observing, inquiring, acting, reflecting, and teaching others.

External Validity. The degree to which the findings of a study can be generalized to a similar situation.

Extrinsic Motivation. Motivation derives from an extraneous source, rather than from within the individual or the task to be executed.

Formative Assessment. Learners are evaluated as they engage in learning; evaluation is ongoing and within context. Learners are provided with guidance and feedback as they critically reflect on their learning strategies in order to amend them.

Generalizability. The ability to equate research findings to similar circumstances.

Heterogeneous Grouping. The grouping of students with various abilities, interests, and sometimes age.

Heuristics. A method or approach to a problem in which learners use their past experiences and experimentation to discover solutions or answers to problems.

Higher-Order Thinking Skills. Teaching students by providing them with multiple opportunities to practice and enhance their understanding of complex concepts that involve the analysis, synthesis, and evaluation of learned information.

Inquiry-Based Learning. There are various models, but each consists of an iterative process in which learners use prior knowledge to explore an issue or a problem, or ask a question. Through discussion or investigation, they create a project or engage in a critical and collaborative discussion with other learners. Learners use their own experiences to guide them to

reflect and augment their thought processes or projects. This generates new questions to explore and ameliorate.

Internal Validity. Research data accurately reflects the phenomena it aspires to analyze or measure.

Intrinsic Motivation. Motivation derives from within the individual or the task to be executed.

Learning Styles. Individuals possess varying degrees of learning preferences that are expressed through such senses and perspectives as visual, auditory, kinesthetic, tactile, analytical, and holistic.

Metacognition. Cognizance of and ability to control and adjust one's own thinking processes and knowledge base in relation to one's intellectual and emotional state of being.

Multiple Intelligences. An expansive view of intelligence that includes eight anatomically separate yet interrelated intelligences: verbal-linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, intrapersonal, interpersonal, and naturalistic.

Pedagogy. The theory and practice of teaching and learning. Often associated with children and adolescents.

Qualitative Research. An overarching term that encompasses a variety of research methodologies that possess common characteristics and focus on the underlying opinions, values, and stimuli that influences an individual's perceptions and behaviors.

Reflection-in-Action. Individuals attempt to connect prior experience, affective emotions, and current personal theoretical assumptions simultaneously while attempting to understand and engage in a phenomenon to alter it.

Reflection-on-Action. Allows the educator to discern underlying aspects of the action that has been enacted. It prompts the educator to think about behavioral and cognitive reasons for why events may have unfolded as they did and why individuals acted as they did.

Reliability in Assessment. An assessment is considered reliable if it maintains objectivity, adheres to norming standards, and different evaluators perceive similar conclusions from that assessment.

Reliability in Research. Reliability in case-study research is the level of repetition found in additional studies. For example, a study is reliable if researchers who are studying an identical case using similar procedures as the first researcher achieve similar conclusions.

Retention and Retrieval of Learning. The ability to recall information stored in memory to facilitate a response to an idea or problem.

Scaffolding. A complex assignment is separated into subtasks. The instructor models learning strategies and provides support for the students who need it. Responsibility is incrementally transferred to the student, who accomplishes the tasks and gains self-efficacy. The student will then possess an internal template for future similar tasks.

Self-concept. The value one gives to one's personal accomplishments.

Self-determination. Choosing to engage in learning behaviors and tasks, rather than acquiescing to engaging in learning behaviors and tasks that are mandated from outside sources.

Self-efficacy. One's personal beliefs of success concerning particular academic tasks, irrespective of how one perceives one's current skill and ability levels.

Self-esteem. An emotional response to one's opinion of oneself.

Self-regulation. One's control of one's own learning by means of such regulatory practices as goal setting, study strategies, monitoring of progression, and adaptation of one's strategies to reach one's learning goal.

Self-worth. The perceptions one possesses of one's ability in a particular area, and the value one gives to one's personal ability and accomplishments.

Taxonomy of the Cognitive Domain. Learning is categorized into six hierarchical, but not sequential, levels of thinking processes: knowledge (long-term memory), comprehension, application (use of knowledge and comprehension), analysis (separation into fundamental parts), synthesis (reorganization), and evaluation (judging via criteria, not emotion).

Traditional Assessment. Traditional assessment employs the use of tests, such as multiple choice, matching columns, true/false, or fill-ins to determine learning. Traditional tests are objective measures of particular information and abilities.

Transfer of Learning. The ability to merge knowledge into meaningful strategies to engage in problem solving in diverse situations.

Triangulation. Uses multiple sources and methods to confirm the validity of research results that merge from the collected data to understand the phenomena under investigation.

Validity in Assessment. An alternative assessment is considered valid if it directly measures the real-world skills it was designed to measure.

WebQuest. An inquiry-research activity in which students engage in research from a variety of sources (especially the Internet) to solve particular problems.

Zone of Proximal Development. An individual's range of ability between his or her mental development level in which he or she can complete tasks or solve problems

independently, and his or her potential development in which he or she needs support from the teacher or peers.

CHAPTER 2. LITERATURE REVIEW

Since we are seeking this knowledge, we must inquire of what kind are the causes and the principle, the knowledge of which is Wisdom.

-Aristotle, Metaphysics

Introduction

Research in a variety of academic disciplines was necessary to gain an understanding of underlying influences and variables. This study's focus on using inquiry and research to motivate Latin students and enhance their academic autonomy has a broad perspective. The researcher culled from the literature salient data possessing confluent and tangential themes:

1. Cognitive and affective research on language and general academic motivation: Goal orientation, temperament, self-concept, self-efficacy, attributions, intrinsic motivation, and motivational factors in language learning.
2. Learning transfer theories.
3. Learner-centered approaches: Experiential learning (constructivism), reflection and metacognition, inquiry-based learning, collaborative learning, learning styles, and multiple intelligences.
4. Assessment.
5. Technology: WebQuest research model.

The resultant framework of the literature review is a synthesis of empirical and theoretical research fundamental to an understanding of possible variables that may affect Latin I high school learners.

The traditional theory adduced by psychologists and educators was that motivation was a fixed characteristic stemming from an individual's inherent ability, interest and intelligence

(Breen & Lindsay, 2002). This traditional view has been augmented by additional theories of motivation that maintain that motivation is dynamic. Motivation can be a catalyst to vitality; it is a state of being that incites individuals to tenaciously pursue particular activities. Motivated individuals will spend additional time on task learning, studying, and applying meaning to what it is they are learning.

Goal Orientation

As individuals mature, their interest in learning wanes (Hidi & Harackiewicz, 2000; Lumsden, 1994). Learning becomes associated with monotony and isolation (Cordova & Lepper, 1996). One explanation posited by Dewey (1938) and Bruner (1966) was the disconnected manner in which information was presented. In a decontextualized setting, information is presented in highly theoretical ways to allow the students to apply the information to broad and general purposes. As students progress through the grade levels, experiential learning diminishes to be replaced by highly abstract ideas.

Accomplished learners acclimate to this change, and are able to learn; struggling students need help in perceiving the connections between theoretical information in order to assimilate it into a personal synthesis of knowledge (Bridglall & Gordon, 2004). Without help, many struggling learners cannot make the connections. Effort followed by failure is detrimental to the intellectual effort of older students, and as their failures increase, motivation decreases. Bransford, Brown, and Cocking (2000) stated that learners' motivation to persevere through difficult tasks are dictated by task difficulty level, social affirmation by others, and whether they focus their academic goals on learning or performance.

Theorists who study goal orientation have noted that learning and performance goals are two distinct categories. The two categories differ from one another in terms of whether the learner's perceptual goal is to internalize learning on a deep level or to obtain a grade, to gain peer or instructor acceptance, or to avoid failure and adverse perceptions of others (Blumenfeld, Soloway, Marx, Krajcik, Guzdial, & Palinscar, 1991). Blumenfeld, et al. (1991) asserted that learners who evinced such academic goals as mastery and task involvement were displaying learning goals that motivated them to learn for its inherent value; learners who evinced such academic goals as ego involvement and ability-focused goals were displaying performance goals. They were not motivated to learn; they were focused, instead, on attaining a single ambition.

Ames (1992) noted that students could be selective in the kind of goal orientation they select for a particular task or subject. Those who select a learning orientation manifest a strong connection between high achievement and effort, desire deep learning and intellectual growth, adaptively persevere through the difficult aspects of learning, and possess positive affective frameworks toward academics. Students who select a performance orientation toward a task or subject manifest a strong connection between failure and low ability, choose easy academic endeavors that will result in success and enhance their perceptions by others, and possess a negative affective framework toward academics.

Ames (1992) analyzed the composition of various classrooms, and derived three teaching methodologies that he believed could help students increase their selection of learner-oriented goals. The first methodology is the creation of interesting tasks in which the students learn adaptive strategies, and center their attention on the relevance the learning activities convey to their lives. The second methodology is to develop alternative assessments that acknowledge

learner effort, relate difficulty of task achievement as a natural progression towards mastery, and cultivate improvements in the learner that offer developmental stages, such as scaffolding to learning. The third methodology is to create activities, in which the students engage, that increase learner autonomy through teaching them shared decision-making, self-regulatory practices, and personal responsibility toward learning.

Ben-Ari and Eliassy (2003) conducted a study on achievement motivation that showed a high correlation between goal orientation within the classroom and students' selection of goal orientation to achieve success. In classrooms characterized by learner orientation, the students evinced enhanced selection of learner orientation goals; in classrooms characterized by performance orientation, the students evinced an increase in the selection of performance goals and avoidance of difficult tasks.

Diseth and Martinsen's (2003) research revealed a third orientation approach distinguished by high levels of competition. They called this orientation the strategic approach. It is identified by high adaptability to assessment competencies in which students display sophisticated time on task and utilization of academic resources to achieve high grades. Strategically orientated are motivated by competition, not the deep interest in learning characterized by the learner orientation, or the fear of failure characterized by the performance orientation.

Temperament, Self-Concept, and Self-Efficacy

Hareli and Weiner (2002) stated that students attribute their failures and successes to diverse reasons. The researchers posited that students affectively identity themselves from the

ways in which they believe other learners perceive them. When students attribute their successes to such intrinsic determinants as diligence or academic acumen, they are more apt to increase their sense of self-worth. When students attribute their failures or imperfections to such extrinsic determinants as a lack of preparation, or a poorly designed activity, they are attempting to sustain a positive self-image.

They will not, however, usually expend additional effort or employ different strategies, and their competence in that area usually does not increase (Graham, 2003). Students who attribute their personal successes to outside sources beyond their control, or attribute their failures to personal faults that cannot be amended, experience debilitated self-worth (Hareli & Weiner, 2002) because their avoidance of stressful or difficult academic activities increases their inability to learn coping strategies through experience (Bong & Skaalvik, 2003).

Rothbart and Jones (1998) studied students' temperaments to determine how temperament affected their ability to socialize and engage in academic endeavors in the school environment. They noted that students with different temperaments reacted to similar environments in diverse ways. Students who were fearful and anxious reacted with frustration and negativity toward stressful or difficult learning situations. Many tended to become discouraged learners as they matured. Discouraged learners can be overlooked in the classroom because they do not disrupt the learning environment. Discouraged learners protect themselves from perceived failure by disengaging, and they can appear to an instructor as indolent and disinterested students. Failure results in diminished ego because their self-concept is affected by external stimuli (Garner & Alexander, 1989).

Rothbart and Jones (1998) suggested that educators focus positive responses on the effort afforded by discouraged learners, although this affective technique becomes less successful as students enter the advanced levels of secondary education. However, supportive feedback can increase motivation in adolescents and adults to the extent that the feedback supports autonomy in the learner, and does not support control emanating from the instructor (Deci, Vallerand, Pelletier, & Ryan, 1991).

Self-concept is one's perceptions concerning one's own existence. Without a stable definition of one's self, an individual may flounder in confusion. Bond and Skaalvik (2003) defined self-concept in the educational setting as learners' perceptions of themselves in accordance with their achievement levels in academic settings. It is their perceived competence level. Self-concept develops through interactions with individuals deemed important by a learner. Carl Rogers (1951) posited the idea that the *self* is the integral aspect of personality development and reflection, which leads one towards self-actualization if the environment permits such to happen. Individuals need a supportive and positive environment to enhance the development of a positive self-concept.

Some secondary students possess poor self-concepts. They may have had unsuccessful attempts at learning a language and, therefore, assume that they cannot do so. Their perceptions of their successes and failures are bound to their self-concept; therefore, it is vitally important that educators plan a learning environment in which difficulties are not fraught with perceptions of failure, but rather as challenging learning episodes to be overcome in degrees. Meeting a challenge and eventually succeeding, create a consistent self-concept within individuals, and enhance their self-esteem and self-worth (Linnenbrink, & Pintrich, 2003; Ormrod, 1999; Purkey,

1988). Self-esteem and self-worth cannot become balanced unless an individual possesses a stable self-concept.

Bong and Skaalvik (2003) defined self-efficacy as an individual's belief of success toward particular academic tasks, irrespective of how that individual perceives his or her current skill and ability levels. Zimmerman (1995) proffered four distinguishing features that characterize self-efficacy.

1. Self-efficacy stems from a learner's ability to accomplish tasks. It does not emanate from physical or mental characteristics.
2. Self-efficacy is domain specific. A learner's efficacy beliefs will differ for each academic subject.
3. Self-efficacy is context specific. A learner's efficacy beliefs may differ according to class environment and teaching methods.
4. Self-efficacy is attained and measured by performance standards.

Jackson (2002) posited that self-efficacy in particular tasks leads to higher success in that task because if individuals believe they can be successful they strive harder; motivation can be the deciding factor. Negative and unsuccessful experiences, not lack of ability, can lead to lower self-efficacy.

Graham (2003) engaged in a research study with high school foreign language students. Her research indicated that learners do not improve in foreign language unless self-efficacy is perceived. One factor in the failure of learners was their initial perception that successful mastery of a foreign language could be achieved through cursory study. Failure produced low motivation and low self-efficacy. Graham advocated altering teaching and learning strategies so that learners can reflect on the best ways in which they learn foreign language skills, and educators can provide support and feedback.

Self-concept and attributions play a significant role in the heightening or lessening of a student's self-efficacy. Bandura (1977) listed three elements that affect self-efficacy: (a) prior successes and failures, (b) learners' perceptions of how others view them, and (c) observing success or failure in other individuals. He also delineated four ways in which self-efficacy could be augmented, such as (a) successful accomplishment of a task, (b) observing others' attainment of success in the given task, (c) reinforcing behaviors using motivational strategies, and (d) providing strategies for reducing stress related to the task.

Jackson (2002) expounded upon past studies and his own, which have shown that average students achieve the highest gains from self-efficacy enhancement. Below-average students often do not have the skills to achieve the task without scaffolding. Above-average high achieving students will usually do well at the tasks in which they are above average because they do not need additional motivation or other efficacy-enhancing strategies. However, without motivation, some above-average students who are not high achievers, yet possess high efficacy, may not achieve the level of learning reflected by their academic acumen.

High self-efficacy can result in cognitive and behavioral interaction; however, unrealistic views of one's competence can ultimately cause disengagement Linnenbrink and Pintrich (2003).There needs to be a balance in students' perceptions of self-efficacy. If a student has unrealistically high expectations of his or her own ability, he or she can set unattainable goals. Conversely, if a student has unrealistically low self-efficacy, he or she can set goals are that much too low for his or her actual ability range. Vygotsky (1978) developed the concept of the "zone of proximal development" to indicate the potential inherent in an individual who through guidance and maturation will develop his or her incipient abilities (p. 86).

Vygotsky (1979) delineated a student's zone of proximal development as the range of ability between his or her mental developmental level in which he or she can complete a task independently, and the potential level in which a student can complete a task with guidance from a teacher or peers. He explained that imitating challenging activities and engaging in challenging tasks enhances learning; therefore, teachers should provide minimal support that would function as a scaffold until the student's zone of proximal development increased, and he or she no longer needed the support in that endeavor.

According to Sutarso (1996), language research studies have indicated that anxiety, stress, and depression are concomitant to learners' perceptions of their efficacy to control and master the stressors inherent in certain academic tasks. Anxiety can work positively to compel learners to increase their level of commitment, or it can severely inhibit learning and achievement. Sutarso also noted a correlation between a learner's positive attitude and achievement and, conversely, a learner's negative attitude and poor performance.

Feldhusen and Klausmeier (1962) discovered from their research studies that individuals dissociated from the actual incident that incited anxiety and fear. Therefore, this defense mechanism actually impeded individuals from resolving their conflicted feelings. Increased anxiety also made it difficult for the learner to react positively to the instructor. Thirty years later, Bandura (2003) conducted studies that concur with Feldhussen and Klausmeier's findings. Learners possessing low self-efficacy in adapting to and overcoming difficult academic situations can develop achievement anxiety that severely inhibits their performance. Intrinsic motivation is also endemic to some learners' lack of performance, which is not commensurate

with their high ability. These students may not value the talent they have or they may not like a particular task or subject.

The results of Breen and Lindsay's (2002) research demonstrated that low self-efficacy hinders learners from engaging in contextually specific subjects in which they believe they cannot be successful. Graham's (2003) research findings also indicated that if learners do not perceive efficacy in a language, their ability to learn another language would be hindered, and they will employ minimal effort in those endeavors. Linnenbrink and Pintrich (2003) also noted that low self-efficacy caused learners to adopt a "low outcome expectation," and this created "learned helplessness" in which learners believed from experiences that they would fail at a task or a subject (p. 128).

Foreign language students who fail at one language can begin to believe that they have no ability in learning languages and will invariably fail any subsequent languages attempted. In essence, they plan to fail by setting low expectations for themselves and not persevering when the work becomes more difficult. Educators who use creative methods to stimulate these students have achieved greater success than those who maintain traditional assumptions toward motivation (Linnenbrink & Pintrich, 2003).

Attributions

Some minority students who score high on standardized tests display decreased motivation and are performing lower than expected in rigorous academic classes due to "cultural isolation" (Bridglall & Gordon, 2004, p. 1). In addition to cultural isolation as a causative factor for lowered performance, Bridglall and Gordon also cited the lack of parental and societal role

models engaged in erudite and academic endeavors, and a pronounced discontinuity between skill proficiency and overall knowledge.

Lumsden (1994) advocated teaching struggling students attribution-retraining strategies. These strategies would focus on the incremental steps that need to be achieved to accomplish a task, rather than focusing on the whole project, mistakes, or fear of failure. Attribution training would also consist of students practicing logical or creative solutions to problems to help them reorient attributions to factors that they can alter, such as effort, need for additional information, and so on, rather than attributing failure to a lack of ability.

Bandura (1993) noted that individuals with similar cognitive skills would display highly differentiated achievement due to a lack of efficacy in how to use them. Bridglall and Gordon (2004) proffered various ameliorations that educators can institute that can increase motivation and performance, such as tutoring sessions, fostering group study sessions, and maintaining clear expectations of high productivity and excellence from all students.

Intrinsic/Extrinsic Motivation

Bidglall's ameliorations (2004) can increase intrinsic and extrinsic motivation. When an individual selects a book to read for its inherent pleasure, that learner is considered intrinsically motivated. On the other hand, individuals also engage in activities that are extrinsically motivated for expediency. The two types of motivation are no longer considered mutually exclusive. Studies have indicated that learners who have autonomous learning styles will engage in extrinsic motivational behaviors to stay on task, complete assignments, and assimilate knowledge (Deci, Vallerand, Pelletier, & Ryan, 1991). Lepper (1988) adduced that learners

became motivated when they were intensely curious about a topic or task, were cognizant that various levels of achievement could be obtained through perseverance and diligence, and were given clear expectations and feedback regarding their progression through the task.

Hidi and Harackiewicz (2000) delineated two kinds of interest, individual and situational. They mentioned that "interests and goals" are variables that can significantly affect motivation (p. 152). While these factors are external, they can incite situational interest. According to the authors, situational interest can possess both affective and cognitive elements. Students with individual interest possess personal motivation toward a certain subject or field, and their stable and sustained interest results in the steady growth of ability. Situational interest is stimulated by a catalyst that results in an emotional response. Since it is contextually based, situational interest may evanescence as the stimulus wears off or loses it novelty.

In addition to interest, Hidi and Harackiewicz (2000) also mentioned that learners fail to achieve because of deficiencies in effort as well as ability. Hidi and Harackiewicz have further contended that ability may be more stable than effort, which is a variable that can be manipulated. They mention that students can enhance interest in tasks they find boring when they have been given good reasons to hold the task in high esteem. They will create interesting means to accomplish the task.

Hidi and Harackiewicz (2000) asserted that situational interest could have an effect on long-term individual interest. Lepper (1988) related that an individual's interest in a topic increased his or her ability to retain information as meaningful memory. If an educator can create an intellectual milieu that sustains situational interest, assigned activities that are extrinsic become internalized through familiarity and enjoyment of the task. Extrinsic motivation can

become intrinsic. Intrinsic motivation encompasses individual and situational interest, and a combination of both intrinsic and extrinsic motivation (they are separate, but can interact) may work on long-term tasks.

Motivational Factors in Language Learning

Motivation has been studied as one variable in a complex interrelationship of factors that affect learners' acquisition of a foreign language. Dörnyei (1999) divided motivation into a quaternary structure: "integrative motivation, instrumental motivation, need for achievement, [and] attribution about past failures" (pp. 65-7). Integrative motivation is the desire of a learner to acquire a language to assimilate aspects of the culture. For example, some students engage in the study of Latin from a high-regard for classical civilization studies. Instrumental motivation is instigated by a strategic orientation in which the student possesses a desire to master a foreign language because of the practical rewards. An example of this occurs when students engage in the study of Latin to enhance their acumen in English grammar and vocabulary.

The need for achievement comprises learners' needs for knowledge and work for its own rewards. They are interested in novel stimuli and will increase work momentum to adjust to new challenges. Dörnyei (1999) reported that this element contributed to fluctuations in levels of motivation evinced by students. Research conducted by Gardner, Masgoret, Tennant, and Mihic (2004) added additional components to the quaternary motivational structure delineated by Dörnyei.

Attitude toward the learning milieu or individual tasks, and level of anxiety are additional concurring factors that affect learners' mastery of foreign languages. Gardner Masgoret, Tennant,

and Mihic (2004) discovered that motivation is affected by integrative and instrumental motivation, achievement needs, attributions, language anxiety, and attitude toward the learning milieu and tasks; however, motivation also functions as one variable in a complex system comprised of all these aforementioned variables in a learners' acquisition of a foreign language.

MacIntyre and Noels (1996) researched motivational variables that are confluent with specific language strategies. They discovered that motivation was highly affected by the following: (a) direct strategies involving the use of memory (mnemonics, figurative associations, etc.), cognition (induction, analysis, etc.), intuition (pictorial clues, conjecture), and (b) indirect strategies involving reflective and critical thought, and emotions. Students who were more aware of their personal learning strategies evinced enhanced motivation and self-efficacy. Linnenbrink and Pintrich (2003) also discovered that students possessing strong self-efficacy related using self-monitoring techniques as well as cognitive and metacognitive learning strategies.

Schumann (2001a) used neurobiological research into second language acquisition findings. Neuroimaging and brain scans have allowed psychologists to understand what areas of the brain are stimulated by learning a language. Schumann developed the concept of "stimulus appraisal" in which the brain is stimulated into action by the following broad range of incentives: unique experiences, pleasure, goal or need satisfaction, ability to absorb difficult experiences, and protection of one's self image (p. 28). Schumann (2001b) also described learning as cerebral foraging because both physical foraging and mental foraging techniques may incite the same area of an individual's neural network.

Contextualized learning can take advantage of Schumann's theories to increase motivation in learners. Applying information to a student's physical or emotional reality helps

learners create personal meaning from the information (Bransford, Brown & Cocking, 2001; Cordova & Lepper, 1996). Contextualizing learning so that students can perceive the importance of the knowledge to their personal lives would enhance a learner's sense of belonging and curiosity, which might translate into long-term learning. Cordova and Lepper (1996) stated that providing students with choices increases their interest. They contended that self-determination is a strong motivator for many individuals (Bruner, 1966; Lepper, 1988).

Three of the most important desires for learners are "competence, relatedness to others, and autonomy or self-determination" (Deci, Vallerand, Pelletier, & Ryan, 1991, p. 327). Educators can instigate self-determination by encouraging a learning mindset, peer involvement, and choice. Self-determined learners have adopted a learner orientation in order to assimilate and master the cognitive aspects of the task or subject. They have strong self-efficacy toward the skills inherent in learning. When learners display these qualities, they are evincing intrinsic motivation in a self-regulatory manner.

Dörnyei (2003) determined three actions in which learners control their task performance: performance, examination, and activity regulation. While learners are working on a task, they monitor and scrutinize it to ascertain whether they need scaffolding to support aspects of the task in which they are faltering, and they "activate the *action control* system to 'save' or enhance the action" (p.16). Self-determined or autonomous learners are motivated to learn. They express personal interest in learning and believe that the task or subject in which they are engaging is valuable intrinsically as well as extrinsically (Linnenbrink & Pintrich, 2003).

Transfer of Learning

Self-reflection and motivation, with its underlying influential factors, are important characteristics of the self-determined or competent learner. Processes of learning and the transfer of learning are central to understanding how people develop important competencies. Learning is acquiring and amassing knowledge, which can be used to recall certain details of information and events, but if this retained knowledge cannot be used to solve problems distinct from the knowledge area there has been no transfer of knowledge from one situation to another (Salomon & Perkins, 1989). Mayer (2002) described retention as the ability to remember data and to retrieve it from long-term memory as knowledge.

Transference is the ability of a student to merge knowledge into meaningful strategies to engage in problem solving in diverse situations. Bransford, Brown and Cocking (2000) explored some key characteristics of learning and transfer that have important implications for education. They stated that transfer is a dynamic process rather than a passive result of a particular set of learning experiences, and that all new learning involves transfer based on previous learning. Hmelo-Silver (2004) contended that reflective thinking helped learners infer meaning, discern discontinuities in their knowledge base, and "increase the probability of transfer" (p. 247).

Early research on the transfer of learning was guided by theories that emphasized the similarity between general conditions of learning and general transfer. "Formal discipline" was the pervading theory in the early 20th century (Mayer, 2004, p. 717). This theory asserted that there was a general transfer of learning ability from one domain to another. For example, the diligent study of subjects, such as Latin, would augment learning across all domains by creating a studious mindset in the learner. However, empirical studies of the late 19th century and early

20th century could not confirm validity to this theory (Thorndike, 1924; Thorndike & Woodworth, 1901).

Thorndike and later researchers concluded that some skills do not easily transfer from one context to another, especially if the contexts are dissimilar. Their research indicated that transfer would occur if a skill or task to be learned were similar to a previous skill or task (Ormrod, 1999). *The Classical Investigation*: *General Report* was published in 1924 because of Thorndike's research. The study also discovered that Latin did not produce in high-school aged learners the broad-range transfer of the skills learned in Latin to other domains.

Thorndike and Ruger discovered that the study of Latin vocabulary did have a significant effect on English vocabulary (Douglass & Kittelson, 1935). They concluded that Latin vocabulary study increased a learner's English vocabulary "two and a half times" (Douglass & Kittelson, p. 27). Otis (1922) also discovered similar results of the transfer of Latin vocabulary study to English vocabulary in his research. This is called specific transfer.

Specific transfer is a theory that posits that learning generated from one task or situation will transfer to another situation or task that is similar (Woltz, Gardner, Gyll, & Sean, 2000). In order for transfer to occur, there must be relative concurrence between two learning situations for the learning obtained from the one situation to positively transfer to the second situation. For example, *The Classical Investigation* of 1924 discovered that teaching methods most affected whether the study of Latin helped to improve students' abilities in English (Douglass & Kittleson, 1935).

Klausmeier (1985) concluded from his research that transfer from one school task and a highly similar task (near transfer), and from school subjects to non-school settings (far transfer),

could be facilitated by teaching knowledge skills in school subjects that have elements identical to activities encountered in the transfer context. Carpenter, (2000) related that *The Classical Investigation* discovered Latin students developed analytical skills. He noted that precise and intensive study of grammar and sentence structure could enhance the problem-solving skills of students. Could research activities in which students engage in problem solving ultimately enhance their grammatical and syntactical abilities?

Similarity can enhance transfer; however, negative transfer can occur when something one has learned can interfere with new learning. For example, modern cultural mindsets can impede a student's ability to perceive the cultural differences of other "realities" (Bruner, 1996, p. 87). An example of the need to perceive other realities is the confusion that students encounter concerning the concept of slavery in the ancient world as opposed to its modern conception. A teacher's knowledge of the possibilities of negative transfer can result in increased inquiry and discourse to develop alternate perspectives from which the students can make new ideological connections (Salomon & Perkins, 1989).

Vertical and lateral transfer are also extremely important when knowledge possesses a hierarchical structure (Ormrod, 1999). The alphabet provides an example of vertical transfer. Skills involved in writing letters of the alphabet are necessary building blocks for the eventual writing of words, which expand into sentences, and so on. Lateral transfer can be seen in the learning of Latin and a Romance language, such as Spanish. The knowledge gained from learning one language helps immensely in learning another similarly constructed language (George, 1998).

In the 1950s, Bloom (Anderson, et al., 2001) created a classification or taxonomy of domains affecting learning. One of the domains was the cognitive (thinking) domain, in which he designated six levels of thinking in hierarchical structure: knowledge, comprehension, application, analysis, synthesis, evaluation. Bloom considered retention and transfer to be extremely important educational objectives. He cautioned educators to distinguish between retention and transfer. The former looks back, while the latter looks forward. In the first three levels of the taxonomy, basic information, which is committed to memory, forms the database from which learners extrapolate premises and decisions regarding further research, reflection, action, and so on. Transfer depends upon a strong foundation of knowledge, comprehension and application because they prepare the learner for eventual learning. The latter three levels of Bloom's Taxonomy interweave foundational knowledge stored in one's memory with newly acquired information.

Salomon and Perkins' (1989) research indicated that deliberate analogous speculation on contextual knowledge could result in the transfer of learning from one situation to another. They proffer two examples of successful transfer initiated in classroom settings: "forward-reaching transfer" and "backward-reaching transfer" (p. 136). A teacher can initiate backward-reaching transfer with the presentation of a modern phenomenon in which students attempt to perceive analogous meaning in a historical phenomenon. Forward-reaching transfer works in the opposite direction. Students are presented with a historical phenomenon in which they attempt to perceive an analogous situation in the modern world. Experiential learning can facilitate transfer because it is concerned with real-world issues.

Learner-Centered Approaches

Experiential Learning

Dewey (1938) stressed that experiential learning could be merged with traditional content-area learning to extend learners' thinking and provide transference to other areas of knowledge. Experiential learning involves students in learning as an active engagement with information and ideas. Learners use prior experience to understand, interpret, and manipulate current information into meaningful knowledge. The careful analysis and assessment of an individual's own learning increases transference and enhances his or her independent thinking processes.

Experiential learning stresses the holistic nature of learning as a process. Kolb (1984) perceived the development of ideas as dynamic, mutable, and contingent upon an individual's experiences. Rogers (1994) noted three characteristics contained within experiential learning: knowledge, dynamics, and reflection. Learners engage in the acquisition of knowledge through using prior experience to gauge its worth. They actively seek ways in which to manipulate that knowledge through inquiry and critical reflection.

Constructivism. The concept of learning as the creation of knowledge is found in constructivist curriculum design; the instructor helps learners build upon their educational and life experiences (Gregory, 2002). Constructivism stresses the holistic nature of learning, and espouses the learner's central role in accommodating new information and experiences by synthesizing and constructing understanding from prior experience. This results in each individual's unique perspective. Constructivism transfers the answering of questions to the

learner. The instructor may facilitate, but learners discover and synthesize meaning for themselves.

Kolb (1984) believed that individuals learned from a recursive combination of tangible experience, reflection, and theoretical thought. He created a learning cycle based upon the cycle used by Lewin (Schmuck, 1997). He clarified that the cycle could be entered at any of the four pivotal cycle points: (a) actual experience, (b) observation and reflection, (c) development of abstract conceptualization of ideas, and (d) transference to unique situations. Kolb suggested that reflection punctuated each of the four pivotal cycle points.

Argyris and Schön (1974) used the terms "single-loop and double-loop learning" to distinguish two ways in which individuals learn (pp. 18-19). They described single-loop learning as a precursor to double-loop learning. In single-loop learning, goals and strategies are maintained, but not questioned. Argyris and Schön characterized double-loop learning as a learning spiral in which one could question the theoretical framework upon which goals or strategies are based (pp. 18-19). In terms of learning, one would be free to question all assumptions and manipulate diverse variables inherent in a learning situation. Reflection is an essential component to the self-correction that corresponds with the learning cycle and double-loop learning.

Reflection

Dewey (1910) provided a foundation for thinking about the process of reflection. He described reflective thinking as dynamic and thoughtful attention to either theoretical or practical matters. Dewey tried to isolate characteristics of the reflective state. One of the characteristics he

discerned was an awareness of intellectual disturbances, and their translation from enigmas into solvable puzzles. Another characteristic of reflection was that it possessed manifold ideas or suggestions that led the learner closer to a definitive solution.

Another important characteristic of reflection that Dewey articulated was "systemic inferences" of induction and deduction, in which there is "double movement" from the particular or partial to a generalized or whole conceptualization and back from the whole to the particular (p. 79). Dewey believed that a recursive route of reflection would help learners perceive coherency between seemingly disconnected information. Dewey espoused the scientific method to test hypotheses or ideas. Schön (1983) extended Dewey's concept of reflection to include an emphasis upon reflective inquiry while engaged in problem solving.

Schön's (1983) concept of reflection-in-action involves the use of intuition as individuals are involved in an activity or cognitively engaged. They attempt to connect prior experience, affective emotions, and current personal theoretical assumptions simultaneously while attempting to understand a phenomenon and while engaging in actions to ameliorate the situation. A new understanding is engendered by experimental actions via reflection-in-action. Schön also realized the importance of reflecting upon completed action; he called it reflection-on-action. Reflection-on-action allows the educator to discern underlying aspects of the action that has been enacted. It prompts the instructors and learners to think about behavioral and cognitive reasons for why events may have unfolded as they did, and why individuals acted as they did.

Critical reflection inherent in metacognition (self-assessment of one's own learning) enables learners to assimilate new information and transform prior assumptions. Mezirow (1998)

placed critical reflection at the center of any learning endeavor. Mezirow described learners as reflecting upon an experience in order to interpret its meaning within the context of their own intellectual and personal lives. According to Mezirow and Brookfield (1987), critical reflection of prior and new experiences actually suspends and reorganizes individuals' assumptions into new beliefs and values, which may once again be challenged by new interpretations. Vygotsky (1978) believed that awareness, reflection and self-regulation used concomitantly with assiduous study were necessary for learning to occur. Georghiades (2004) has asserted that metacognition precedes reflection in its ability to facilitate inquiry and critical thinking skills.

Metacognition

Metacognition encourages learners to assess their own learning, and this self-knowledge augments understanding. Individuals who use metacognition are aware of their own thinking. James Flavell coined the term metacognition in the 1970s. It refers to the thought processes individuals undergo when they think about the various ways in which they learn (Georghiades, 2004).

In the 20th century, self-knowledge came to be called introspection (Georghiades, 2004). Psychologists employed it to search for answers into the human psyche. The desire to comprehend one's world and make sense of one's own perceptions is a compelling drive. Georghiades reported that while interest in the conscious mind has been a part of human development, the past thirty years have seen a growth in the education sector's interest in cognitive learning, and self-knowledge. Metacognition has a twofold construction, which includes individuals' knowledge of their own learning (cognition), and their ability to regulate

their own cognitive processes to augment retention and learning. Therefore, metacognition is a variable that affects learning strategies and the motivation to self-regulate one's own learning (Sperling, Howard, Staley, & Dubois, 2004).

Metacognitive strategies consist of such thought processes as:

1. Gauging one's memory capabilities.
2. Discerning the most effective learning strategies, and discarding the ineffective ones.
3. Creating complex and long-term strategies for learning;
4. Self-questioning to ascertain understanding.
5. Development of strategies to access prior knowledge, thereby facilitating the transfer of learning to various areas of one's life (Ormrod, 1999).

Akama and Yamauchi (2004) discovered from their study on metacognition and problem solving that an individual's metacognitive awareness could increase after engagement in problem solving exercises. They attributed the increase in metacognition to the reflection and revision exacted by learners during problem solving. Sperling, et al. (2004) also theorized from their metacognitive awareness study that problem solving could increase learners' metacognitive awareness, and this in turn might increase their effective learning strategies.

Garner and Alexander (1989) stated that the ability to reflect upon and make sense of one's own thought processes improves as one matures. This can lead to adaptations in one's learning process. Metacognition is an endemic aspect of constructivist learning because it encourages learners to assess their own learning, and this self-knowledge augments understanding. To encourage metacognitive thinking, constructivism promulgates open-ended

questions and dialogue. Learners use metacognitive strategies to assess their own grasp of the topics being discussed.

When learners engage in reading for meaning, those with low domain knowledge can use strategies to discern what information is important for reflection, and focus in on that information (Garner & Alexander, 1989). As one's database of knowledge and experiential knowledge expands, one becomes better able to think strategically about learning. Struggling learners often do not question disparate and ambiguous information. To help them develop critical abilities, instructors can stop instruction, ask questions, and act on these answers. Teachers can also model metacognitive strategies and provide supports to help learners develop and use metacognitive and cognitive strategies, and reflect on the validity of new assumptions. Students with insufficient content-area knowledge can use metacognitive strategies to discern what information is important and extrapolate that knowledge for their use (Garner & Alexander, 1989).

According to Graham (2003), motivation is essential to the effective use of metacognitive strategies because many individuals will not invest essential energy in a task unless it has meaning or helps to fulfill a desired goal. Graham posited three levels of metacognition derived from Gardner's socio-psychological construct that affect an individual's motivation to learn a foreign language: (a) self-efficacy, (b) relationship between learning strategies and their outcomes, and (c) utility or value of foreign language in a learner's life. Graham's (2003) research indicated that high school students who were trained to use metacognitive thinking skills adapted and used alternative learning strategies when current strategies failed to achieve success. Suchman (1972) asserted that learners are compelled to seek answers to questions that

intrigue them, and this intrinsically motivates learners to strive for elucidation because the need to incorporate new concepts into one's established cognitive framework enhances a learner's sense of autonomy.

Inquiry-Based Learning

Critical reflection inherent in metacognition enables learners to assimilate new information and transform prior assumptions, and this introspection is endemic to inquiry learning, which is also called inquiry-based learning. Kuhn, Black, Keselman, and Kaplan (2000) defined inquiry-based learning as a means for learners to individually or collaboratively develop the ability to construe meaning from various forms of information by seeking answers to questions that they or others have formulated. It strengthens the following in learners: (a) knowledge base, (b) problem-solving skills, (c) intellectual autonomy, (d) collaborative abilities, and (e) intrinsic motivation (Hmelo-Silver, 2004).

The roots of inquiry-based learning derives from such Pragmatists as William James (1842-1910), John Dewey (1859-1952), George Herbert Mead (1863-1931), and Charles Peirce (1939-1914), who broadened the field of speculative philosophy by insisting that ideas must be manifested to assess their merit (Gutek, 1997). According to Gutek, Peirce asserted that learners created their knowledge as active participants in the learning process. Dewey further stressed the importance of collaborative inquiry in questioning, discussion, decision-making, and problem solving (Dewey, 1944, 1997).

The scientific community became intrigued by Dewey's contentions, and the inquiry learning process was integrated into the learning of science in 1958 with the creation of the

National Defense Education Act (Flynn, 1998). This led to the Science Curriculum Improvement Study (SCIS), and the development of a cyclical process of teaching scientific inquiry to elementary students (Atkin & Karplus, 1962). Abraham and Renner (1986) concluded from their research that the inquiry learning cycle could produce higher achievement in science because of the process approach taught to students.

With the support of these process skills, students increased their retention of information, and enhanced critical reasoning abilities (Lawson, 1989). The cyclical process, however, applies to various curricula, and it has been adapted for use in humanities and social sciences. Learners use prior knowledge to inspire and cultivate interest in a particular task or objective.

A research study conducted by Kuhn, et al. (2000) indicated that a progression of academic proficiencies, which support the inquiry-learning objective, must be isolated and established. They also contended that without the necessary supportive cognitive framework and skills, an inquiry-based learning endeavor might confuse struggling students. However, with proper supports in place, inquiry teaches learners to think critically, creatively, and collaboratively to ask questions. It also teaches them to discuss divergent themes that derive from their questions, so that they may solve a conundrum or formulate new questions.

Hmelo-Silver (2004) contended that most of the research on problem-based learning, including inquiry-based learning projects, has been conducted with high-achieving learners, and that more research needs to be done to ascertain whether struggling learners can enhance knowledge base, problem-solving skills, intellectual autonomy, collaborative abilities, and intrinsic motivation through inquiry-based learning. However, Bandura (1993) asserted that students who have academic deficiencies can engage in successful experiential learning that is

self-directed if the task in which they are engaging is deconstructed into subtasks. This kind of supportive scaffolding would allow learners to be incrementally successful because they would receive supportive feedback during and after each subtask was completed.

Suchman (1972) stated that when learners encounter a situation that they have difficulty assimilating into their current cognitive schema, it causes a discrepancy. They will attempt to accommodate this discrepancy by deconstructing the event into components, which they can analyze. The need to incorporate new concepts into one's established cognitive framework enhances a learner's sense of autonomy. Inquiry-based learning results in a personal discovery in which the learner thinks inductively when attempting to extrapolate and synthesize information into meaning. This increases interest as well as activity in learners who perceive themselves as the architects of their own learning.

Inquiry-based learning is characterized by a cyclical process referred to as the inquiry cycle of learning (Bevevino, Dengel, & Adams, 1999). Learners use prior knowledge to inspire and cultivate interest in a particular task or objective. According to Bevevino et al., the cycle consists of (a) exploration, (b) discussion and adaptation of new information (creation), and (c) application and augmentation (discussion and reflection). Throughout the iterative process, learners use prior knowledge to explore an issue or a problem, or ask a question. Through discussion or investigation, they create a project or engage in a critical and collaborative discussion with other learners.

Learners use their own experiences to guide them to reflect and augment their thought processes or projects. This generates new questions to explore and ameliorate, and hence the cyclical iterative nature of the inquiry process. Human beings cannot achieve intellectual

independence and autonomy unless they seek meaning at various levels of inquiry. The process of discovery increases motivation, interest, activity and reflection in learners as they attempt to process new information and assimilate it into their present cognitive schemata, thereby expanding their intellectual milieu (Bruner, 1977).

Collaborative Learning. Students can affect each other's interest and motivation (Cordova & Lepper, 1996; Hmelo-Silver, 2004). Hoover (2000) described the proficient level of language acquisition as "the negotiation of meaning between two or more persons" (p. 57). Students will be more likely to ask one another for help during difficult aspects of work if they have had positive collaborative experiences with peers. However, in grouping students heterogeneously, their academic differences are often clearly perceived. Studies have indicated that it is not always advantageous for high-achieving students to work with low-achieving students, or to place average-achieving students, who can work with either end of the spectrum in the middle of such a broad spectrum of ability. Teachers, however, can create balances to compensate for the students' disparate abilities, yet still retain high achievement in a challenging milieu (Ormrod, 1999).

Ormrod (1999) proposed that educators create lessons and projects that encompass a broad spectrum of activities that demand many abilities and talents to cooperatively achieve successful integration of all aspects of the assignment. Hidi and Harackiewicz (2000) also expressed that certain collaborative activities could increase learners' interest and learning. They described "jigsaw procedures" as activities in which the students learned about a particular subject and shared their knowledge with their peers (p. 157). Research indicates that learners who engage in collaborative inquiry achieve greater levels of sophisticated critical thinking and

problem solving (Hmelo-Silver, 2004). Hmelo-Silver called the jigsaw procedure "distributed expertise" (p. 246).

Hmelo-Silver (2004) posited that the process of learning to work in a collaborative setting, and the actual process of working collaboratively are concomitant and complementary skills. Johnson and Johnson (1999) noted some distinguishing features inherent in collaborative experiences:

1. Learners are inextricably bound to one another because each possesses a portion of the learning.
2. Each learner is responsible for their own contribution as well as a contribution to the group.
3. Learners support each other as peers working toward a common goal.
4. Social citizenry is enhanced through extensive interpersonal contact.
5. Learners engage in individual and communal reflection upon learning.

Reflection, metacognition, and inquiry are endemic aspects of inquiry-based learning and collaborative learning because they encourage learners to assess their own learning, and this self-knowledge augments understanding and increases the chances of transfer to new learning situations (Hmelo-Silver, 2004). Inquiry involves learners in analyzing their thoughts in response to the information they read, hear, or learn from others in order to construct meaning that eschews misconceptions, self-deceptions, speciousness, and other flawed conceptions of the mind to create accurate knowledge from information.

Learning Styles and Modalities

Learners often display obvious cerebral dominance patterns, exemplified as learning style preferences, which result in learners perceiving and assimilating information differently. Learning styles theory posits that humans possess various learning styles based on their personality; and that providing learners with the freedom to pursue meaning through their preferred senses heightens their motivation (Silverman & Casazza, 2000).

There is a variety of models of learning styles, which may differ in delivery, but agree on concept. Kolb (1984) developed a theory of learning styles, which he described as learning style dimensions. Learners displayed various proclivities he characterized as concrete learners, reflective learners, abstract learners, and active learners. He believed that learners moved through the various learning styles as they matured, and that their orientations in learning styles varied at different periods in their lives. Using Kolb's learning style dimension as inspiration, McCarthy (2000) combined experiential and problem-based learning in creating the 4MAT System.

McCarthy (2000) believed that learners actually displayed constant preferences for certain learning styles; however, she stressed that learners needed to be trained to become tractable in their ability to work in other learning modes so that they would perform better in various situations in school and in their lives. She divided learners into four general styles: (a) meaning-oriented learners, (b) theory-oriented learners, (c) solution-oriented learners, and (d) activity-oriented learners. She believed that learners demonstrated natural proclivity towards one or more styles, yet they could possess various attributes from any of the learning styles.

Multiple Intelligences

Enabling learners to utilize and broaden their learning strategies enhances their intuitive abilities. Multiple intelligences can be used to capture the interest of students who might not engage themselves in class if they are not connecting to the subject matter or the means of instruction. Gardner (1993) studied cognition in children and adults; he also studied individuals who had received brain damage and noticed that while a core function was incapacitated, other functions were left intact. He believed that denying other intelligences their existence would be to deny individuals the full actualization of their expression.

Gardner (1993) posited the idea that intelligence differs in varying cultures or even communities within a specific culture. Those individuals who are able to solve the problems or create desired products or images for the specific group in which they are a member are using intelligences. In developing his theory of multiple intelligences, Gardner classified intelligences that seem endemic in human beings, but can reveal themselves diversely depending upon the culture or setting. For instance, linguistic skills are evinced in written, spoken or cryptic puzzle forms. He stressed the anatomical distinctness of the intelligences from one another, while ascertaining their concerted function, and that this resulted in unique abilities in individuals.

Consequently, Gardner (1993) believed that the verbal-linguistic and logical-mathematical intelligences tested by traditional psychometrics were inconclusive concerning an individual's intelligence. He broadened the traditional perception of intelligence to include musical, physical, visual, intrapersonal, and interpersonal because he believed that there were streams of confluence flowing through these seven areas with regard to each human being. Gardner later added an eighth intelligence he called naturalistic, which includes such innate

abilities as classification, categorization, and analysis (Campbell, Campbell, & Dickinson, 1999). Gardner also believed that traditional testing was too stringent and did not reflect learners' multifaceted abilities. He advocated assessments in contextualized settings, which integrated learning to provide individuals with feedback concerning their progress.

Classroom Assessment

The purpose of assessment is to support and enhance learning (Tanner, 2001). Assessment consists of activities used to measure teaching and learning in order to adjust particular areas that need amelioration. Edelenbos and Kubanek-Germany (2004) reported that interest in classroom assessment has increased due to new hypotheses regarding the integration of assessment into instruction, public interest in assessment, and the changing role of instructor as a facilitator, rather than the main source of learning. McMillan (2000) characterized equitable assessment as using varied methods to obtain quantitative as well as qualitative measures of learning. Assessment activities include teacher observations, student translations, essays and other writing products, tests, classroom discussions, and so on.

Traditional and Alternative Assessment

Traditional assessment employs the use of tests, such as multiple choice or fill-ins to determine learning; these tests can be useful in ascertaining learners' retention of information (Reeves & Okey, 1996). Traditional tests are objective measures of particular information and abilities, which separate affective and cognitive realms of the human mind (Moore, 2003). Tanner (2001) noted that traditional classroom tests focus on the cognitive realm, highlighting

certain skills for testing. Emphasizing only these kinds of tests increases low-level thinking (Drake, 2001). Traditional assessment tests decontextualize information in order to assess universal abilities; however, psychological research in the cognitive realm has revealed that a great deal of knowledge is contextualized (Reeves & Okey, 1996).

Moore (2003) mentioned that traditional tests do not uncover tacit factors that may be inconstant, yet affect learners' test results. Some of these tacit factors are such variables as motivation, teaching methodologies, teacher temperament, surface appeal of the test, or the framework of the test. Tanner (2001) noted that traditional assessments focus upon the test instrument itself and the obtainment of a score; and that this does not enhance the transfer of learning, which is the goal of teaching and learning. A learner's inability to master a particular concept or skill is viewed as a deficiency (Reeves & Okey, 1996). Black and Wiliam (1998) discovered that learners, who have become accustomed to a milieu in which they are defined by class rank, grades, or other reward systems, avoid difficult learning endeavors when they are given a choice.

Alternative assessment is subjective and attempts to assess each student contextually and interdependently (Moore, 2003). It concomitantly assesses the affective and cognitive realms, allowing them to work in unison. Gardner (1993) asserted that alternative assessments could more fully indicate the level of knowledge a learner has attained. Alternative assessment is characterized by a broadly heuristic approach to learning through inquiry and experimentation. Teaching and assessing learners through a variety of ranges yields better results because it allows for a more expansive view of intelligence than traditional assessment, which convergently assesses academic concepts or skills.

Performance assessment and authentic assessment are two overlapping terms used in alternative assessment. Performance assessment is used when interpretation of learners' mastery of objectives is required (Reeves & Okey, 1996). Linn, Baker, and Dunbar (1991) noted that performance assessment enhanced higher-order thinking skills, creativity, and complex hierarchical strategies because of its inherent requisite of intense investment of effort. Performance assessments are designed to allow students to evince learning via non-written endeavors, such as oratory, experiments, presentations, summarization, written expressions, and so on.

Authentic assessments compel students to evince learning by using course material to solve real-life problems or engage in real-world issues. Reeves and Okey (1996) stressed that in constructivist environments, permitting learners to make decisions regarding aspects of their assessments enhanced their ownership of the assessment task, as well as their motivation to persevere. They also discovered that assessment task autonomy was instrumental in an assessment task being recognized as *authentic* because the learner has to place value upon the completion of the assessment task.

Wiggins (1993) stated that authentic assessments should offer learners a diversity of activities, which complement instruction. Tanner (2001) stated that authentic assessment is extremely broad in scope. It has been used as a term for various assessments that are labeled under traditional assessment, such as essay writing in which the learner edits and receives feedback, reading foreign language passages, and initiating and responding to multi-cognitive level questions.

Performance assessment and alternative assessment are often used in conjunction with one another or are merged into one cohesive assessment. Zimmerman (1993) combined performance and authentic assessments under the general term, alternate assessment. In this literature review, performance assessment and authentic assessment will be addressed cohesively under the title of alternative assessment.

Alternative assessment in language study should combine assessment activities, such as self-assessments and contextual assessments in which learners can gauge their level of expertise (Hancock, 1994). Assessment activities that compel learners to demonstrate their ability to derive meaning from context by translating Latin texts can enhance learners' abilities to reason, analyze, evaluate, and synthesize information. Alternative assessments emphasize how learning and assessment coalesce into enhancing learners' abilities to use their knowledge of Latin language and culture in the modern world (Abbott 1998).

Edelenbos and Kubanek-German (2004) stated that an important teacher competency that should be standard in language classes is diagnostic assessment and interpretation of individual learners' level of development. Educators could then develop appropriate assessment measures that would enhance learning. Educators should be able to meet the needs of various learners functioning at different levels.

According to Reeves and Okey (1996), alternative assessments account for motivation as a deciding factor in learning endeavors that require contextualized learning and intrinsic motivation to be successful. They can more fully indicate the level of knowledge a student has attained because they reflect real-world endeavors. The use of alternative assessment has increased because it allows educators to discern higher order thinking in conjunction with

assessments that have realistic application, and are stimulating to learners (Reeves & Okey, 1996).

Assessment researchers Brookhart and Durkin (2003) equated learner anticipation and motivation with specific assessment activities. They found that learners' academic behaviors changed according to the assessments assigned. Learners decided their own levels of participation and work invested with each assessment task offered to them. Brookhart and Durkin noted that alternative assessment produced enhanced intrinsic and extrinsic motivation among learners, whereas, learners evinced cursory learning strategies under traditional testing situations.

Brookhart and DeVoge (1999) determined that there was a strong correlation between assessment milieu and assessment activities in establishing whether the activities were an enhancement to learning. Zimmerman (1993) asserted that mandatory testing interrupted learning endeavors. Alternative assessments that are compelled by curricular exigencies are based on instruction and demonstrate learning, and are seamless indicators of learning.

Formative Assessment

Reeves and Okey (1996) noted that the same activity could serve as a learning and assessment endeavor. Leung and Mohan (2004) conducted assessment research in which the findings emphasized the need for assessment to be conjoined with instruction, and that formative assessment could contribute to learning. Formative assessments could be used daily to informally assess learners' progress, and enhance their ability to engage in metacognition, reflection and inquiry, and to institute alterations that could improve learning (Gregory, 2002).

Teacher comments on errors and proffered amendments provide important feedback to students willing to improve their work, and teachers can use feedback data to teach those students who need additional help. Tutoring sessions tailored to specific needs can also result from formative assessment findings. The benefits that learners receive from tutoring sessions may increase motivation, self-efficacy, self-direction, and so on (Klausmeier, 2001).

Assessment researchers Black and Wiliam (1998) reported that formative assessment is beneficial for all learners; however, it is especially beneficial in helping struggling learners because the instructor is able to isolate particular academic difficulties and emphasize ameliorative strategies. This provides learners with a clear focus on each of their academic weaknesses.

Brookhart and DeVoge (1999) determined that communication and feedback from instructors were integral to learners' determination to invest effort and time in an assessment task. The researchers also noted that the task had to have an appropriate level of integral challenge. Learners of diverse levels of self-efficacy needed to perceive the task as something challenging, yet able to be mastered. Otherwise, they would not invest time and effort.

Brookhart and Durkin (2003) posited that alternative assessment augments learning and performance goals, which result in self-directed learning and heightened self-efficacy. They also discovered that alternative assessment correlated with higher self-efficacy in learners than the traditional testing milieu. They suggested that educators create assessment tasks in which learners would develop a sense of responsibility, and in which success would be equated with the amount of effort applied.

Validity and Reliability

Leung and Mohan (2004) stressed the need for classroom assessment to be valid and reliable and function as interactive and integral aspects of instruction. Assessments are considered valid if the assessment outcomes agree with the ability manifested by learners. Traditional and alternative assessments both must be evaluated for their effectiveness in measuring learners' knowledge. Traditional assessment stresses reliability, but is weak on validity. Alternative assessment stresses validity, but is weak on reliability (Reeves & Okey, 1996).

An assessment is considered reliable if it maintains objectivity, adheres to norming standards, and different evaluators perceive similar results from that assessment (Moore, 2001). An assessment is considered valid if it directly measures the real-world skills it was designed to measure. Norm-referenced classroom tests, in which learners are compared with one another, desire to achieve a level of conformity by adhering to specific criteria to achieve reliable scores. These tests are concerned with the learners' acquisition of a knowledge base in which information is retained and recalled, not with how the learner may apply this knowledge (Wiggins, 1993). Tanner (2001) stated that traditional assessment sacrifices validity for reliability and expediency.

Traditional tests purposely make use of decontextualized information presented in highly theoretical and abstract ways to allow the students to apply the information to broad and general purposes. To struggling students, the assessment is perceived as a disjointed array of facts and ideas. Struggling students need help in perceiving the connections between theoretical

information in order to assimilate it into a personal synthesis of knowledge (Bridglall & Gordon, 2004).

Alternative assessments strive to extend a learner's knowledge base by combining instruction and assessment. Alternative assessments must be valid to be of any use to learners. High level critical and creative thinking must be manifested through alternative assessments, which can contain variables, such as levels of self-regulation to achieve the task, a circuitous route with diverse choices for completion, "interpretive and judgment," and intrinsic value and meaning with appropriate levels of academic exertion (Wiggins, 1993, p. 215). Rather than comparing learners to one another as in norm referenced traditional assessments, alternative assessments are criterion referenced; learners are evaluated in a dynamic environment for their own performances and products (Tanner, 2001). Application of knowledge is foremost in alternative assessment.

An assessment may appear to be valid (face validity), yet its content may contain extraneous elements that obscure or confuse the purpose of the assessment it may be lacking in depth, or it may not meet learners' needs (Wiggins, 1993). A task may seem relevant, but the content is not authentic, and learners may have difficulty meeting the expectations of the assessment. The instructor's failure to provide learners with patterns that authentically reproduce the way in which learners naturally think can produce negative consequences that can invalidate an assessment (Wiggins, 1993). Some learners, such as linguistically impoverished learners, need additional scaffolding of the structure of the assessment task (Tanner, 2001). Moore (2003) mentioned that rubrics might help to attain validity by enhancing the connectivity between the task and the learner.

Traditional and alternative assessments can be combined to gauge learners' retention, comprehension, and ability to use knowledge. They are counterparts in an effort to engage individuals to desire to learn. Reeves and Okey (1996) stressed the need for creative integration of technology into learning and alternative assessment. Perkins (1991) mentioned that two ways in which teachers could enhance learning were to offer students a range of teaching methodologies and information processing technologies.

WebQuest Technology

WebQuest technology offers the learner a varied approach to thinking about knowledge and the uses of technology. It can offer learners linear and lateral access to information, which augments the success of a wide-range of students. Jerome Bruner (1977) expressed the view that teaching should focus on students of all levels. He stressed that material must be developed that would challenge the superior and average students, support the confidence of the struggling learner, and yet result in self-efficacy for all students. March (1998) asserted that technological applications can engage all academic ranges of learners in interactive reasoning, encourage knowledge production, and enhance the retention of information.

Technology can help educators and learners successfully acclimate to an active-learning paradigm where learners have increasing intellectual control; however, educators must ensure that the highest levels of reason and intellect are maintained, and not allowed to evanesce during this transition. Many learners already embrace the Internet as a means of accessing information, but they must read and interpret meaning from the information they cull. Brem and Boyes (2000) suggested that teachers help learners gain skill in developing content knowledge because the

metacognitive and critical thinking skills that are necessary for researching are contingent upon the learner having the ability to sift through the researched information to determine its initial validity.

WebQuest inquiry engages learners in discovering meaning through academic exploration and collaboration with other learners. Dodge (1998), the creator of the WebQuest concept, described a WebQuest as an educational activity in which students engage in research from a variety of sources, especially the Internet, to solve particular problems. A WebQuest project leads the learner to explore and develop understanding via individual and partner research through a facilitated process of activities that provoke high-level thinking in learners (March, 2000). The WebQuest model allows learners to seek their level of understanding through the selective means of accessing materials via the Internet.

WebQuest inquiry enhances learning contextually, actively, socially and reflectively (Driscoll, 1999). Learning in context occurs when individuals are able to make associations with the material they are attempting to learn. Learners must recall prior learning to interact with the readings, and engage in problem solving and sequential reasoning to create new meaning, and thereby transfer and assimilate this knowledge into a coherent intellectual construct. Social learning derived from listening to the perspectives of others is essential to an individual's intellectual growth. WebQuest learners must communicate with their partners and peers and cooperatively share information and ideas in order to formulate and complete their task. In this milieu, learners would work closely together to intellectually explore, discuss, and create.

The transfer of learning to the profound level can more readily be achieved through recursive reflection and action (Schön, 1982). As learners research information, read and discuss

with their partners and peers its implications with regard to their task, they must arrange it in a coherent and concise fashion. They must reflect upon what this information means and translate the information into knowledge. WebQuests facilitate this process because learners can access information that they can read diligently and deeply on a reading level with which they are comfortable in order to render the information they gather into a meaningful product (Dodge, 1998).

Students may sift through a variety of sites to cull the details they deem salient. After students gather, read and ruminate, compare, contrast, and analyze posited ideas, they can synthesize their thoughts into coherency and meaningful learning (Anderson, et al., 2001). Students command their own research, and they select those sites they feel are congruent with their ability. In the WebQuest model, peer and instructor feedback is important and learners develop an intrinsic ownership of their own learning and subsequent product.

Summary

It was important to this research study concerning the possible enhancement of motivation, self-efficacy, and academic autonomy in heterogeneously grouped classes to consider the data concerning cognitive and affective research on language and the inherent factors that influence motivation. This was essential in establishing a framework from which the researcher could understand the academic behavior of the students. Reviewing the literature on the transfer of learning, learner-centered approaches, assessment methodologies, and WebQuest technology applications was also necessary to gain a comprehensive perspective of teaching and

learning methodologies and assessments that might complement and augment the current Latin I curriculum.

CHAPTER 3. METHODOLOGY

The investigation of the truth is in one way hard, in another easy. An indication of this is found in the fact that no one is able to attain the truth adequately, while, on the other hand, we do not collectively fail, but everyone says something true about the nature of things, and while individually we contribute little or nothing to the truth by the union of all a considerable amount is amassed.

-Aristotle, Metaphysics

Introduction

Understanding and changing the situation to increase the chances that the high school students would choose to complete Latin I and continue with their Latin studies was an important goal. Participatory action research was used to study the following research problem: Can student motivation, self-efficacy, and academic autonomy in a heterogeneously grouped Latin class be increased through experiential learning projects, which are integrated into the core of the Latin curriculum? Students engaged in a long-term Internet research inquiry project in which they incorporated their personal interests and talents into the background study of Latin. The project's goal was to develop situational interest and self-efficacy in those students not possessing prior individual interest in the field of Latin and ancient cultures.

Description of Methodology

Action research is a branch of qualitative research that seeks to understand phenomena or institute ameliorations in a particular situation. Kemmis and McTaggart (1988) described action research as a self-reflective inquiry into one's own practices, whether one is engaged in it socially or independently. Noffke (1995) described it as an iterative addressing of problems within one's educational practice in order to revise and amend that practice. Action research at the local

education level is referred to as teacher or practitioner research (McNiff, 2002; Merriam & Simpson, 1995). Action research is a practical means for instructors to discern how students learn, and the knowledge gleaned from it can be used to develop one's teaching practice and enhance student learning.

Kemmis and McTaggart (2001) acknowledged criticism that classroom action research does not necessarily reflect established educational theory. Problems that often arise in an educational environment are specific to the setting in which they occur. Educational theories, however, are broad because they are derived from traditional research that is objective and constant (Gall, Gall, & Borg, 2003). Hopkins (2002) noted that applying established educational theories to local classroom problems does not always work when attempting to understand or change particular phenomena. This can result in discord between established educational theory and practice; it is through action research that instructors are attempting to align theory with practice; they are making practical inquiries into complex relationships and activities (McNiff, 2002).

Merriam and Simpson (2000) delineated aspects of action research that identify it from other traditional research methodologies:

1. Action research is intended to discern knowledge that is relevant and applicable to a specific problem. The researcher is a facilitator for change intended to benefit the individuals for whom the research was initially undertaken.

2. The research question develops from a real problem that the researcher believes needs improvement. Stress is given to the practical nature of the problem, not the theoretical.

3. The problem is stated practically; it does not have to contain a hypothesis.

4. Sampling of participants is not systematic. Participants are the individuals naturally present in the setting, such as in a classroom

5. The steps of progression in the research design are individualistic and mutable; they are closely bound to the particular research study. Control is maintained through triangulation of the data and methods of data collection. Data collection is conducted used such tools as observations, interviews, and questionnaires.

6. Analysis of the data is interpretive, reflective, and iterative. Ameliorations in action, in addition to the project itself, are instituted as the project unfolds.

7. Secondary sources of information, not primary, are used to gain a broader understanding of the particular situation under scrutiny.

The Research Context and Design

The *Cur Latina*? WebQuest contained three phases to sustain motivation: relevance, authentic assessment, and autonomy (see Ames, 1992; Dörnyei, 2003). The students selected a goal or activity, which they deemed interesting enough to invest intellectual effort and time. Relevance was integral to the *Cur Latina?* learning tasks in order that motivation would be maintained throughout the activity despite internal disruptions and extraneous influences. Next, alternative assessments were used to authentically measure each student's mastery of each developmental level. Lastly, students were encouraged to develop intellectual autonomy through reflection and evaluation of the learning activity. It was essential for students to enhance critical reflection and self-awareness in their own thinking processes (metacognition) in order for them to develop self-determination in learning (Hacker, 1998).

The project was designed to help learners develop the ability to critically self-reflect by engaging them as participants in action research. Dörnyei (2003) cited research that indicated British students were not cognizant of their own metacognitive processes during engagement in learning tasks, and that this extended to a lack of control and methodology toward learning.

Hacker, Dunlosky, and Graesser (1998) described research in metacognition that has indicated the ability of young children to monitor their knowledge processes. They stated that metacognitive ability increases as an individual ages.

High school students are not always aware of their cognitive processes; however, they can learn to be more self-aware. Action research complements constructivist learning by including such elements as individual and collaborative inquiry and critical reflection (Hopkins, 2002). The *Cur Latina?* WebQuest combined participatory engagement with action research. It enhanced the students' abilities to analyze their cognitive and metacognitive strategies, and it helped them adapt to meet new challenges.

Inquiry and reflection are natural inclinations to action, and can help the researcher discover patterns and anomalies that can be enhanced or eliminated, thereby prompting specific changes (McNiff, 2002). When action precedes data collection, the methodology is called proactive action research. The "creative problem solving and innovative practice" (Schmuck, 1997, p. 71) that characterize proactive action research are consummate for achieving success in the areas Stringer (1999) asserts as essential to action research: "involvement, performance, support accomplishment, [and] personalization" (p. 35).

In this study, proactive action research was employed to examine the problem of motivating heterogeneously grouped students and instituting changes where it was needed by allowing the students to actively engage with various ideas in order to create unique perspectives that would be integrated into a broader milieu during class presentations. Thus, the problem generated action and reflection before any data could be collected (Schmuck, 1997).

Motivation, self-efficacy, and academic autonomy as determining factors in learning were the catalysts for action and reflection that preceded the collection of data because additional engagement in the problem was necessary to determine the method and types of data collection. The *Cur Latina?* project involved the following six phases in a cyclical and iterative routine: (a) determining the problem, (b) action, (c) data collection, (d) data analysis and interpretation, (e) reflection, and (f) modifications.

These cycles were based on the work of Kemmis and McTaggart (2000) who described the process of participatory action research as a fluid process. The researcher, teacher, and the students engaged in this recursive process during data collection in order to ensure that the data included in the research did not run astray of the original problem. The researcher considered the following characteristics of action research highlighted by Kemmis and McTaggart (2000): (a) social, participatory, practical and collaborative characteristics, (b) emancipatory characteristics, (c) dialectical and recursive characteristics, and (d) transforming characteristics.

Social, Participatory, Practical and Collaborative Characteristics

Hidi and Harackiewicz (2001) explained how certain techniques could increase motivation and situational interest and, thereby, facilitate learning in a subject, while at the same time increasing socialization as well as individuation. *Cur Latina?* utilized the Jigsaw Procedure, a cooperative learning activity in which students formed small groups (Hidi & Harackiewicz; Hmelo-Silver, 2004; Hopkins, 2002). Students, working in units, dyads, and triads, researched an aspect of a greater whole, thereby becoming experts on that aspect; however, they also needed to rely on the expertise of others to form the greater picture.

Synthesizing information culled from their research, participants in the *Cur Latina?* project created a presentation on one aspect of the classical world's linguistic or cultural influence on Western society. The students' research provided them with a piece of the jigsaw puzzle that when put into place (each student's presentation) coalesced with the other students' presentations into a broad spectrum of knowledge. The sum of knowledge acquired from each of the students was greater than the individual parts of knowledge.

Emancipatory Characteristics

According to Hoover (2000), there are various *voices* that can be heard in an emancipated environment: the students, the teacher, and the class. The students as participants were free of the usual constraints or competition inherent in the classroom milieu. Emancipation at the student level allowed learners to determine the meaning of knowledge from inquiry, research, and discussion. Emancipation at the teacher level allowed the teacher to develop an independent and critical perspective (see Hopkins, 2002). Emancipation at the class level provided a group voice that differed from the individual voices within the group to provide additional perspectives.

Dialectical and Recursive Characteristics

The students and the teacher were compelled to revisit and investigate assumptions and current practices in order to ameliorate them and move ahead. The reality of learning was questioned and addressed in concrete terms through research, extrapolation of only meaningful data, and the transformation of this data into something the participants believed would be significant to them and, therefore, real.

Transforming Characteristics

The students and the teacher approached learning situations with their own sets of theories and practices, and through the reflective and recursive nature of participatory action research, they came to question some of their previously held assumptions. The students' theory of power in learning was transformed in the recognition that control resides in the learner, not the teacher. The teacher's theory of power in learning was also transformed when students, who were previously dependent upon that instructor, displayed leadership.

Project Description

The researcher used a holistic single case design involving High School Latin I students, who were observed during the research project to determine if they were developing situational interest and self-efficacy that would motivate them to work diligently and autonomously on the diverse aspects of the WebQuest project. Students formed collaborative dyads or triads in which they incorporated their personal interests and talents into the background study of Latin.

The Cur Latina? WebQuest was structured to offer learners a choice in selecting from three broad guided avenues: (a) the history of the Latin language's relevancy to the English language, (b) how the vocabulary and structure of the Latin language compares with the English language, and (c) how Latin has influenced Western culture (Appendix A). Many students narrowed their selection to a topic tangential to one of the three broad avenues. The students engaged in research, extrapolation of salient information, reflection and analysis, synthesis, and evaluation of each learner's project.

Cur Latina? utilized constructivist curriculum design. In addition to the information they accumulated for their projects, students constructed their own perspectives from prior experience, and the social interaction of their dyad or triad members as well as other individuals from their "community of inquiry" in order to develop their independence as thinkers and communicators (Gregory 2002, p. 397). To avoid possible pitfalls of relativistic thinking that can occur from some learners' disproportionate reliance upon personal experience with little reflection upon new sources of information, the researcher and teacher also formed part of the community of inquiry. Gregory stressed that the teacher should prompt the students through inquiry, reading and discussion of ideas, exploration, and so on.

A considerable amount of recursive reflection and action occurred in the pre-development steps of the *Cur Latina?* WebQuest. The following questions helped the researcher decide whether the WebQuest model was the best means to achieve optimal learning:

1. Does this WebQuest integrate various learning styles, thereby attracting a variety of students (Campbell, Campbell, & Dickinson, 1999; Gardner, 1993; Kolb, 1984)?
2. Is the information relevant?
3. Can the information be accessed with more ease than if it were taught traditionally?
4. Will this endeavor enhance the students' abilities to internalize and critically examine the information?

The structure of the *Cur Latina*? WebQuest is sequential, yet multilateral: it contains hyperlinks for the learner to jump back and forth within the quest, and to go beyond the quest page to access information from the web in a guided manner. Students were also encouraged to use web addresses and search engines of their own devising.

The *Cur Latina?* WebQuest was separated into the following areas: preface, introduction, task, process, resources, evaluation, and conclusion.

1. Preface: The purpose of the preface was to set the stage for the WebQuest. Students could click on hyperlinked pictures and words to learn the reasons for studying the Latin language, the history of the Romans, and the architecture of the Colosseum. The taskbar from which students navigated the WebQuest was also placed in the preface.

2. Introduction: This section contains a brief paragraph introducing the project to the learner. It was intended to inform as well as entice the student into the project with leading questions. This was followed by a brief synopsis of what the answers to the questions might indicate for the student.

3. Task: This section provided the student with the ultimate goal of the WebQuest. This
goal directed all the research and learning activities in which students engaged during their progress through the WebQuest.

4. Process: It was in this section that the students received the particular instructions necessary to complete their task. The students could select the role of discoverer one, two or three (*repertor unus*, *duo*, *tres*) to perform their activities. This scaffolding structure guided their progress and strengthened their understanding. It included concise procedures and resources, such as the embedded hyperlinks directing students to specified web sites or search engines, books and articles, peers, and the teacher. Scaffolding also included such organization tools as the WebQuest rubric and printed guidelines distributed to the students. The process section's intentions were twofold: to entice students to continue their learning quest, and to help them realize that learning is open-ended.

5. Evaluation: Alternative assessment was used to evaluate the products. The students conducted research, wrote and revised, and engaged in oral presentations using a delivery method that best suited their personality. They also included visual or aural artistic media. *Cur Latina?* also contained an assessment rubric delineating expectations and outcomes that meshed with the project described in the task section. Each presentation, while complete in itself, formed a part of the greater picture concerning the influence of Latin and classical culture on Western civilization.

6. Glossary: The glossary contained all the Latin words and phrases with their accompanying translations, which could be accessed from anywhere in the WebQuest.

The students had the freedom to move around the WebQuest, and out of it, in search of information that enhanced their research.

Gregory (2002) cautioned instructors to maintain balance between the roles of leader and facilitator. Too much control of a learner's academic environment might produce, in the learner, intellectual prosaicism or codependency of thought; too little guidance might produce, in the learner, injudicious or irrational thought. Dodge (1998) described scaffolding as an important aspect of support for some learners. The scaffolding provided in the *Cur Latina?* WebQuest helped to maintain a subtle equanimity between the teacher as leader and the teacher as facilitator. Some students chose to avail themselves of the proffered scaffolding (i.e. hyperlinks, resources, etc.), and some chose to research, extrapolate, and synthesize information independently or with peers.

Students researched and extrapolated pertinent information from the Internet. Specific web addresses were hyperlinked to ensure some degree of success. Search engines, such as Google and Alta Vista, were also hyperlinked to offer learners additional intellectual freedom in locating information. Students simultaneously practiced critical skills to distinguish those sites containing bias or erroneous information from those that had credible sources. Some students added print sources to their total experience, and the project culminated in the creation of an expository essay and a class presentation from each individual, dyad, or triad.

The Research Participants

The teacher engaged in the project as a resource person and coparticipant with the students. The researcher functioned as a consultant/observer. There were two Latin I classrooms

totaling 46 students. each class separately scheduled research time in the media center, which contains 45 computers with wireless access to the Internet.

Student Composition

The two Latin classrooms were analogous to one another in student composition. They presented a single-case design indicative of students with the following composition of age, grade, gender, and ethnicity (Figures 1-4).

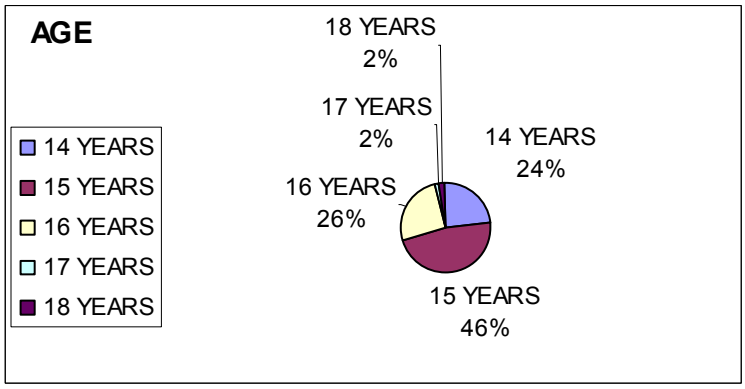

Figure 1. Age

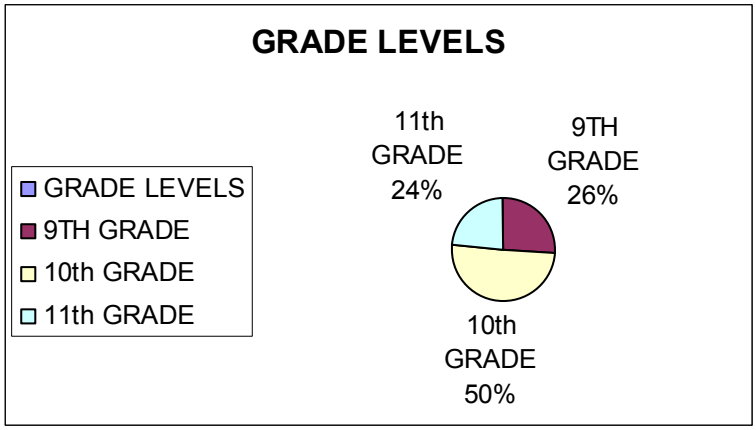

Figure 2. Grade Levels

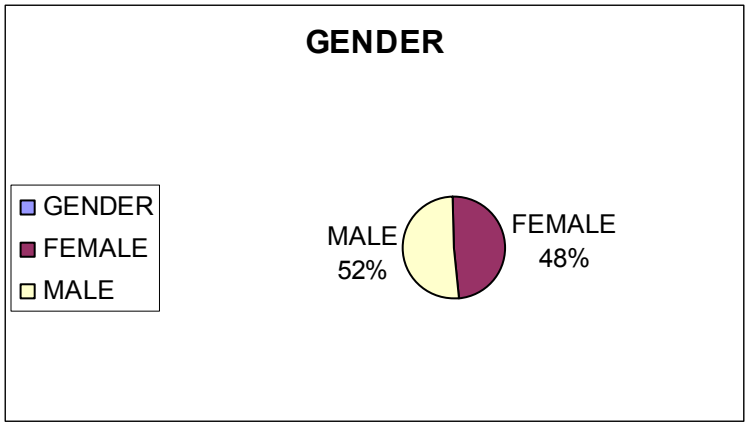

Figure 3. Gender

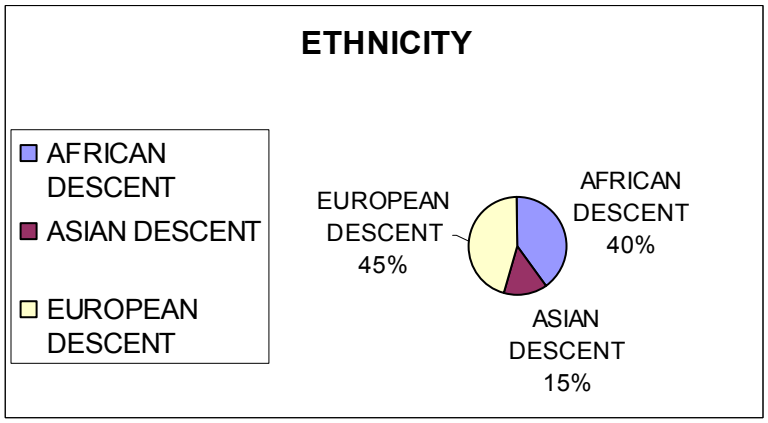

Figure 4. Ethnicity

Curriculum

The researcher intended the learning activities added to the Latin program, via the *Cur Latina?* WebQuest, to present similar fundamental skills that were integrated throughout the Latin curriculum. The *Cur Latina?* project was designed to extend the inductive skills the students are assimilating from the Latin textbook, *Ecce Romani*. Students learn better when they can discern arrangement and structure independently, rather than didactically (Shaffer, 1989). Carpenter asserted that the inductive method of reasoning enhances students' problem solving

skills (Carpenter, 2000). Shaffer stated that instructors often teach foreign language deductively; they offer a rule, and then the students practice the rule.

The deductive method, she asserted, does not challenge the students to independently perceive the initial grammatical and syntactical connections; instead they passively participate in the exercises led by the teacher. Shaffer's studies indicated that this approach did not work as well for those students possessing weak language skills. The inductive method allows students to perceive “underlying patterns” linking words into meaning (Shaffer, p. 401).

In Shaffer’s (1989) study, class inquiry and discussion was considered an important aspect in increasing achievement. Her research yielded evidence that the inductive approach to teaching language worked well for all learners. She explained that in classes where all ability levels were represented, the inductive approach worked best for teaching grammar that was difficult because it did not have equivalent patterns in English. They were compelled to make new linguistic associations. The students who were weaker in language skills showed significant gains from instruction using the inductive approach or an approach combining inductive and deductive reasoning; whereas, they did not benefit as much from the instruction that solely used the deductive method.

Carpenter (2000) adduced that inductive thinking encourages students to analyze language structure and syntax simultaneously as they practice "the skills of contextual reading fundamental to the long-range goal of reading comprehension” (p. 395). However, many students have difficulty perceiving a correlative relationship between an understanding of syntax and the ability to read. Enhancing instruction that would strengthen students' ability to analyze

morphology (structure and form of words), syntax (sentence structure), semantics (meaning), and pragmatics (reading in context) might help to retain more Latin students (Sebesta, 1998).

Kuhn, Black, Keselman, and Kaplan (2000) stated that inquiry-based learning could increase learners' abilities to analyze and inductively infer meanings by facilitating the integration of new ideas into their existing cognitive schemata. *The Cur Latina?* WebQuest was a complement of deductive (theory building) and inductive reasoning, and it included such thinking skills as logic and interpretation (Dodge, 1997). The students began with three major premises or tasks, of which they selected one. They used inductive reasoning to analyze aspects of that premise to determine interest and research possibilities for their scaled down project. The students then used deductive reasoning to develop their own premise, and inductive reasoning to provide supportive elements.

Equipment and Materials

The students visited the *Cur Latina?* Web site that was linked from the High School homepage. Students worked in units, or collaborated in dyads and triads; and each student had access to a computer with wireless Internet access. Some students brought pen and paper on which to take notes, or some utilized the multitasking ability of the computers by writing their notes on Microsoft Word, and saved their work on a network drive in a personal file within their teacher's folder. Accessing the Internet for research augmented the print materials available from the media center, thereby offering students multilateral as well as linear access to information.

Procedures and Instrumentation Used in Data Collection

Observation

The researcher used open observation (Hopkins, 2002) to record observations. Open observation allowed the researcher to holistically view multiple perspectives and activities. To ensure adherence to a relaxed structure, the researcher observed the following areas, as shown in Table 2. Each time the class worked on the *Cur Latina?* project, the researcher systematically employed the three-phase observation cycle, which consisted of (a) a planning meeting between the researcher and teacher, (b) class observation, and (c) feedback discussion between researcher and teacher. Within this three-phase cycle, the teacher assessed the project and the students' behaviors. She made project changes from her own observations and the discussions in which she engaged with the students and the researcher. The following questions were included in a repeated cycle of action-reflection-modification-action in order to determine what actions needed to take place.

1. What strategies are successful students employing?
2. What are some of the factors that seem to hinder some students' ability to abstract, analyze, and/or synthesize information?

Table 2
Observation Foci

Instructor	Student
Presentation	Students' reactions to the teacher and peers.
Indirect teaching	Students' responses to the teacher, peers, and Research.
Feedback to students (interaction)	Verbalizations and overt behavior toward the teacher, peers, and research.

Performance Assessments

The Cur Latina? project culminated in a multimodal presentation often combining oratory and expository elements (Appendix C). The instructor used alternative assessment to evaluate the student projects (Wiggins, 1993). Brookhart and Durkin (2003) posited that alternative assessment augments learning and performance goals, which can result in enhanced self-directed learning and heightened self-efficacy in learners more than is evident in the traditional testing milieu. They suggested that educators create assessment tasks in which students can feel a sense of responsibility, and in which they can discern the ability to achieve gains in learning if they apply consistent diligence.

Authentic assessment was used to assess understanding of the chosen topic and the participants' abilities to express that understanding in a coherent presentation. Performance assessment empowered the students to create a means of presentation (oral, musical, physical, etc.) in congruence with their perceived talents. These forms of assessment match the "open ended student projects" indicative of a constructivist milieu (Perkins, 1991, p. 22). The *Cur Latina?* project was also evaluated in terms of its viability as a motivationally and intellectually enhancing phenomenon. The following questions were considered after the students' completion of their presentations.

1. What is the ratio of learning among the members of the class?
2. What is the level of understanding?
3. In what areas of the learning are they successful?

Bloom's Taxonomy and Analytic Rubric

Students may perform better in one intellectual range than in another (Anderson, et al., 2002). For example, a student may pay great attention to detail and perform well in knowledge and comprehension, yet need guidance and practice to succeed in the higher-order levels of synthesis, application or performance. Therefore, it is evident that students display differentiations in ability within levels of reasoning.

Providing the students with a rubric, in addition to the general rubric contained in the *Cur Latina?* WebQuest, helped the students develop a diagnostic discernment toward strengths and weaknesses in their own reasoning (Moore, 2003). Consequently, they devoted increased intellectual energy toward their perceived weaknesses. In addition to the general rubric embedded in the WebQuest, students were provided assessment rubrics upon which their essays and presentations were graded (Appendix C).

The *Cur Latina?* WebQuest rubric reflected the areas from Bloom's Taxonomy below in which students received formative, alternative, and summative assessment.

1. Knowledge (including prior knowledge) and comprehension: Students understand the information that is connected or dependent upon other strands of information (students' knowledge of aspects of Roman culture and language derived from reading and prior learning).

2. Analysis and critical thinking: Students evince abilities to dissect facts, and extrapolate meaning that is unique to them (*Cur Latina?* research).

3. Synthesis and critical thinking: Students can reassemble facts, varying perspectives, and personal reflection into coherence. Students employ critical thinking to create their own perspectives and ideologies (students formulate their perspectives from information culled from research for their distinctive *Cur Latina?* projects).

4. Application and performance: Students can use correct standards of grammar and syntax using a particular style. Students can deliver a presentation using concise and comprehensible language with appropriate gestures.

5. Evaluation: Students employ intellectual standards to critically examine their own viewpoints, as well as the viewpoints of others, for clarity, accuracy, precision, relevance, depth, breadth, logic, significance, and fairness (students evaluate their own projects as well as their peers' projects).

For different individuals, critical thinking occurs at various levels of Bloom's Taxonomy. Wiggins (1993) asserted that the levels at which synthesis, application and performance, and evaluation take place are impossible to adequately quantify through multiple-choice examinations or other tests that imply only one correct answer. Alternative assessment allowed the researcher to construct, within the *Cur Latina?* project, higher order thinking tasks in conjunction with assessments that had real-world application, and were stimulating to learners (Reeves & Okey, 1996).

Questionnaire

A Likert-scale questionnaire (Appendix D) field-tested on Latin I students during last year's *Cur Latina?* project trial was used to measure the students' attitudes and discern trends that were present in the following areas: (a) students' perceived confidence before and after engaging in the *Cur Latina?* project, (b) students' perceptions of the ability of the *Cur Latina?* project to integrate easily with the readings in their textbook, (c) students' perspectives on learning new information, (d) students' perspectives on student-directed learning, (e) students' perspectives on their autonomy during the *Cur Latina?* project, and (f) changes in students' perceptions of self-efficacy in their selected topic.

Interviews

The researcher used structured interviews with randomly selected students and the instructor (Appendix E). The interview questions were similar for individual students and groups of students, and they focused on the students' perspectives of learning. The interview questions for the instructor focused on her perception of the students' learning as well as her own perspectives on academic merits and curricular integration of the *Cur Latina?* project.

Face-to face interviews allowed a depth of perception into the students' thoughts (Merriam & Simpson, 1995). After the completion of the *Cur Latina?* project and presentation, the interviews were conducted in an informal environment to allow participants to feel comfortable (Schmuck, 1997). The interviews began with an explanation of why the interview was important to the research. This was followed by broad questions to obtain each student's interest, and the questions proceeded in sequential order. The researcher gave the participants extended time to explain themselves in detail. The results of the students' discussions were compared with field notes to perceive divergent or convergent perceptions.

Data Analysis

A framework was needed to analyze the data in order to discern confluent patterns that might be detected and isolated to determine trends among the participants. The data was critically analyzed to delineate patterns and categories from the data gathered from observations, field notes, performance assessments, a questionnaire, and interviews to create a framework from which to understand the salient themes that became discernable (Burnaford, Fischer, & Hobson, 2001).

The framework for analyzing data was a synthesized model of the sociological fieldwork research created by Becker in the 1950s and Glaser and Strauss in the 1960s, in which data was interpreted through a "constant comparative method" of examination (Hopkins, 2002, p. 131).

1. The data was collected and presented as descriptive accounts, which were written in the third person by the researcher. The accounts include changes the teacher made, as well as her perspectives on the changes. The propositions that derived from these accounts were documented.

2. The propositions were culled from the data collected, and they were examined via triangulation for frequency and perceptual distribution among students, teacher, and researcher to establish validity.

3. The propositions were interpreted according to grounded classroom procedures to (a) discern possible agreement with established theory, and (b) establish a teaching component that relates to practical and valid classroom practice.

4. Application of future action was delineated, and research results were written.

The researcher engaged in the first three stages during the research fieldwork, and the fourth stage was conducted after the fieldwork had been completed.

Validation

The researcher attempted to discern repeated patterns through triangulation. The researcher used observations, interviews, assessments, and a questionnaire to gather information from three sources: the students, the instructor, and the researcher (Hopkins, 2002). Construct validity was achieved through the multiple data and methodologies derived from data triangulation (Yin, 2002). External validity was achieved by adhering to theory as the underlying basis for this single-case study.

Summary

The truth, as one perceives it, can be deceptively easy to obtain; however, the longer and deeper one delves into aspects of perceived truth, the more complex the layers of obscure data seem to grow. This study ascribed to Aristotle's contention that each individual's perceptual contributions to "the nature of things" are unique yet minimal; however, when these perceptions are conjoined with those of others, they create a substantial body of knowledge.

The counterbalancing of thesis and antithesis inherent in the dialectical aspect of action research is the most salient derivative of the research engaged in by both participants and the research practitioner because it attempted to uncover and analyze profound, yet possibly tacit, layers of meaning. The researcher sought individual and communal truth by comparing and contrasting adverse perspectives in order to discover new meaning. The tripartite perceptions created by those of the researcher, teacher, and students yielded lucid information about the ways in which students' motivation, self-efficacy, and academic autonomy might be increased.

CHAPTER 4. DATA COLLECTION AND ANALYSIS

The whole is something besides the parts.

-Aristotle, Metaphysics

Introduction

The researcher collected data to discern whether experiential methodologies integrated into the core of the Latin curriculum would enhance student motivation, self-efficacy, and academic autonomy in a heterogeneously grouped Latin I class. The researcher engaged in action research as a means to understand and facilitate change. The researcher recorded the participants' (teacher and students) ostensible behavior and personal perceptions concerning motivation, self-efficacy, and academic autonomy during their engagement in an inquiry-Internet research project. The data was collected using the following research techniques:

1. Observations of the students' and the teacher's overt actions and verbalizations.

2. Performance assessments in which the students' understanding of their topic was manifested by their presentations and responses to their peers' questions. The members of the class who engaged in discussion and analysis of other's presentations provided additional research data.

3. A questionnaire in which the students responded to seven questions.

4. Interviews that revealed the students' and the teacher's perceptions and analysis of their involvement, confidence, and interest in the project and whether they perceived its connection to their Latin class.

Data Collection and Description

Population and Random Sampling

The student participant charts presented in chapter 3 were included to provide a breakdown of the two Latin classes by age, grade, gender, and ethnicity to inform as well as preclude any misconstructions not reflective of the actual population, which might be induced from a lack of population evidence. The population data indicated that minority populations occurred in two of the four categories: a) age: only 4% of the students were older than 16, and b) ethnicity: only 15% of the students were Asian, as compared with a closer distribution between students of Caucasian (45%) and African (40%) ethnicities. There were no minority populations indicated in grade data; however, 50% of the students were in 10th grade, making it the majority population. The resulting 50% of the students were evenly distributed between 9^{th} and 11^{th} grades.

The data collected was examined as a cohesive unit because there were no indications of academic behavior, attitude, inquiry and research strategies, presentation techniques, and so on that defined the students by age, grade, gender, or ethnicity. Students of different ages, grades, gender, and ethnicity worked collaboratively with other individuals and groups to create projects unique to their learning styles.

Throughout the data collection process of this study, the procedure for random sampling was consistent. Samples from the 46 Latin I students arranged in units, dyads, or triads were chosen in the following manner: The researcher wrote a number representing each student, dyad or triad on separate small pieces of paper. She folded the papers, mixed them together, and

selected from the randomized papers. The numbers selected were the samples chosen for inclusion in the performance assessment and interview sections.

Observation

Class observation was documented in this section by means of a three-phase observation cycle repeated in three stages (Hopkins, 2002, p. 72). The three phases consisted of (a) a planning meeting between teacher and researcher, (b) observation, and (c) feedback between teacher and researcher. The three stages derived from the class having met three times in the media center for research. Classes were scheduled to allow each class to meet every other day for two hours at a time. During the research aspect of the project, the Latin I classes met three times in the media center for two hours each visit, thereby totaling six hours of facilitated research. Some students independently engaged in additional research on their home computers.

Role of the researcher. The researcher initially created the *Cur Latina?* WebQuest for her Latin I students; however, in order to perceive its usefulness in other high school Latin I classes in Rockdale county, she observed another Latin I teacher and her students engage in the project using their own inimitable styles. The high schools in Rockdale County are similar; therefore, results should not differ due to population. The researcher functioned as an observer and consultant to the teacher.

First Stage 1.1: Planning Between Researcher and Teacher

The researcher and teacher met to discuss the *Cur Latina?* WebQuest project and its integration into the Latin I program. The researcher asked the teacher to give the Parental

Consent Forms for the research project to her students to obtain parent or guardian signatures. Prior to the meeting, the teacher had looked over the WebQuest and felt familiar with the project. The teacher decided that during their first media center visit she would direct the class through the WebQuest by using a multimedia data projector.

They discussed the importance of intensive research and collaborative inquiry in helping students develop expertise while simultaneously realizing the inherent intelligence of other students as intellectual peers with diverse knowledge acumens. To maintain intellectual and conceptual balance as self-efficacy increased, the teacher realized she might occasionally need to help some students discern and value the "wise and intelligent use of knowledge" (Sternberg, 2003, p. 8).

The researcher and teacher discussed ways in which the teacher could present the WebQuest to the class. They agreed that the WebQuest assessment rubric embedded within *Cur Latina?* was broad, and that some of the students might want specific guidelines on grammar, syntax, and presentation style. The researcher showed the teacher the additional project requirement rubric and presentation guideline previously used for the *Cur Latina?* project, and the researcher and teacher made a few changes (Appendix C).

The teacher showed the researcher the results from the survey she had her students complete. The survey consisted of a brief four-question instrument asking students' age, gender, grade, and reasons for taking Latin I (Appendix B). The teacher further characterized both Latin I classes as containing moderately to actively social individuals exhibiting equivalent numbers of students needing special attention for behavioral and academic reasons. She stated that many of

the students, regardless of their ability levels, displayed low-levels of inquiry and motivation when problem-solving solutions to translations on their own.

First Stage 1.2: Class Observation

The class survey and the teacher's characterization of each class' behavior provided information that helped the researcher determine that both classes were similar in age, grade, gender, and behaviors and attitudes toward the project. There was mixed enthusiasm among the members of each class. This similar behavior, coupled with the teacher's class survey, enabled the researcher to report the results as a single-case study.

Teacher's presentation/indirect teaching/feedback. In the media center, the teacher used a multimedia data projector to access the WebQuest from a link on the High School homepage. While the students watched, she showed them the contents of the WebQuest, discussing the hyperlinks, bookmarks, tasks, and assessment rubric. She then handed out the assessment rubric for the written assessment and the guidelines for the performance assessment. The teacher explained the differences between the three sources of assessment information:

1. The rubric embedded within the WebQuest is a generalized guideline.
2. The project requirement rubric provides basic assessment expectations for the presentation, and it helps students understand the kinds of grammatical and syntactical errors they should avoid.
3. The performance guidelines help students think of modes of presentation, such as articulation, gesticulation, and so on.

She answered questions about the embedded WebQuest rubric, and explained to them that they could also refer to the project requirement rubric and the presentation guidelines for specific instructions.

When the students had no additional questions, she allowed them 15 minutes to discuss possible projects with fellow students. They then selected partners. A few students chose to work alone. When the students logged onto the computers, they each began to look through the WebQuest. The teacher moved around the room talking to the students, asking them questions about their interests, and pointing out certain hyperlinks in the *Cur Latina?* WebQuest that matched their personal interests.

The teacher explained to the students that they could enhance their research with additional materials of their choice, such as books. Some students wanted to know the answers to the questions posed in the *Cur Latina?* introduction (Appendix A). The teacher said they would discover their answers when everyone selected their topic, researched their information, and presented their research focus because their research would encompass answers to many of the questions included in the introduction. She stated that the questions left unanswered would be open for anyone to discover and share the answers.

Students' reactions/responses/attitudes. When the teacher arrived in the media center with the class, they knew that they were going to see a presentation about the project. Some students seemed interested while others were neutral or adverse to the expected work. Some students complained about researching, and spending time on more work. As they listened to the teacher's presentation regarding the *Cur Latina?* project, some students began telling each other that this might be an "okay" project because they would be able to work on the computer. Some of the students discussed possible answers to the questions located in the introduction of the *Cur Latina?* WebQuest.

The computers in the media center were arranged in a *U* formation, which allows students and teacher to engage in discussions. Each student selected a computer to access the WebQuest from the High School homepage. They were quiet for some time, as they navigated their way around the WebQuest. Some students talked to the person next to them about some of the hyperlinks. Some of the students decided that they could not work together as dyads because their interests were too different, and they asked the teacher to discover if other students had similar interests. A few triads were formed, and some students chose to work alone.

After approximately ten minutes of looking at the *Cur Latina?* WebQuest, and engaging in lateral discussions, some students had selected new partners and were sitting next to them at the computers. For example, two girls decided to work together when the teacher, having overheard their conversations, explained that both of them were interested in fashion. One of girls mentioned to the other that she was interested in designing fashions and jewelry for a living; therefore, they decided to explore ancient Roman jewelry.

The teacher noted to the researcher that the students used a separate computer to research on their own, although she had not instructed them to do so. The teacher stated that she thought this evinced student interest in the project. The students were quiet again for this last remaining 25 minutes. Near the end of their research time, the teacher asked them to provide her with some feedback concerning the project. Many of the students stated that they had selected an area of interest, but were not certain if they would pursue it.

Many of the students decided to focus on an area of culture; however, a handful of students wanted to write about the linguistic connections of Latin to English. They reacted with smiles and chatter when the teacher mentioned that she would allow them the last ten minutes of

tomorrow's lesson, and subsequent other lessons, to talk with their partner about strategies and outcomes for their project. One of the students who had grumbled about having to create a project and do research, said, "this is not so bad; I think I can do this."

First Stage 1.3: Feedback Between Researcher and Teacher

The teacher expected the students to be positive with regard to the research. She was at first disconcerted because they complained about having to research and write. She stated that she was at first worried that they would not want to do the project. She explained that she was having trouble getting some of them to study or turn in translation homework. Some had failing grades in Latin, although this was the beginning of the year.

She mentioned that a few students were angry because they could no longer drop the course because the school rules dictated that enrollment was for the full year. She related that they caused morale problems in the class; however, she was happy to see that they stopped complaining after they selected their topics. She noted that some of the students who disliked Latin selected reconstruction projects, such as models of the colosseum, catapults, and so on. She stated that she was relieved that they had indicated an interest in an aspect of Roman culture.

The teacher mentioned that she had originally wanted them to work in dyads or triads because she thought this would provide them with the optimal experience for collaborative learning. She realized that it would also work well for some of the students to engage in research alone. For example, the teacher had explained to the researcher that one of her students had been in an accident years ago, and had retained brain damage that affected her behavior and ability to learn; however, she was a diligent worker. Her unique learning style and slow pace resulted in

her decision to work alone. Other students also chose to work alone because they had particular interests not shared by others; however, they discussed their topics with their peers.

Questions

What strategies were successful students employing? The students who initially seem most successful are those who were able to focus themselves on one task at a time. These students had collected some information and were taking notes.

What were some of the factors that seemed to hinder some of the students' abilities to abstract, analyze, and/or synthesize information? The students who were attempting to multitask simultaneously from one site to another in search of material seemed to have difficulty interpreting what they read and applying it to something a little different.

Second Stage 2.1: Planning Between Researcher and Teacher

The researcher and the teacher both decided that the second week's objective should be for students to begin culling salient information from Web sites and books. The teacher planned a deadline date, prior to the second research visit, for the students to submit their decisions regarding the product and presentation that they were going to create.

The teacher believed that this would help students focus their attention on one topic. She expected the students to become deeply involved with their projects and, consequently, ask focused questions of her. She said that she was looking forward to the next visit because she had heard the students talking and suggesting ideas to one another about their topics. She was curious to see how they approached their research during their second visit.

Second Stage 2.2: Class Observation

Teacher's presentation/indirect teaching/feedback. The teacher accompanied her class into the media center and they each sat at an individual computer again. The students worked in dyads and triads and they sat at adjacent computers in order to discuss aspects of their research. Some students discussed certain research points with their partners. For example, two girls were deciding whether or not to include the foods that matched the zodiac signs because the ancient Romans were fervent believers in astrology. Three boys discussed the most probable positions in which Roman soldier held his *gladius* sword, and one student asked a dyad their thoughts on whether the properties for making cement should be included in the background research on a project about the Roman Colosseum. The teacher did not get involved; instead, she let them settle the intellectual disputes themselves. Students who worked alone discussed points with other students, and asked opinions of other students. The teacher rotated around the computers within the *U,* and asked students about various aspects of their research.

Students' reactions/responses/attitudes. There was a great deal more discussion during this stage of the research. Some students printed out articles to share with their dyads or triads; others showed their group members articles they had printed out at home. A few of the students used the electronic materials catalog to locate books and periodicals to add to their information. The students also discussed their projects with other students not in their dyad or triad.

For example, one dyad mentioned to a few students nearby that they were researching wedding customs, but were unable to find many pictures online. One student offered them some Web sites that were tangential to his subject concerning the roles of males and females in ancient

Rome. They then discovered that they could share Web sites, and the two groups discussed the ramifications of the customs and separate gender roles.

Some groups began to discuss the writing assessment. Two boys mentioned that they would like to create a PowerPoint presentation (Microsoft product for producing multimodal electronic slideshows) that would incorporate graphics and text. Another dyad mentioned that they would like to write a small cookbook instead of the essay. One student reminded the others that the teacher said they were in charge of making decisions regarding their own research. They then planned a logical explanation for the changes they wished to institute, and they raised their hands for the teacher to approach them.

The students explained their reasons for expanding the essay assessment to include alternate forms of writing. Other students heard it and began to add additional ideas for expository products. The teacher asked them to write down these ideas and they would discuss it in class. The students went back to their research with excitement. Some of them mentioned they liked coming up with their own ideas.

Second Stage 2.3: Feedback Between Researcher and Teacher

The teacher related to the researcher that she was very pleased with the progress the students were making in their research. She mentioned that the students were talking with one another about the projects they were going to create. Some students were asking advice and some were offering it. They seem more relaxed with one another during class. She mentioned that some of the students who were having difficulty with Latin had begun to display negative or withdrawn classroom behavior; however, working on the *Cur Latina?* project seemed to enable

them to display their ability for critical and creative thinking. These same students were now talking to their peers about their ideas and offering advice about others' projects. In class, she noticed that they were "on task" more often, and felt less self-conscious about their perceived linguistic weaknesses. The teacher has had to sit with some of her students to keep them on track. She redirected them with ideas and then let them shape those ideas and develop new ideas.

Since many of her students were creating multimedia presentations using Microsoft PowerPoint software, the researcher and teacher decided to offer the students an additional lesson on effective presentation techniques. The teacher decided that next year the PowerPoint lesson and other presentation software, such as Microsoft Publisher, would be integrated into the initial portion of the WebQuest project. The PowerPoint lesson was intended to help students learn to keep details on the PowerPoint slides to a minimum, and that they should augment the PowerPoint project with additional information to ensure that the presentation was interesting as well as informative.

The teacher mentioned that in addition to allowing students to work in the grouping that meets their needs, she thought that allowing the students to select their own writing project would also increase their enthusiasm and willingness to work diligently. She decided to change the essay requirement to a free-flowing integrative aspect of the entire project. The teacher and researcher looked at the rubrics and decided that they were still applicable guides for the students to use for grammar and syntax.

Questions

What strategies were successful students employing? The students who seemed to be extremely successful were sitting with the resources, reading and rereading sections, and discussing these sections with their dyad or triad partners. They seemed to cull information, and then stop to read and assess the information they had amassed before they moved on to gather more information.

The students who seemed to have difficulty in extrapolating personal meaning from the information during the first week of the study appeared more independent and confident during the second week of the study. Some of these students quietly listened to their partner's interpretations. They were also beginning to add their perspectives to those of their partners. In this way, they augmented their own thoughts from the information derived from others.

What were some of the factors that seemed to hinder some of the students' abilities to abstract, analyze, and/or synthesize information? While all the students displayed the facility for locating information via the Internet or materials catalog, some students did not have the reading skills necessary to easily discern the importance or irrelevance of other information. When their dyad or triad partners discussed the information with them they were better able to analyze it, and see its applicability to other aspects of information.

Third Stage 3.1: Planning Between Researcher and Teacher

The third visit was the last time students had to work on their projects in the media center. The teacher related that she thought most of the students had a great deal of their work completed, and she was glad they were searching for additional details to enhance their

background knowledge. She mentioned that at this point she felt that most students were committed to their projects, and she eagerly anticipated their presentation day.

The teacher also commented on the behavioral changes she had perceived among the students. She said that some of the students who were behaving dynamically during the *Cur Latina?* project had previously been languid in class. She also noted that there was less insulting banter going on between students. She realized that allowing the students to select their own means to accomplishing their goals seemed to enhance their autonomy and ownership of the project, and increased camaraderie within the class milieu.

Third Stage 3.2: Class Observation

Teacher's presentation/indirect teaching/feedback. The teacher moved around and sat with each individual student and groups of students. She looked at their information and pictures, made suggestions, and asked provocative questions. For example, she asked a dyad of students working on Roman cooking why they were talking about pizza. They said that it came to their minds because they were thinking about modern Italian food. She asked them what ingredient was found in most of the dishes they mentioned. They mentioned tomato sauce. She asked them if their ancient dishes all contained tomatoes. They said no, and listed the most abundant ingredients, such as cheese, olives, and so forth. She asked them why there were no tomatoes in the ancient Roman food. They got excited and said that they would find out.

Students' reactions/responses/attitudes. The students reacted well to the teacher's company in their group. She was unobtrusive and they enjoyed talking about their research. When she gave advice or asked questions, they seemed grateful because it spurred their thinking,

and they discussed it with their peers. The girls researching tomatoes found their answer concerning when tomatoes actually arrived in Italy. They were excited about discovering the Peruvian origin of tomatoes and the significance of the Columbian Exchange in exporting tomatoes to Europe. They were planning where to place this information in their research, so that other students would be suitably impressed with that knowledge. Throughout the visits to the media center, the teacher maintained a facilitative role to the students. She sometimes suggested ideas and alternative strategies to the students, and asked them questions about their work; however, she often left them to discuss and answer questions with their peers.

Most students have displayed positive attitudes. One student, while adding touches to his multimedia project on mythology, looked at the rest of the class, and said that the project was fun. Another student was reading a book and looking at the artist's rendition of the Colossus of Nero, which stood by the colosseum and resulted in the popularized name for the amphitheater. He mentioned to another student that he thought these facts would be great background detail additions for when he showed his Colosseum model to the class.

The students seemed to be comfortable with their research and creation of subsequent projects. Some had already completed their projects, and were looking up esoteric information in the expectation of answering questions regarding their topic. Others had not completed their projects; however, they were also adding to their databases of pertinent as well as tangential information in the event that a peer might ask them an obscure question.

Third Stage 3.3: Feedback Between Researcher and Teacher

The researcher asked her if there was any change in the work ethic of the students with regard to their appointed class work. She thought about it, and mentioned that the students had been more animated in class. The students seemed to have bonded, and were supporting one another's attempts at translations. She said that there was less complaining within the class concerning Latin being too difficult. They were excited this week about working in pairs to translate a passage. Previously they complained about working in pairs because they thought it was too difficult, and they wanted the teacher to go over the translations line-by-line with them.

The teacher noted that the students were less reliant on her, and more independent in helping themselves and others. She thought that this might be attributed to several factors during the research phase. The students could not always ask the teacher for facts about the subjects they were researching because some of them had selected certain topics in which she had not inquired deeply in the past. They were compelled to rely on themselves and each other for the information. Secondly, the students were bonding with their partners and with one another as they helped each other through the research process with information and suggestions.

Questions

What strategies were successful students employing? The most successful students were now looking for obscure data to enhance their projects, and engage their audience. Some mentioned that they were looking for primary sources so that the audience would feel part of the experience. Others were looking for sensational information. Some of the students who displayed

difficulty in reading, extrapolating salient information and applying it to their research have caught up to the experienced researchers.

Their lack of ability may have been symptomatic of inexperienced researching; it evanesced with the students' increasing experience, competence, and confidence in their search strategies. A few students in the class switched their dependency for instigating critical thought and providing affirmation of their thoughts from their teacher to their peers. In exchange for academic assistance, they offered visual enhancements to the project. The relationships seem to be mutually rewarding.

What were some of the factors that seemed to hinder some of the students' abilities to abstract, analyze, and/or synthesize information? The lack of reading and abstract thinking decreased the productivity of some of the students; however, they benefited by listening to the advice of other students. They seemed to have copied the learning styles of some of the successful researchers, and they were selecting sections of their printouts for re-examination and discussion. This compensated somewhat for their reading deficiencies, and made the additions to their research valuable.

Summative Changes

Motivated by the students' suggestions and her observations of the students' suggestions, the teacher made the following changes during the project:

1. The teacher allowed the students to work alone, as well as in the collaborative dyads and triads originally planned.

2. The teacher added a lesson on technology software applications. Prior to the *Cur Latina?* research next year, the teacher plans to add a lesson on presentation software and articulation techniques.

3. The students began inventing their own means of expository expression, such as a cookbook, PowerPoint, and so on. The teacher decided the essay paper did not necessarily have to complement the presentations.

Performance Assessments

The presentations provided a broad scope of knowledge. Some students were comfortable enough to engage the class in discussions while elaborating on the information provided in their PowerPoint presentations; other students had memorized the information and provided background details to the class while showing their product. They engaged in question and answer discussions at the close of the presentation. A few students had discernable note cards, and seemed to know their information. Errors were small in detail, and were discussed in a respectful manner among the students. The following two examples of students' presentations have been randomly selected from the projects.

Weaponry and Catapults

A student working alone created a PowerPoint presentation on ancient Roman weaponry, and an Onager style catapult (Appendix F), which he demonstrated using a paper wad and a little stuffed ball. The objects flew far across the classroom, and the students were very complimentary. The presenter then talked about the differences in Roman catapults, such as the Onager and Ballista. He mentioned the trebuchet, and talked about it as well. One of the students raised his hand and mentioned that he thought that the trebuchet was invented in the Middle Ages. The presenter thought about it and agreed. Members of the class began to speculate on whether the trebuchet was a descendant of early Roman versions of the catapult.

They then asked the teacher what she thought. Since she was at her desk, she did a quick search to one of the sites the presenter used for his research. She checked into the history of the trebuchet, and confirmed that it was indeed based on the Roman Onager. She told them that the trebuchet was French and invented after the Roman Empire was no longer extant in Europe. She also explained to the class that the site was confusing because the Web site mixed information concerning medieval trebuchets with ancient Roman catapults.

The students began to discuss and share their stories of the pitfalls involved in Internet searching. One student mentioned that university sites were "usually pretty good." Another said that he checked information from some of his sites against an encyclopedia or university site. They all agreed that it was still possible to make some mistakes, and asked the teacher if she would operate the computer to check information if it was needed on each of the presentations.

Medical Tools

A dyad of girls presented their models of ancient Roman medical instruments (Appendix G), which they made from information they discovered concerning the excavation of a house in Pompeii believed to have been owned by a doctor. They explained the social status of doctors as charlatans and quacks, and that they were often Greek slaves or ex-slaves. They qualified this description with exceptions of doctors who achieved high status by having a natural proclivity toward healing. This inspired a class discussion of the comparative roles of doctors in the ancient and modern world.

The girls then discussed each of the instruments they had recreated from clay. They displayed their recreation of a needle that was used to break up cataracts in the human eye in

order for the broken pieces to be suctioned out. They also displayed their facsimiles of surgical scissors, scalpels, and cupping vessel for blood, replete with facsimile blood. Lastly, they described their inability to recreate the cylindrical drill used to drill holes in the skull for trepanation to alleviate pressure on the brain. Just as the students were grimacing in vicarious pain, the girls explained that competent Roman doctors knew of thousands of herbs for healing and alleviating pain, such as opium for putting a patient to sleep, and mandrake for slowing the heart rate.

The dyad also described various ancient Roman medical practices, beliefs, and potential cures, such as using hyena skin to cure a mad dog bite. The girls lectured, yet the students were fascinated by the gruesome and sad descriptions of Roman medicine. When the girls mentioned the *Hippocratic Oath*, many of the students in the class murmured, "I've heard of that." One member of the class asked the girls where they found the translation of the *Hippocratic Oath*, and this led to a conversation of the differences between primary and secondary sources, which is a large part of the social science curriculum in 10th and 11th grades.

Additional Presentations

Additional examples of presentations included such areas as:

1. A PowerPoint on Roman mythology with an accompanying original student watercolor painting of "Jupiter and Thetis" by the early 19th century painter Jean-Auguste-Dominque Ingres.

2. A Roman Colosseum constructed from reinforced construction paper replete with arches.

3. Trajan's column fashioned from clay.

4. Several PowerPoint projects on marriage customs in ancient Rome.
5. A collage of Roman architecture.
6. A collage on the Roman military with a sword made from cardboard and aluminum foil.
7. A PowerPoint on the Roman Senate.
8. A demonstration of board games with a ready to play example.
9. Several PowerPoint projects on the benefits of learning Latin and its connection to the English language and vocabulary.
10. A PowerPoint project on the Circus Maximus.
11. Several presentations on food with cookbooks and sample food.

When the presentations were completed, the teacher talked with the class about the panorama of language and culture represented in their projects. She told them that she had learned from each of them, and that their perspectives on the subjects they were presenting was enlightening. The teacher told the students that she was impressed by the use of primary sources that some of them had included, the mature analysis that they presented toward their subjects, and their diligence in locating obscure and interesting facts to share with the class. She then asked them if this information would be useful to them later in the course. They responded with examples from their *Ecce Romani* textbook, such as the clothing worn by the family, the father's role in the senate, the branding of the fugitive slave from Brittany (modern England), and so on.

Questions

What is the ratio of learning among the class population? Although the members of the class were quite diverse in linguistic ability (according to the teacher's perceptions of the ability

by grades and performance in class), this did not hamper the students' abilities to navigate the WebQuest and use the hyperlinks, which they all used before accessing a search engine, such as Google. Some students were more adept at extrapolating pertinent information and examining it for applicability and meaning. Others asked help and received it from the teacher or peer. The students asking for help did not prefer either teacher or peer help; they seemed content with either. The students' particular talents seemed to attain a balance when they were perceived as part of an entire project.

What was the level of understanding? The level of learning varied among the students. Some students seemed to be more adept at noticing literal details, but did not attempt to see how they coalesced with other factors to create something broader. Other students were quite skilled in discerning the ramifications of actions and decisions made in the past and how they affected history. They seemed to be working within their proximal levels of development to create a product that had meaning for them. Some students were sophisticated thinkers; others were simpler.

In what areas of the learning were they successful? Some students excelled at the visual, and they culled outstanding pictures and images to include in their projects. Some students were excellent at reading and selecting salient information to cogently connect each point of their research. The performance assessment aspect of the project indicated these assets.

Student Questionnaire

The students answered a Likert-scale questionnaire (Appendix D) field-tested during last year's trial *Cur Latina?* project. It was composed of seven questions designed to discern

attitudinal trends among the students. The questionnaire was given to the students by the researcher who visited the class to give the students the Parental Consent Form for the questionnaire. The researcher presented the students with the questionnaire three weeks after the students had completed their *Cur Latina?* presentations to allow them to reflect on their feelings and progress. Forty-two out of the total 46 students were present. They answered the following questions anonymously to enhance veracity. Tables 3 through 9 delineate the questionnaire scale, as well as the number and percentage of students answering in each scale category. The questionnaire scale is as follows:

SA = *Strongly agree*
A = *Agree*
U = *Undecided*
D = *Disagree*
SD = *Strongly Agree*

Table 3
Question 1. Before the Cur Latina? project, I was confident in my ability to learn Latin.

Scale	Number of Students	Percentage of Students
SA	7	17
A	20	48
U	6	14
D	8	19
SD	1	2

Table 4
Question 2. After completing the Cur Latina? project, I have confidence in my ability to learn Latin.

Scale	Number of Students	Percentage of Students
SA	9	21
A	29	69
U	3	7
D	1	2
SD	0	0

Table 5
Question 3. I believe that the information presented by my peers and myself for the Cur Latina? project will be useful as we read future chapters in the Ecce Romani textbook.

Scale	Number of Students	Percentage of Students
SA	5	12
A	27	64
U	8	19
D	2	5
SD	0	0

Table 6
Question 4. I learn best if I can see how new information is connected to other information I already know.

Scale	Number of Students	Percentage of Students
SA	15	36
A	19	45
U	8	19
D	0	0
SD	0	0

Table 7
Question 5. I believe I have learned more from the Cur Latina? project (student-directed project) than if it had been a teacher-directed unit.

Scale	Number of Students	Percentage of Students
SA	11	26
A	16	38
U	12	29
D	2	5
SD	1	2

Table 8
Question 6. It was important to me during the Cur Latina? project that I could reflect and make decisions about my own learning and the project I wished to create.

Scale	Number of Students	Percentage of Students
SA	6	14
A	26	62
U	7	17
D	3	7
SD	0	0

Table 9
Question 7. I believe that I have acquired enough knowledge through my Cur Latina? research to be a source of information for my peers.

Scale	Number of Students	Percentage of Students
SA	9	21
A	23	55
U	7	17
D	3	7
SD	0	0

Interviews

Students' reactions toward instruction, activities, sources, and learning. The students were randomly selected to answer specific questions concerning their experience with the *Cur Latina?* project (Appendix E). The researcher asked the students to respond to questions concerning their attitudes toward inquiry-based research learning, in which they accumulated data and synthesized it into a unique product using oral, visual, and expository articulation. The students were interviewed three weeks after completion of the *Cur Latina?* project to allow time for reflection on their perception of their academic progress. The students were given Parental Consent Forms for the interview, and they returned them signed. The students were asked to consider the factors below with regard to their projects:

1. Self-reflection toward intellectual values and learning.
2. Self-reflection toward study strategies and project activities.

Alexis and Shelby

Alexis is in 10th grade. She had originally enrolled in Spanish; however, it was full. She decided to take Latin to fulfill the two-year language requirement. Shelby is also in 10th grade, and she took Spanish last year in ninth grade and received an F grade. This year she enrolled in Latin because French was full. Both girls are not particularly interested in language or school.

Alexis and Shelby created a fashion magazine in PowerPoint (Appendix H). They said that they chose fashion because each chapter in their Latin textbook is about a Roman family, and they became intrigued about fashions by the pictures and descriptions of the family members. They were discussing possible subjects for the project and found themselves talking about how the society in which one lives affects the clothing individuals wear.

The girls created a PowerPoint presentation parodying modern men and women's fashion magazines. They described how they borrowed the teacher's Latin dictionary to add Latin titles to sections of the Roman magazine they were creating. After repeated efforts in making adjectives agree with their nouns, the girls stated that they finally understood the concept of agreement between declensional forms because they were motivated to figure it out for their own project. They said that this "really solidified the concept" for them.

They accessed the Internet and used Google as their search engine. They located three sites with in-depth information and pictures. The girls described the outline of clothing related questions they made prior to searching and how this outline helped them stay on task and skim

for pertinent information. They also mentioned that they looked for headings and subheadings in the text to guide them to the appropriate information. The research asked them how they determined if a site was legitimate. They stated that they remember their teacher cautioning everyone about Web site validity; however, they became so engrossed in the wealth of information on the sites, as well as the professional looking layout, that they forgot.

Alexis mentioned that she often prefers books to Web sites because she does not have to think about the material's validity, and she can trust that the information is factual. Shelby said that she prefers the Internet because she can narrow a search for specifics and locate the information quickly. Both girls did agree that they could discern legitimate Web sites; however, because the sites looked so good, they simply forgot.

Alexis stated that she prefers to discover information on her own but wants the teacher to provide the initial learning. Shelby stated that she prefers teacher-directed lessons, such as lectures. Both girls mentioned that they needed the teacher to help them discern the correct word forms for their Latin PowerPoint on fashion. They had written the wrong inflectional endings on some of the words because they had not yet learned all the noun declensions. They explained that once they had the dictionary they asked their peers to help them figure out how they could switch between the English to Latin and then vice-versa to locate the best Latin equivalents for their English phrases. Both Alexis and Shelby mentioned that receiving analytical criticism of their projects and recommendations from those peers on their progress was invaluable to the success of their projects.

The girls agreed with one another that the best classes for them are a combination of teacher-directed lessons and student-directed activities. Alexis perceives the teacher's role as

providing guidance. Shelby perceives the teacher's role as the expert who allows students time to work on projects to extend their learning in personal areas. Shelby said that she never had many peers talk to her until the students told her what a great presentation she had given. She said that she felt "like an important member of a team," and that she felt special that day. She also stated that she was proud of herself for answering her peers' questions correctly.

Alexis also felt proud of herself, and enjoyed being part of a team although she described herself as usually independent. She said that she realized that she could retain her independence while working as a member of a group. The girls explained that the project helped them extend their knowledge in an area of personal interest. They stated that they believe they are more expert in this area of knowledge than the rest of the class; they are looking forward to the insights they can provide when students have questions that arise when they read certain textbook chapters.

Hailey

Hailey is in 10th grade. She enrolled in Latin because she heard it would boost her SAT scores and enhance her knowledge of English grammar. She mentioned that she did not think she was as competent in her linguistic skills as she wished to be. Her favorite activities in school are mathematics, engaging in the color guard for the school band, and being on the basketball team.

Hailey created a PowerPoint about the influences of Latin on English grammar and vocabulary (Appendix I). She began researching by using the hyperlinks embedded in the *Cur Latina?* WebQuest. After she had obtained the pertinent information from those sites, she used the search engine Google to locate additional data. She used the keywords “differences and

similarities of English and Latin," and found additional sites. She looked for the title, author, date, and responsible party to determine the validity of her sites; she used only university sites, which she included in a bibliography. The teacher had not requested one, but Hailey decided to include it anyway.

Hailey also said that she read most of the information on the sites, but she looked at the headings to categorize the information in her head. She took notes as she read. She also stated that she did not use book sources for this project; yet she would have if she had not found as much information as she did. Although she enjoys working in groups, Hailey mentioned that engaging in this project by herself was greatly appealing to her because she had definitive interests that she wished to pursue. When the researcher asked her preference in teaching milieus, she said that she would prefer to alternate between a teacher-directed environment and student-directed environment where she could pursue projects of interest to her. She explained that although she worked alone, she discussed her information with her peers in Latin class. Some of them helped her remove extraneous minutiae from her PowerPoint.

Hailey also stated that she prefers the teacher to provide background information, which motivates her to search for incidental information of interest to her. She added that although she likes student-directed activities because she enjoys working alone and with other students, she still prefers a mixture of teacher-directed lessons and student-directed activities. She said that while she worked alone on this project, she often asked other students and groups what they thought of some of her research. She mentioned that her peers' viewpoints augmented her project because she included and excluded certain information on their advice, and she was very pleased with the finished product.

Hailey mentioned that learning the Latin language this term has been a challenge and she did not always feel competent. After her presentation she felt great because the students' comments made her feel as if she were an expert. She was amazed by her own ability to answer their questions, and she realized that perhaps she was better at Latin than she originally thought.

Darius

Darius is an 11th grade student enrolled in Latin I because he had failed Spanish I. If he fails Latin, he cannot receive an academic diploma unless he stays an extra year in high school. His alternative is a technical diploma. Darius does not care which diploma he earns, and he stated that he was not interested in learning languages when he began Latin class. He explained that his research helped him to realize the Romans were real people, and now their language has meaning for him. Darius said that he cared very little about who the ancient Romans were until he began his research on ancient Roman military weapons (Appendix J).

Darius explained that he was very uninterested in the project when he began. He did not know which of the three tasks to pick because he really did not care, and tried to get other students off task. He says he became interested when the teacher related his personal interests (sports and action films) to the subject of the Roman military. The teacher told him to also look under task 3 at the hyperlink on Roman military located in the WebQuest. Darius said that as a child one of his favorite movies was *Spartacus*. He thought about focusing on gladiators instead of the military. After careful deliberation, he chose weaponry, specifically the *gladius* sword because he was interested in the pictures and descriptions of various weapons, and the influence

that the *gladius* (dagger-sized Roman sword) had on Western cultures until the nineteenth century.

Darius also related how he grew interested in his project, and occasionally needed help using general search engines, such as Google. He had initial difficulty focusing upon keywords to locate additional internet sources and distinguishing between a professionally written site and a spurious site. Darius mentioned that he received help from other students who shared their research and information retrieval strategies with him. His skepticism and selectivity grew with each visit until they were able to discern the sites from which they could quote and gain objective information.

Darius did not choose to use any books in his research; however, he did print out articles to take home so that he could design his own *gladius*. Darius stated that he took the articles home because he is a slow reader. He mentioned that he also borrowed an English dictionary from school to define the words in the article that he did not know. He stated that he normally did not engage in this kind of work behavior, but that it "felt good being an authority on a subject." He mentioned it was helpful to come back to class and discuss his findings with other students. He enjoyed being part of a group while working on his own project.

Darius mentioned that he preferred working on the WebQuest activity even though it was more work for him. Darius' enthusiasm for inquiry-research projects also stems from the popularity he gained via his oral presentation. He enjoyed showing the class his collage of ancient Roman military weapons from the 1st century B.C.E to the 2nd century C.E. He said that he felt like an authority when the students repeatedly asked him questions about the weapons, and he was amazed at himself that he knew the answers from his research.

Darius also made a *gladius* out of cardboard and aluminum foil, and displayed the stabbing motions soldiers used when engaged in battle. He said that prior to presenting his collage and *gladius* to the class, he did not believe he was going to pass Latin. He thinks he may pass it now because he feels important in the class, and he will study. He said that while he knows he is not recognized as knowledgeable in language, he now holds the class reputation for expert on Roman sword styles.

In contemplating his progress and his learning style, Darius posited that he is the type of person who must experience things to learn from them. When asked how that could be possible in learning grammar forms, and translating Latin, he responded that the projects and stories about Rome motivated him to learn about the real Romans, and that this makes studying a little more palatable. He stated he does not care about high grades, but does want to learn when the information is relevant.

Jared and Becky

Jared is a ninth-grade student. He took Latin because his brother, who is a senior, told him it would increase his SAT scores. Jared's brother had taken Spanish, and reflectively wished he had taken Latin. Jared was not interested in language until he realized how many Latin root words he knew from English. Becky is also in the ninth grade. She took Latin because Jared was taking it. They explained that they have known each other since sixth grade, and this year they have decided to date one another. Becky was not particularly interested in Latin, but she mentioned that she enjoyed the project because it made the Roman people seem real to her, and learning their language does not seem as "weird" to her now.

Jared is very sports oriented. He is on the football team and is in weight-training class. When he is at home, he spends as much time as possible outside with his friends. Becky stated that she enjoys being on the track team. She stated that she most enjoys the social aspects of school. When she is home, she also likes to visit with friends. They both mentioned that their project helped them understand that the world in which the ancient Romans existed. They researched Roman board games, and created one to demonstrate to the class (Appendix K).

Jared and Becky explained that they selected Roman board games after listening to their class peers' choices of projects. They did not want to research the same topic as anyone else. The idea of their becoming an authority on a topic intrigued them. They decided to explore Roman entertainment because no one else had thought of it. They clicked on the Google hyperlink in the *Cur Latina?* WebQuest, and typed the keywords "Latin games." This brought them to various links, many of which were outdoor sports played by the ancient Romans. At one of the sites, they read about Roman board games. This really interested them, and they went back to Google and typed the keywords "ancient Roman board games."

Jared and Becky found three sites with a wealth of information, and they compiled their research from those sites. They did not use books, nor did they notice who was responsible for their Web sites. They trusted the validity of the sites by the professional look; however, they mentioned that their teacher told them to take notice of the site's originator to ascertain its validity as a reference source. They read the information together. Jared mentioned that Becky was better at skimming, and he found it helpful that she was able to help him skim through the subject headings in order to ascertain pertinent keywords. Becky mentioned that Jared was better at details.

Jared and Becky think they make a good team because of their differences. They both stated that they enjoy discovering information on their own and interacting with peers in the interpretation of some of their discoveries; however, they also like to have the teacher teach traditionally, so that they gain a basic knowledge. They think that they can then focus on a research area and learn it well on their own. The idea of selecting their own topic really excited them.

The researcher asked Jared and Becky to describe how they feel about their presentation and knowledge of their research topic. They proffered that they could teach an additional class on Roman board games and their ties to modern board games. They mentioned that three characters in the *Ecce Romani* textbook are teenagers, and they could imagine them playing these games on days when they could not go outside. They were very proud of the board game they recreated, especially after someone in the class said that they could sell it and the whole class agreed. They also enjoyed answering the many questions the students asked of them. They said that they "felt like teachers."

Ms. Blake

Ms. Blake has a bachelor's degree in Latin, and a master's degree in Teaching English as a Second Language. She majored in Latin because she enjoyed it at college; however, she thought that she would extend her employability by earning a degree in teaching English as a second language. She entered the Peace Corps after completing graduate school. When she returned to the United Stated a year later, she obtained a job teaching Latin at a high school where she stayed until she came to the current High School.

Ms. Blake mentioned that she was drawn to Latin by her college teachers who taught the language. She stated that she is not particularly interested in ancient culture; however, she has tried to compensate for this by reading background information and viewing videos. She stated that the *Cur Latina?* WebQuest took the focus off her as the authority on culture, and placed it on the students. She felt that this worked well for herself and her students. She knew she would place the responsibility on her students to think about the answers to questions that would inevitably arise as they read the textbook this year. The students have already begun asking cultural questions that emanate from the readings; however, they are looking to each other for those questions. Sometimes the expert student cannot answer the question, which incites other students to research the answer. She mentioned that the next day they will come to class to challenge the expert student, but so far, they have located the answers.

When asked about her disinterested students, Ms. Blake mentioned that the students who were initially complaining about Latin are no longer doing so. She asked them privately how they felt about the class since they had presented their *Cur Latina?* projects, and they said that they now felt themselves to be a part of the class, and that they would have to study since the other students were depending on them. A few said that they changed their minds about dropping Latin at the end of the year. They now intend to continue into Latin II. Ms. Blake noted that many of them have been completing their homework and studying for exams. Their grades have increased as the term has progressed.

Ms. Blake mentioned that the *Cur Latina?* project integrated well with the *Ecce Romani* textbook. She said that every chapter revolves around the experiences of an upper class Roman family and their dealings with members of other economic classes and slaves. Each chapter

introduces a new topic. The students' *Cur Latina?* projects complement many of the cultural topics that have been and will be addressed in the textbook. She articulated that she was happy when the students began to give her examples from the textbook concerning the complement of the students' projects and the cultural and linguistic subjects addressed in the text. She also stated that the project created an environment that engendered an enthusiasm for learning in which her students developed stronger work ethics, study habits, and persistence with difficult tasks.

Ms. Blake stated that some of the revisions she has already contemplated for next year are the inclusion of a bibliography to help students notice the validity of their sites, no separate essay will be required beyond the writing that accompanies the projects and presentation. She will also show them other means of expressing themselves besides PowerPoint presentations; however, she will allow them to use that design venue if they wish. Training on multimedia programs will also be an initial aspect of the *Cur Latina?* WebQuest project. Ms. Blake also mentioned that the entire research project seemed to flow better when the students began to recommend changes in the project. She will expect that to be an embedded aspect of the project when she engages next year's Latin I students in the *Cur Latina?* project.

Propositions

Recurring Themes

The social milieu of human beings is a "dynamic construction that is fabricated, maintained, and modified by people during their interaction with each other and their environment" (Hopkins, 2002, p. 192). Triangulation, of the data and methods of data collection, helped the researcher discern significant behaviors and trends that permeated the observations,

performance assessments, interviews, and questionnaires. Using these tools to categorize multiple sources of data enabled the researcher to epitomize the patterns that derived from the data, and establish the validity of the following propositions. Using Kemmis and McTaggart's (2000) participatory action research cycle as a model, the researcher focused on motivation, self-efficacy, and academic autonomy as the stimuli for the participants' (teacher and students) action and reflection. The researcher and participants used the action research spiral of planning, implementation, and reflection to understand and effect ameliorations in their practices.

Observations

1. Many students prefer to work with electronic sources of learning.
2. Many students discuss ideas about their subjects within their groups and outside of their groups.
3. As the research progressed, students displayed greater personal control over their project. The teacher made fewer personal changes, but used students' ideas as a springboard for change.
4. As the students collaborated and worked on their projects and the teacher's authoritative role decreased, the students' respect and reliance on one another as colleagues increased.

During the observation data collection, as each of the three cycles of action research was implemented, students engaged in action and reflection. The researcher and teacher met to plan prior to each of the three class visits to the media center, which was the research milieu. The students instituted changes while they engaged in research as well as after reflecting on their own, with peers, or talking with the teacher. As the students progressed through the research phase of the action research study, their motivation self-efficacy, and academic autonomy

seemed to increase as they grew independent of the teacher, and viewed research as a requisite to establishing an inclusive understanding of the phenomenon they were studying.

Performance Assessments

1. The class displayed respect for one another as the presentations ensued.
2. Students seem knowledgeable of their projects' subjects.
3. Students displayed a confident demeanor when questioned by the class.
4. The students politely supported one another and discussed concepts with which they agreed and disagreed.

The students effected innovations to the original performance assessment guidelines presented to them by their teacher, as well as introducing logical and creative process questions, answers, and new strategies that their peers could use while they presented their projects. As the performance assessment ensued, the students isolated strengths and weaknesses in the content and presentation of their own as well as their peers' projects. Collaboratively, they reflected, refined, adjusted, and synthesized new ideas and information into their projects as they progressed through this phase of the study.

Questionnaire

The following results are indicative of 42 students present on the day the questionnaire was proffered:

1. Responses in questions 1 and 2: 90% of the students reported confidence in their ability to learn Latin after completing the *Cur Latina?* WebQuest. That is 25% higher than the confidence level before they began the *Cur Latina?* project.

2. Responses in question 3: 76% of the students reported that the knowledge generated from everyone's projects integrated well with the information in their Latin textbooks.

3. Responses in question 4: 81% of the students reported that it was important for them to know how information is connected to other information.

4. Responses in question 5: 64% of the students reported that they believed they learned more from the *Cur Latina?* project than if it had been a teacher directed unit. Nineteen percent of the students were undecided as to whether one method would yield more tangible benefits. Only 5% (2 students) thought that they did not learn more from the *Cur Latina?* project than if it had been a teacher-directed unit.

5. Responses in question 6: 76% of the students reported that it was important for them to reflect upon and make decisions regarding their own learning during the *Cur Latina?* research process.

6. Responses in question 7: 76% of the students reported that they felt confident in their content knowledge to instruct the class and be a source of information on that particular subject.

Interviews

1. Students preferred the Internet as the source for information.

2. Students preferred a combination of student-directed learning activities with teacher-directed learning activities, such as lectures and discussions.

3. Students described their interactions with peers as one of respect and academic unity.

The questionnaire and interviews indicated that the participants analyzed and reflected upon the weaknesses and strengths of their practice, and the methodologies most applicable to their learning style. The high level of critical analysis toward their own behavior, self-perceptions, and the structure of the *Cur Latina?* project was necessary for the students to understand how becoming proactive and assertive toward their learning affected their academic lives. The teacher's interview revealed her belief that the students' increasing engagement in experiential learning augmented their motivation, self-efficacy, and academic autonomy.

Summary

Two consistent themes emerged from the observation, performance assessment, questionnaire, and interviews:

1. Placing students in a position where they are responsible for designing certain elements of their learning helps them to develop a balanced attitude between their personal interests and academic responsibilities. Personal autonomy increases their motivation to work toward achievement or rational solutions and goals.

2. Building a knowledge base in a tangential yet inherently important aspect of a subject enhances students' self-efficacy in that particular aspect. Competence in one academic zone can increase students' feelings of overall self-worth. This can sustain them when they struggle with other related studies, such as Latin grammar.

Student questionnaires and interviews revealed that many students preferred information to be presented holistically. They preferred to see knowledge building upon itself in its relation to a greater whole. Perceiving themselves as an important aspect in the search for connected knowledge enhanced their academic autonomy and motivation to learn.

In synthesizing the information, which they culled from their research on linguistic or cultural influences on the English language and Western society, each student proffered a piece of the jigsaw puzzle that coalesced with the other students' presentations into a broad spectrum of knowledge. Aristotle surmised that the sum of the parts that comprise a whole would form together to create something other than the parts. In presenting their information, the sum of knowledge acquired from each of the students surpassed their individual contributions and created a whole that was replete with diverse perspectives, which reflected the predilections and intellect inherent in each student.

CHAPTER 5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The origin of action-its efficient, not its final cause-is choice, and that of choice is desire and reasoning with a view to an end. This is why choice cannot exist either without reason and intellect or without a moral state; for good action and its opposite cannot exist without a combination of intellect and character.

-Aristotle, Nicomachean Ethics

Summary

The research problem that initially energized this action research study asked the following question: Can experiential methodologies, integrated into the core of the Latin I curriculum, enhance student motivation, self-efficacy, and academic autonomy in a heterogeneously grouped Latin class? Students who enroll in Latin are not always cognizant of the intellectual commitment they must generate to successfully learn the Latin language. Consequently, a variety of Latin students may encounter the following problems: a) they do not realize the requirement in studying that is necessary to successfully learn a morphologically rich language, such as Latin, b) motivation wanes during adolescence, and c) struggling students in heterogeneously grouped classes often do not ask for help in understanding difficult concepts.

The *Cur Latina?* WebQuest helped the students adapt to the academic environment of the Latin class by facilitating their ability to be successful in one component of the class. The WebQuest included the following elements, which substantially influenced and increased the students' motivation and self-efficacy in inquiry strategies and specific content knowledge: (a) encouragement of self-determination, (b) the development of goal orientations that increased student success, (c) an environment that sustained various temperaments, and (d) stimuli to dispel negative attributions that some students initially applied to learning Latin. In her

interview, the teacher stated that these elements expanded the students' opportunities to develop successful academic habits, such as perseverance, study habits, and enthusiasm for learning.

Some of the Latin students who were interviewed had negative experiences with a prior language, and this initially affected their motivation toward Latin; they did not believe that they would succeed in learning Latin. The WebQuest inquiry model, which integrated inquiry research with technology, facilitated the students' access to information. It helped to sustain motivation through its relevance to students' intellectual desires, use of alternative assessment that blended learning and assessment, and enhancement of academic autonomy through which students directed their own learning during their engagement in the *Cur Latina?* WebQuest. The students selected topics of pertinent interest. They propelled and controlled their own learning through performance and authentic assessment, and they chose the parameters within which they were comfortable working.

Many adolescents consider studying to be an isolating endeavor. Allowing the students to work collaboratively and discuss informational relevancy with one another enhanced their cognitive, behavioral, and motivational connection to their projects. Inductive thinking is a prominent feature of both the *Ecce Romani* textbook and inquiry learning, which combines inductive and deductive thinking. While engaged in the *Cur Latina?* project, the students used inductive thinking and prior knowledge and experience to generalize about information and to create meaning. They also used deductive thinking to make deductions from the given facts that were known. The use of inductive thinking in the *Cur Latina?* research project generated a heuristic approach to learning in which students could attain a level of expertise in their selected

aspect of classical culture or Latin language. The project integrated the students' areas of expertise into the current textbook-driven curriculum, and increased transference of learning.

Achieving competence in an interrelated area within the subject of Latin augmented the students' self-efficacy in that area. The students worked in units, dyads, and triads researching scaled down projects selected from the following broad tasks: (a) the history of the Latin language's relevancy to the English language, (b) how the vocabulary and structure of the Latin language compares with the English language, and (c) how Latin has influenced Western culture. The research strategies and specific knowledge gained through the *Cur Latina?* project enhanced the students' self-regulation for studying the grammatical and syntactical aspects of the course. Many of the students displayed increased self-efficacy, academic diligence, perseverance, and the motivation to learn.

Integration of Practical Tools into Learning

Scaffolding, task segmentation and peer collaboration. The *Cur Latina?* WebQuest encouraged students to develop heuristic methodologies for discovering and designing a framework through which to communicate their learning. Research projects have various facets that confuse students, such as where to look for information, how to select pertinent information, how to categorize the information, and how to make sense of the information. When the project looks massive, problem solving and inquiry can be overwhelming to students (Hmelo-Silver, 2002). Deconstructing the whole project into manageable tasks, as in the *Cur Latina?* WebQuest, helped inexperienced and struggling students engage in self-directed learning because they received supportive feedback during and after each subtask was completed.

Cur Latina? was designed to assist the students in becoming classroom authorities (via inquiry, research, and presentation) on their chosen aspect of classical culture or Latin language. It combined inquiry with technology (Table 10) to segment the project into separate tasks, and this helped to maintain the students' motivation and their ability to self-regulate throughout the research project.

Table 10
Segmentation of Tasks in the Cur Latina? WebQuest

WebQuest Task Segmentation	Description
Preface	Pre-research.
Introduction	Leading questions provided a brief engagement into critical inquiry.
Task	Goals were explicated, and initial planning was begun.
Process	Students engaged in collaborative research.
Evaluation	Students analyzed their own work and their peers' work to gain strategies for future research and implementation of ideas in diverse modes: expository, oral, multimodal, and so on.

The teacher facilitated, as the students availed themselves of the proffered scaffolding, which included such resources as critical analysis with peers, and embedded hyperlinks, rubric, and glossary.

The students encountered a broad spectrum of activities that demanded many abilities and talents to cooperatively achieve successful synthesis of all the components into a finished

product. The students each possessed a portion of the learning, and they supported each other because they shared a common goal in which they were personally and communally responsible for contributions to create a complete project. As the students succeeded, their motivation, self-efficacy, and academic autonomy in that area increased. This created an iterative cycle in which motivation, self-efficacy, and academic autonomy were mutually affected by one another.

Conclusions

The researcher looked for convergent themes regarding motivation, self-efficacy, and academic autonomy that derived from her own perceptions and those of the students and the teacher. The observations, performance assessments, questionnaire, and interviews indicated that the students' academic and leadership roles increased as the teacher's direct influence decreased. Graham, (2003) posited that motivation, self-efficacy, and academic autonomy are an integral aspect of metacognitive thinking when an individual reflects on learning. Metacognition helped the students' discern how their learning strategies connected to an intellectual outcome.

The students, in their interviews, stated that they discussed their projects with their peers, and because of their peers' perspectives, the students instituted ameliorations to their topics, research strategies, and project goals. They also reflected on how the information related to their lives and the metacognitive strategies in which they engaged while researching their projects. The Internet was also the students' preferred means of information retrieval because it was easy to use, they could access the information from anywhere, and they could print out pertinent sections of interest rather than entire articles.

Heightened self-efficacy produces increased intrinsic interest, which motivates students to select demanding academic endeavors (Zimmerman, 1995). Observation disclosed that those students who originally complained about the perceived challenge of additional work ceased their complaints when they began to evince success in those endeavors. The students increasingly behaved toward one another as intellectual colleagues, which was evident as they took control of their projects and collectively altered and expanded their view of the overall project.

As the students' knowledge level increased, they displayed heightened respect for their peers' knowledge. Many of the students appeared confident during the presentation, questioning and discussion aspects of the performance assessment phase of the research. Bandura (1993) stated that students' realistic perceptions of high self-efficacy attributed to an increase in their academic achievement that could surpass their academic ability. Some of the students who received low scores on their Latin grammar exams displayed high self-efficacy in creating unique projects that evinced their understanding of their chosen topic. The teacher stated that the ability those students demonstrated in this project far surpassed their prior academic behavior and her expectations.

Integration of Learning/Experiential Learning

The results from this study indicate that experiential activities as embodied in the *Cur Latina?* research project do enhance motivation, self-efficacy, and academic autonomy in Latin I students. The students' questionnaire results and interviews indicated that the *Cur Latina?* inquiry project enhanced their knowledge base, critical-thinking and problem-solving strategies,

academic autonomy, and collaborative abilities. Student interviews revealed that they preferred a combination of teacher-directed and student-directed activities.

Experiential learning (student-directed) activities extend learners' thinking, and provide transference to other areas of knowledge. Critical reflection is an essential component of experiential learning. Reflection enhances an individual's critical thinking processes and increases transference. Reflection instigates the perception of coherency of information, which precedes understanding (Dewey, 1910). Seventy-six percent of the students felt that reflection was important to them, and 81% felt it was important for them to see how ideas connected.

The questionnaire revealed a 25% increase in the confidence level of the class after engaging in the *Cur Latina?* WebQuest, which culminated in a 90% confidence level of the class. This was obvious during the presentations by the competent and confident demeanor of students whom the teacher had previously described as high-risk and moderately interested or disinterested in Latin. The students seemed to understand that their expertise would be needed throughout the course because 76% of them reported that the knowledge gained from their projects would be an integral aspect of the course as they encountered related cultural and linguistic information throughout the textbook.

The *Cur Latina?* research project encouraged students to develop expertise in areas that they would encounter throughout the Latin I curriculum and textbook, *Ecce Romani*. The students' self-efficacy in Latin increased because the knowledge they independently studied was integral to the Latin translation excerpts that they encountered in each chapter. Therefore, many students who developed self-efficacy in an interrelated area consequently increased their

academic autonomy, self-regulation and motivation to work more diligently in other aspects of the subject.

In the *Nicomachean Ethics*, Aristotle stressed that human beings should combine practical and intellectual wisdom in order to achieve balance in their lives. He believed that this would help them avoid extreme perspectives, and choose an applicable solution that would be in consonance with a particular situation. Aristotle believed that individuals could develop practical and intellectual wisdom as they learned through experience. The influences on this study can be traced back thousands of years to Aristotle; however, the theories of scholars such as Dewey (1910; 1938), Kolb (1984), and Rogers (1994) contained ideas that were in accordance with Aristotle and the Greek philosophical tradition from which many of his theories generated. Therefore, these scholars were equally influential to this study because they posited that human beings learn best through a recursive synthesis of practical experience, creation and transference of new knowledge and thought processes to different situations, and theoretical and critical reflection upon experiences.

Recommendations

General Recommendations

The results of this study may be used in courses similar to Latin I, which have diverse components, such as culture and linguistics; however, the course must possess cohesion between course components by enabling students to create coalescent and familiar associations as they integrate their shared areas of expertise into new units, such as grammar and syntax. Efficacy beliefs are different for different subjects, and they are usually context specific (Zimmerman,

1995). For example, students may possess proficiency in researching and synthesizing information and knowledge into multimodal presentations. However, students' proficiency and heightened self-efficacy in one area may not necessarily transfer to another context, such as Latin grammar, unless the areas in which they have grown proficient are integrated into the entire curriculum and students use their new skills in unison with Latin grammar (Ormrod, 1999).

Efficacy beliefs in one subject area usually will not transfer to another subject area that does not share similar patterns of thinking; therefore, the results of this study are not generalizable to other subject areas. If one looks at the subject of mathematics as an example, one's sense of self-efficacy in Latin will not automatically transfer to one's conception of ability in learning mathematics (Mayer, 2004; Thorndike, 1925). The requisite skills that augment success in Latin and mathematics are not correlative to one another: for example, logical strategies and formulaic redundancies in Latin are morphologically constructed, whereas the formulaic redundancies inherent in mathematics are numerical in nature.

Recommendations for Further Research

Research studies on affective changes in Latin students are scarce. Additional studies would elucidate affective elements of such subjects as Latin, Ancient Greek, Sanskrit, and Old English, where the emphasis on language is predominantly written. Qualitative studies concerning affective states of mind, such as self-efficacy, motivation, and academic autonomy, which can function as catalysts to learning in the moribund and dead language classroom, would

be beneficial in discerning similarities and differences from this study in order to note confluent patterns that teachers can use to enhance language learning in their classrooms.

Qualitative studies on the effectiveness of integrating inquiry learning and technology would also be beneficial to understanding learning in the moribund and dead language classroom. Student emphasis in selecting electronic sources was evident during the student research phase of this action research study. A possible explanation could be that the use of technology affected the students' acceptance of experiential learning more readily than if they were limited to print sources. This should be explored to ascertain if it is a valid assumption. It was beyond the scope of this action research study; therefore, it was not explicated in detail.

Limitations

This localized study was developed for the Latin students attending the high schools in the Rockdale County School System, where all high school language classes are heterogeneous, and the populations that constitute each high school are similar. Therefore, the results of the study cannot be generalized to a broad population; however, the results may be examined and used in school systems with high school Latin classes, which are correlative to the Rockdale County School System.

Closure

Pivotal moments can change people's lives; however, if an individual is not ready for it, an epiphany may pass unnoticed. In an intellectual setting, where learners have been practicing metacognitive and reflective thought, an epiphany may strike a chord and linger in that learners'

mind as a "turning point" (Stringer, 1999, p. 180). Students who experience turning points during their engagement in a particular course can begin to view learning as an important aspect of their lives. They can become curious about a topic, and they realize that persistence will increase their ability to overcome frustration when the work becomes difficult (Lepper, 1988).

Folktales, such as *The Tower of the Forty Dhrakos and the King of the Golden Apple* in chapter 1 of this action research study, reflect the human condition and often depict individuals who experience turning points and miraculously transform their lives through their experiences. Although the route to autonomy can be as difficult and circuitous as it was for Phiaka, in the real world one's equanimity can increase as one becomes more experienced. Individuals do learn to achieve balance in their lives, and students do accumulate knowledge through reflection and action.

Providing the opportunities for students to connect with academic endeavors increases the chances that they will use the knowledge gained from these experiences in other avenues of their lives. Reason, intellect, and morality form the underlying foundations in the choices students make, and this augments their ability to learn by using both their intellectual knowledge and their practical knowledge.

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APPENDIX A

CUR LATINA?

Click above to learn the benefits of Latin study.

CUR LATINA?

All Latin phrases have translations in the glossary. Click under each Latin phrase you read!

By
Janet Campbell Wagman

Poets that lasting marble seek
Must carve in Latin or in Greek
~Edmund Waller, Of English Verse: 1686~

Click on the terms below to move quickly among the sections of the WebQuest.

Cur Latina?	Introduction	Task	Process	Evaluation	Glossary

Click on the Latin sentence below for an English translation.

Bonam fortunam, diligentem Fortuna iuvat!

INTRODUCTION

Click above to return to the beginning

Why is it a tradition for a bridegroom to carry his bride over the threshold of their home, and why did the bride wear a veil? Why do drivers in certain modern countries drive on the left side of the road? Why should we not end a sentence (in formal writing) with a preposition? Why are the Romance languages related to Latin? Why are there more vocabulary words from Latin than any other language in the English language dictionary? Curious?

Congratulations! You are about to discover the answers to these questions and many more. You have decided to study Latin, the language that bears the distinction of having been the lingua franca of the ancient world. As you traverse this year of study you will come to understand the value of attaining this knowledge. It is through this quest that you will gain an appreciation for the language of a culture that lasted for so long. The truth is that Rome has never fallen. Our culture has been inexorably influenced by the ancient Romans, a people who absorbed the best from all the cultures with whom they came in contact.

[Click on the underlined sentences and phrases below to learn more!]

Lege et disce de Roma!

Brief History of Rome

The Colosseum

Click on the Colosseum, and read the top ten reasons to study Classics.

Quamdiu stabit Colyseus stabit et Roma.
Quando cadet Colyseus cadet et Roma.
Quando cadet Roma cadet et mundus.
~Venerable Bede 7th century AD~
As long as the Colosseum shall stand, Rome shall stand;
When the Colosseum shall fall, Rome shall fall;
When Rome shall fall, the world shall fall.

Task

Click above to return to the beginning

Working in units, dyads, or triads, you will research the wonderful world of Latin that is available to you on the Internet, in order to cull information in one of the following areas:

Repertor unus — Research the history of Latin in its relation to English.

Repertor duo — Research how Latin benefits vocabulary and English language skills.

Repertor tres — Research how classical culture has affected Western society?

You will synthesize your research into an essay consisting of a minimum of two-typed pages. A presentation is also required. You may use any means you wish to create a unique presentation: oral, physical, musical, etc.

Process

Click above to return to the beginning

The essay is the culmination of your research. It must be well written, and informative. Look for at least four salient points to include in your essay. You may add other interesting details to heighten the quality of your essay. The sights below are tailored for your research; however, please use other Web sites that you have located on your own.

Search Engines

Google
Altavista
Yahoo

Repertor Unus:

Latin Language Overview
A Brief Look at the History of Latin and English
The Origin and History of the English Language
Latin and English: An Historical Overview

Repertor Duo:

Latin in English, Part I
Latin in English, Part II
Why Learn Latin
Thinking of Going to College: SAT

Repertor Tres:

Latin and Culture
Roman Architecture
Latin and Music
Marriage Customs
Travel
Mythology
Weapons
Do Presidents Wear Togas? Neoclassicism in America

EVALUATION

Click above to return to the beginning

Objectives	Tiro (70-9) *Beginner*	Sedulus (80-9) *Plodder*	Eruditus (90-9) *Learned*	Eximius (100) *Exceptional*
Scientia	You have included little information, and are unable to answer basic questions about your topic.	You have included the basic information, and can answer basic questions about your topic.	Your knowledge of your topic exceeds the basic facts. You are able to answer questions with explanations and elaboration.	Mirabile Cognitu!
Grammatica et Scriptio	You have grammatical and/or syntactical errors that mar your work.	You have few grammatical and/or syntactical errors.	Your syntax and use of grammar gives your work eloquence, synthesis, and symmetry.	Mirabile Scriptu!
Oratio	You have presented disorganized and unclear ideas. It is difficult to understand your presentation because there is no sequence of information. Your visual aids do not relate to the topic, nor do they support the presentation.	You have presented your ideas clearly in relation to your life and the culture in which you now live. Your visual aids relate to the text and presentation in a basic way.	You have presented your ideas logically, concisely, and articulately. Your visual aids reinforce the ideas presented and add significantly to the presentation. You have clearly integrated the knowledge with your own interpretation and creativity.	Mirabile Dictu et Visu !

Glossary

Click above to return to the beginning

Click on the English terms below to return to the words in context:

Bonam fortunam, diligentem Fortuna iuvat! Good luck, Fortune helps the diligent!
Cur Latin? Why Latin?
Grammatica et scriptio Grammar and syntax (sentence structure)
Lege et disce de Roma! Read and learn about Rome!
Mirabile Dictu et Visu! Wonderful to say and see! (Amazing presentation!)
Mirabile Scriptu! Wonderful to write! (Wonderfully written!)
Mirabile Cognitu! Wonderful to learn! (Amazing display of learning!)
Oratio Faculty of speech
Repertor unus Discoverer one
Repertor duo Discoverer two
Repertor tres Discoverer three
Scientia Knowledge

Click below to
RETURN TO THE BEGINNING

APPENDIX B

CUR LATINA? STUDENT SURVEY

1. Age. _____
2. Grade Level. _____
3. Gender. _____
4. Languages (besides English) that you speak fluently.

   _____

5. Languages you have studied, and span of the course (months, year(s).

   _____

   _____

6. Why did you select Latin as your foreign language? Please explain in detail. _____

   _____

   _____

   _____

APPENDIX C

CUR LATINA?
PROJECT REQUIREMENTS

Presentation Requirements

1. Presentation must contain at least five correct and important facts that you and your group member(s) discovered in your research.
2. Pictures and words must pertain to your topic to receive credit.

Expository Rubric

Optimum!

1. Thesis is present, and directly supported throughout the essay [18-20 pts].
2. Well-written, with no grammatical or syntactical errors. Sentences are elaborate, clear, accurate, and contain detailed information that supports your thesis [45-50 pts].
3. Focused paragraphs are organized sequentially with smooth transitions [18-20 pts].
4. There are no critical comprehension errors (factual errors) [9-10 pts].

Bene!

1. Thesis is present, and most points are supported [16-17 pts].
2. Well written, with few grammatical or syntactical errors. Sentences are clear and most support your thesis [40-44].
3. Most paragraphs are organized sequentially with smooth transitions [16-17 pts].
4. There are one or two critical comprehension errors (factual errors) [8 pts].

Medium

1. Thesis is present, but vague with little support. Content strays from thesis [14-15 pts].
2. Adequately written (contains three or more grammatical and syntactical errors), some points may contain errors or irrelevant information [35-39 pts].
3. Organization is awkward; statements are out of place, problems with introduction/conclusion, lack of topic sentence [14-15 pts].
4. There are three or four factual errors [7 pts].

Mediocris

1. Thesis is confusing with no support. Content strays from thesis [11-13 pts].
2. Poor writing style (four or more grammatical and syntactical errors) with little or no specific details, essay contents do not support the topics [32-35 pts].
3. Few paragraph transitions, topic sentences, organizing support. Essay is confusing to the reader: lacks proper paragraph construction, introduction or conclusion, and lacks topic sentences [13-15].
4. There are five or more factual errors interfering with comprehension [6 pts].

Cur Latina? Presentation Guidelines

What Do I Include in My Project ?

- Your presentation should reflect the knowledge you have accumulated on your topic. Format your presentation in the following order: Begin with an **introduction**, move on to the **body** of your presentation that includes the factual information, and end with a **conclusion** that summarizes the presentation and includes your interpretations of a few key ideas.
- Your presentation should reflect factual information, and your interpretation of some of the facts.
- Your presentation should demonstrate an integration of knowledge, interpretation and creativity.

What Presentation Format Can I use?

Examples:

- Multimedia presentations, such as MS PowerPoint.
- Architectural and artistic recreations, such as a Roman building, statue, painting, etc.
- A collage representing aspects of your topic.
- Multi-page newspaper (MS Publisher).

How Do I Present My Topic?

- ✓ Write the spoken part of your presentation on index cards.
- ✓ Practice your presentation in front of a mirror or in the presence of a person whose opinion you trust: Speak slowly, clearly, and loudly, and use body gestures that coordinate with your presentation.
- ✓ Know your topic, and practice using any equipment that is necessary to display your presentation.

APPENDIX D

Cur Latina? WebQuest Questionnaire

SA = *Strongly agree*
A = *Agree*
U = *Undecided*
D = *Disagree*
SD = *Strongly disagree*

Please circle the attitude that best fits your perception. Please refer to the chart above.

1. Before the ***Cur Latina?*** project, I was confident in my ability to learn Latin.	**SA**	**A**	**U**	**D**	**SD**
2. After completing the ***Cur Latina?*** project, I have confidence in my ability to learn Latin.	**SA**	**A**	**U**	**D**	**SD**
3. I believe that the information presented by myself and my peers for the Cur Latina? project will be useful as we read future chapters in the ***Ecce Romani*** textbook**.**	**SA**	**A**	**U**	**D**	**SD**
4. I learn best if I can see how new information is connected to other information I already know.	**SA**	**A**	**U**	**D**	**SD**
5. I believe I have learned more from the ***Cur Latina?*** project (student-directed project) than if it had been a teacher-directed unit.	**SA**	**A**	**U**	**D**	**SD**
6. It was important to me during the ***Cur Latina?*** project that I could reflect and make decisions about my own learning and the project I wished to create.	**SA**	**A**	**U**	**D**	**SD**
7. I believe that I have acquired enough knowledge through my ***Cur Latina?*** research to be a source of information for my peers.	**SA**	**A**	**U**	**D**	**SD**

APPENDIX E

INTERVIEW QUESTIONS

Student Interview Questions

1. Why did you enroll in Latin I?
2. Are you interested in language?
3. What type of school and non-school activities do you enjoy most?
4. Are you interested in ancient cultures?
5. Which task did you select? What were some of the particular reasons why?
6. How did you locate your sources (hyperlinks, general search engines, print sources, etc.)?
7. Please describe some of the hyperlinked sites, which you visited.
8. Please describe your method of isolating and extracting important information from the sites.
9. Do you prefer books in which you may consult the index, or do you prefer the web-like connections of the Internet?
10. Do you enjoy discovering information on your own?
11. Do you have a preference in classroom environments (examples: student-directed with collaborative lessons, teacher-directed with lectures and discussions)?
12. Please describe the project you developed?
13. Please describe the expertise level you believe you have achieved concerning your chosen topic, and if this will affect your performance in Latin class.

Teacher Interview Questions

1. What academic degrees do you possess?

2. Why do you teach Latin?

3. Which first interested you in majoring in Latin: ancient cultures or the language?

4. What are some of the particular reasons why?

5. Do you or do you not think *Cur Latina?* integrated well with the Latin I curriculum and textbook?

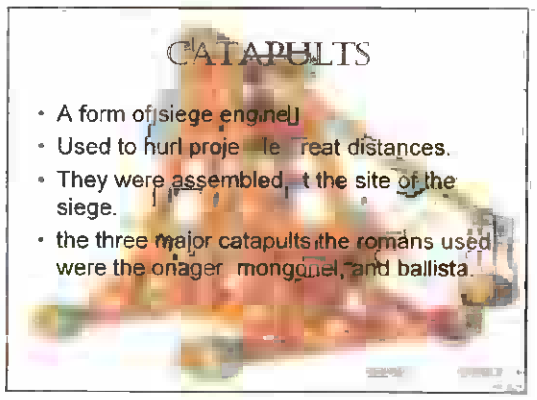
6. What do you think of this project's emphasis on inquiry and collaborative research as a method of learning?

7. Do you intend to engage your Latin I students in *Cur Latina?* again next year?

APPENDIX F

Roman Weaponry

Figure F1. PowerPoint Handout 1



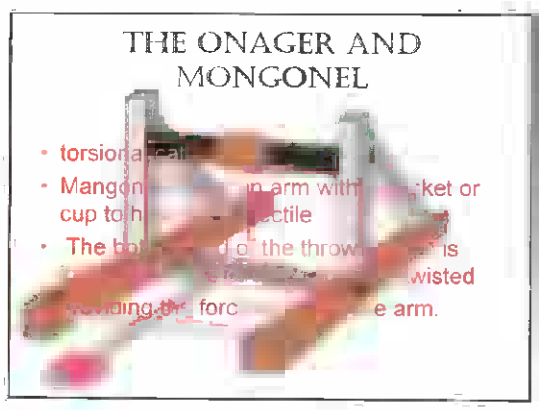


Figure F2. PowerPoint Handout 2

Roman Weaponry

Onager (Catapult) Model

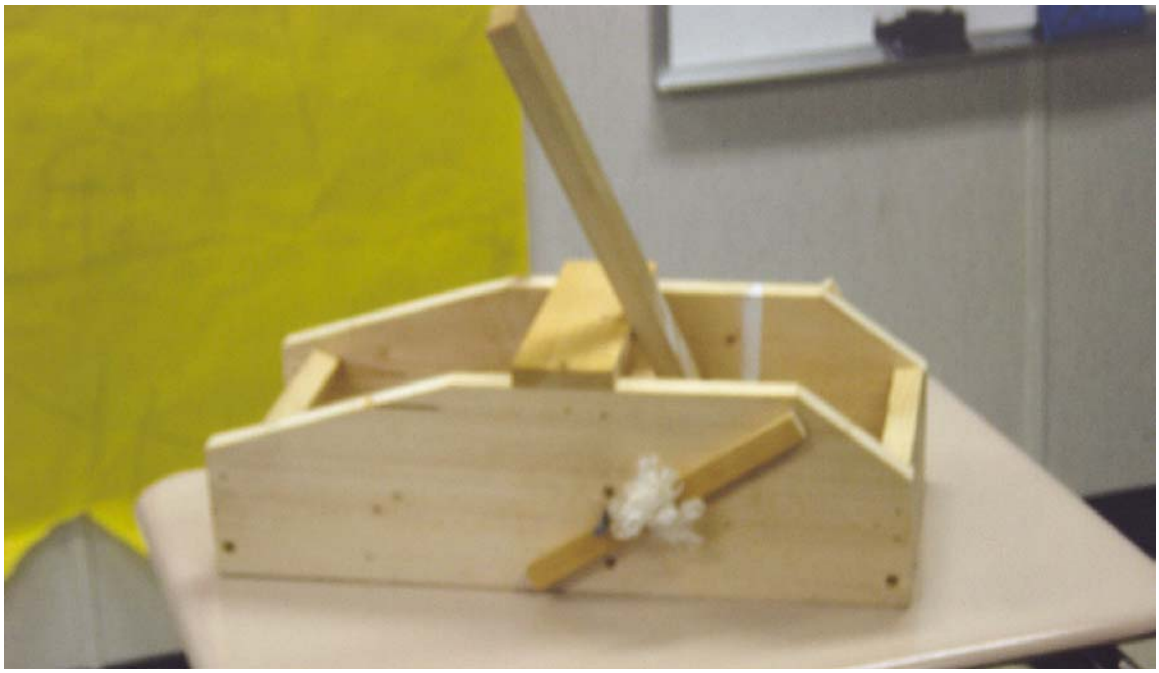


Figure F3. Onager

APPENDIX G

Models of Ancient Roman Medical Tools

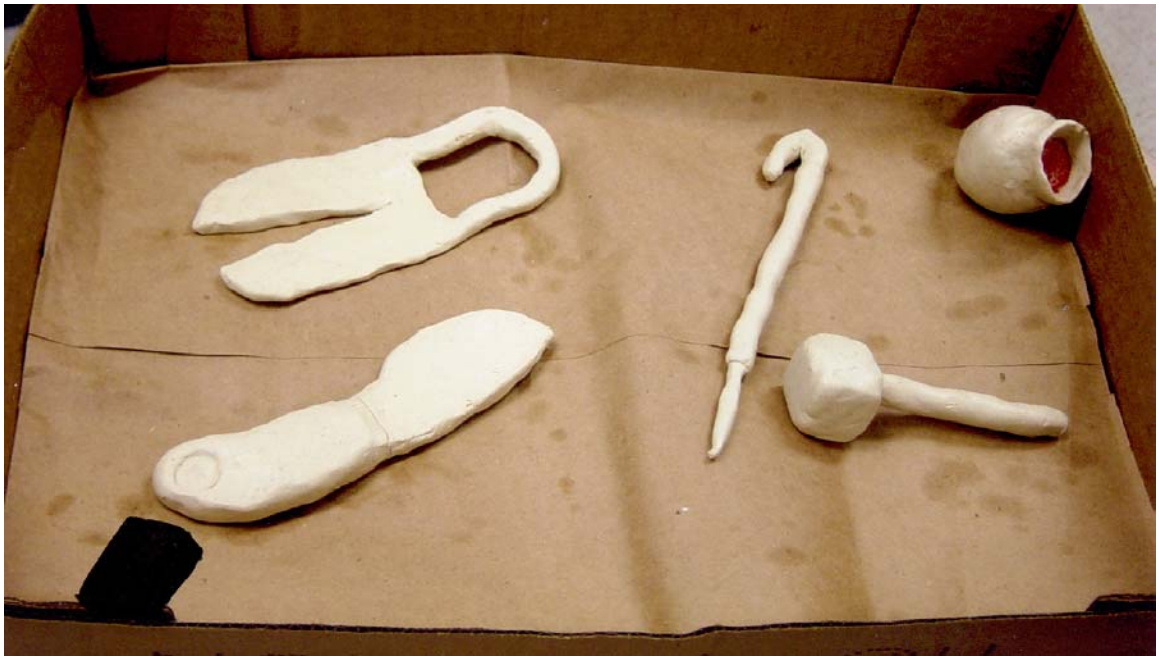


Figure G1. Ancient Roman Medical Tools

APPENDIX H

Ancient Roman Fashion: The Elegant Journal

Figure H1. PowerPoint Handout 1

Figure H2. PowerPoint Handout 2

APPENDIX I

Latin Language

Figure I1. PowerPoint Handout 1

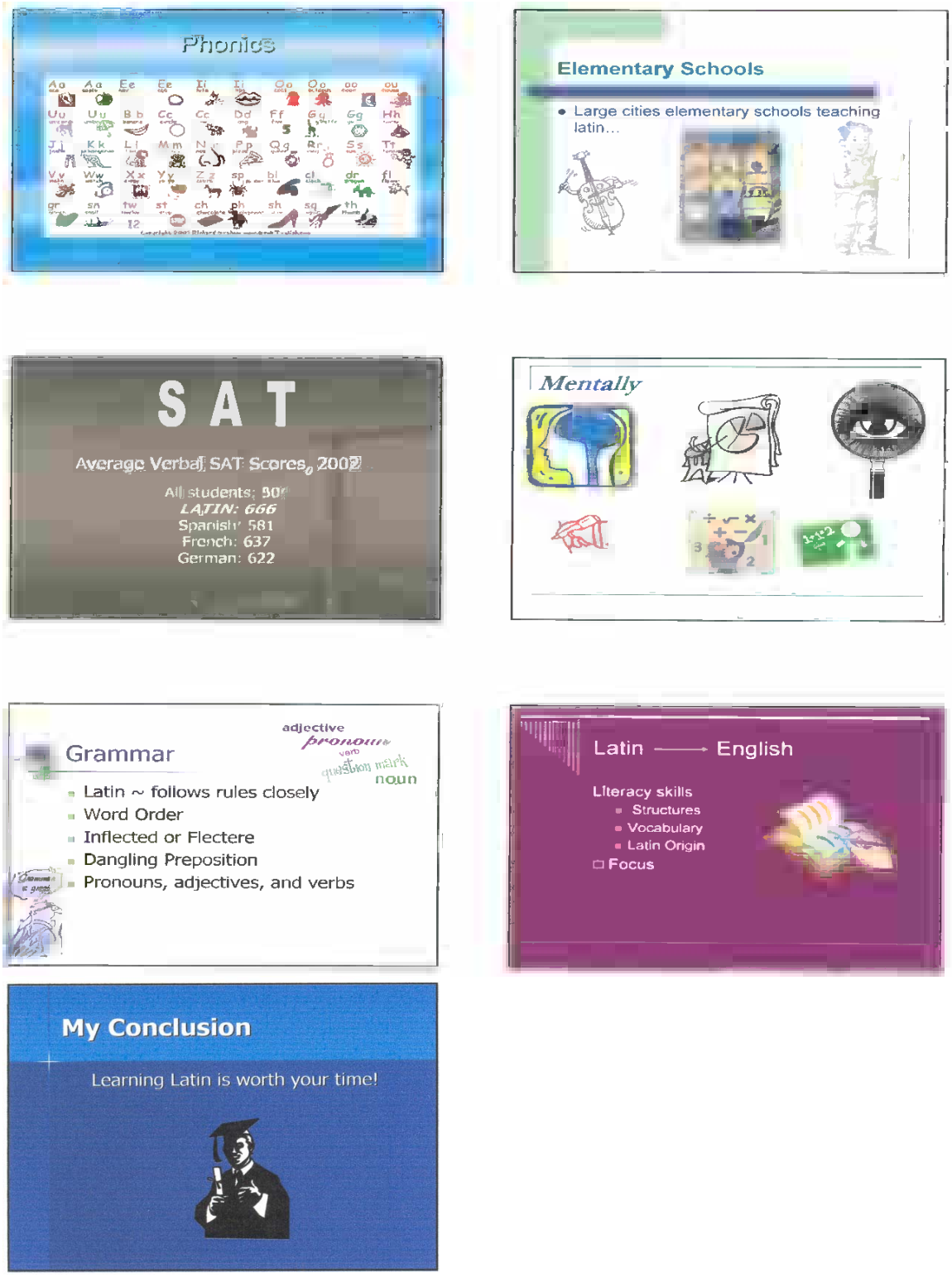


Figure I2. PowerPoint Handout 2

APPENDIX J

Ancient Roman Swords (*Gladius*)

Figure J1. Ancient Roman Swords (Gladius)

APPENDIX K

Ancient Roman Board Game: Latrunculi

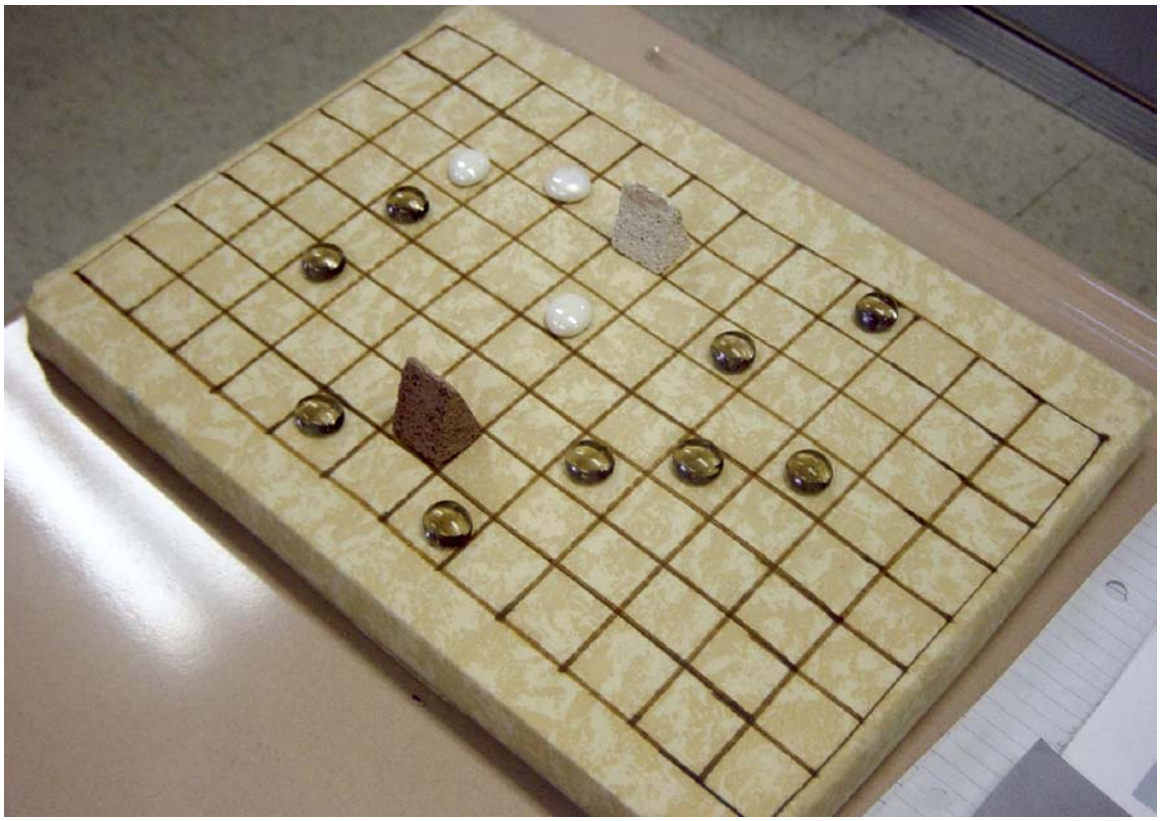


Figure K1. Latrunculi