A curriculum design project: The use of critical thinking and graphic organizers in the EFL writing process

Yuqing Huang
A CURRICULUM DESIGN PROJECT:
THE USE OF CRITICAL THINKING AND GRAPHIC ORGANIZERS IN THE
EFL WRITING PROCESS

A Project
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Education

by
Yu-ching Huang
March 1998
A CURRICULUM DESIGN PROJECT:

THE USE OF CRITICAL THINKING AND GRAPHIC ORGANIZERS IN THE

EFL WRITING PROCESS

A Project

Presented to the

Faculty of

California State University,

San Bernardino

by

Yu-ching Huang

March 1998

Approved by:

Lynne Diaz-Rico, First Reader

Esteban Diaz, Second Reader

Date

3/9/98
ABSTRACT

The purpose of this project is to design a curriculum to improve Taiwanese vocational high school students' performance in writing. In Taiwan, students are required to learn composition from elementary school to high school. After twelve years of practice, most students have learned how to write a grammatically correct composition. However, seldom do students know how to express their own views in writing. The reason for this is that Taiwanese education does not provide enough training and opportunity for students to express themselves.

The current standardized admissions system (Joint Entrance Exam) has little benefit in promoting written ability, and does not help students learn to think. Neither does the traditional "cram" culture help students to learn to organize their own thinking. Therefore, Taiwan's young people lack the ability to solve problems. The academic pressure of exams leaves teachers little time to teach the basic writing process. Traditional writing strategies emphasize a bottom-up approach in which the writing processes are mastered separately. This curriculum design will focus on improving students' abilities in critical thinking, organized thinking, problem solving, writing
process, and learning strategies; all components of a good 
writing curriculum.

Chapter One explores the problems which cause Taiwanese 
students to be unable to write creatively. Chapter Two 
reviews related literature such as critical thinking, 
graphic organizers, problem solving, writing process, and 
learning strategies. Chapter Three and Chapter Four provide 
the theoretical foundation and design of this curriculum 
project. Chapter Five proposes a plan for evaluating the 
effectiveness of this project once it has been completed. 
Appendix A feature two units of lessons: "Making Choices," 
and "Career Choices."

Writing is very important in current society. A good 
composition can express the writer's thoughts well and can 
also impress the reader. This curriculum project will help 
Taiwanese vocational high school students to develop 
proficient writing skills.
ACKNOWLEDGMENTS

I would like to offer my sincere gratitude to many people who have helped me to complete this project. Many thanks to the following individuals:

To Dr. Lynne Diaz-Rico for her invaluable advice and suggestions, helping me to focus on the objective of the whole project;

To Dr. Esteban Diaz for his insightful comments and instruction;

To my parents for their encouragement and concern;

To Jian-shing Wu for his good humor and patience.
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Background of This Project</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Target Teaching Level</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>The Education System in Taiwan</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Vocational High School</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Summary of Problems and Solutions</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>The Impact of the Joint Entrance Exam</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>The Cram Culture</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Students' Lack of Problem Solving Skills</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>The Textbook and Academic Pressures</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Lack of Learning Strategies</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Objectives of This Project</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>The Significance of This Project</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>REVIEW OF THE LITERATURE</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Critical Thinking</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Definitions of Critical Thinking</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Acquiring Knowledge for Critical Thinking</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Critical Thinking Should Be a Part of Every Course</td>
<td>22</td>
</tr>
</tbody>
</table>
LIST OF TABLES

Table 1. Learning Strategies in the Classroom .................. 74
Table 2. The Relation of the Writing Process
to Critical Thinking, Graphic organizers
and Learning Strategies ..................................... 90
Table 3. Self-Assessment Questionnaire ............................. 97
Table 4. Peer Assessment Checklist ................................. 98
Table 5. Essay Grading Chart ....................................... 100
Table 6. Graphic Organizer Assessment Checklist .............. 101
Table 7. Critical Thinking Assessment Checklist ............... 102
Table 8. Presentation Checklist .................................... 103
LIST OF FIGURES

Figure 1. The Education System in Taiwan ................ 3
Figure 2. The Functions of Graphic Organizers ............ 27
Figure 3. Fishbone Map with Explanation .................. 28
Figure 4. T-Chart with Explanation ......................... 28
Figure 5. Compare/Contrast Matrix with Explanation ....... 29
Figure 6. Spider Map with Explanation ....................... 29
Figure 7. Clustering with Explanation ....................... 30
Figure 8. Continuum/Scale with Explanation ................ 30
Figure 9. Network Tree with Explanation ..................... 31
Figure 10. Venn Diagram with Explanation ................... 31
Figure 11. A Parallel-stage Interaction Model ............... 38
Figure 12. Structure of the Knowledge-transforming Model .................. 46
Figure 13. Structure of the Knowledge-telling Model ....... 48
Figure 14. The Writing Process ................................ 56
Figure 15. The Process of Clustering with Explanation ..... 61
Figure 16. School Without Walls: An Attractive Option .... 62
Figure 17. A Sample Outline ................................. 65
Figure 18. The Model of Writing Process and Problem Solving .... 89
CHAPTER ONE: INTRODUCTION

Background of This Project

Taiwanese students are required to learn composition from elementary school to high school. After twelve years of practice, most students have learned how to write a grammatically correct composition. However, seldom do students know how to express their own views in writing. Besides giving their "gut reactions" to things by writing what they like or do not like, students are rarely able to give the reasons for their feelings. The essays of many high school students are filled with contradictory ideas, and they are often not able to get their point across cogently.

If you assign a high school class to write a composition about a topic, you will probably get many similar compositions. The essays may have very similar features (introduction, body and conclusion), and closely resemble the samples in the textbooks. The reason for this is that Taiwanese education does not provide enough training and opportunity for students to express themselves. Usually, students just memorize the form of models provided and then copy them. Therefore, they are only interested in addressing issues superficially and very rarely invest their intellectual effort to write something creatively.
The purpose of this project is to explore the factors which cause Taiwanese students to be unable to write creatively; seek solutions; and design a curriculum to improve Taiwanese students’ writing.

Target Teaching Level

The Education System in Taiwan

At the age of seven, children in Taiwan enter elementary school for six years, and then continue to junior high school for another three years. At the elementary and junior high school levels, education is compulsory. After graduation from junior high school, students can enter a senior high school, a vocational high school or a five-year junior college (see Figure 1). These secondary schools provide three to five years of study. Senior high schools are preparatory schools for higher education, and vocational schools and five-year junior college are aimed at technical or commercial training. Beyond the junior high school level, all schools admit students by means of an entrance examination. Every year more than 100,000 young people take the Joint Entrance Exam for public and private colleges and universities. After graduation from college, if the students want to, they may go to graduate school or go abroad for advanced education.
Figure 1. The Education System in Taiwan

- Graduation School (2 to 3 years)
- Two-year Institute of Technology (2 years)
- University (4 Years)
- Two or three-year Vocational College (2 or 3 years)
- Target Level Vocational High School (3 Years)
- Five-year Junior College (5 Years)
- Senior High School (3 Years)
- Junior High School (3 Years)
- Elementary School (6 Years)
Vocational High School

The vocational high school is my target level to teach in Taiwan. The goal of the vocational high school is to develop students’ practical skills. This educational system consists of different programs in various fields, such as business, industry, nursing, home economics, dress designing and foreign languages.

Most students in the vocational high school do not plan to continue higher education. They usually obtain employment after graduation, so they have no more entrance examination pressure. Thus, teachers in the vocational high school have more freedom and flexibility to take charge of course content and teaching materials. In this level, I will have the opportunity to teach students to write creatively. This is the reason why I plan to teach in this level.

Summary of Problems and Solutions

The Impact of the Joint Entrance Exam

It is difficult not to touch upon the influence of the joint entrance examination when one is to describe how Taiwanese children grow up. The examination has taken a position in China’s history that could be rivaled in few countries. Schools at both the college and high school level have a 40-year history of admissions through
standardized exams. Because of the existence of the entrance exam today, it is hard to have a balanced curriculum. The current standardized admissions system only uses a small number of academic subjects to evaluate the tested students’ abilities. In other words, the exam system makes both teachers and students emphasize test-oriented studies and neglect such subjects as ethics, physical education, art and social skills. At present, the teacher’s objective is to focus on helping students to pass tests.

Therefore, Taiwanese students force themselves to memorize English grammar rules and repetitively practice solutions to math problems. This has no benefit in promoting written or spoken English ability, and does not help anyone learn to think (Chen, 1997). When writing, students are concerned with getting higher scores. They are afraid to express their own viewpoints; they always write what they guess the examiner would like to hear.

To counteract this, I would encourage students to express their thoughts and think critically. Because the vocational high school students do not have entrance exam pressure, they can write whatever is in their minds. I believe that training in critical thinking can help them to think deeply and to write logically.
Taiwan’s Minister of Education asserts that supplementary study schools (or "cram schools" as they are often known) are the great villain targeted by education reform. Cram schools are increasingly professional. They offer everything from single-subject lessons that treat specific weakness, to generalized courses that help students bone up on generalized academic skills. No matter if you are preparing for junior high, high school, vocational school or technical college, the cram schools seem to be fully prepared to offer their own secret recipes for success. If you are willing to walk in the door, they will take you wherever you want to go, whether it be college, graduate school, or public or private universities. Even after you have graduated from a university, there are all kinds of career-training cram schools, prepping you for TOEFL, qualifying licensing examinations, and even specialized tests for journalism or foreign service.

In addition to the professional cram schools spread throughout every neighborhood, Taiwan has even developed a "Cram School Boulevard" that is famous far and wide. At present, the fame of many of the teachers of the cram school world is promoted by the cram schools. These teachers are cultivated like movie stars. For this reason, they best be
young, vivacious and attractive - most men are handsome and
debonair, most ladies pretty and extrovert (Chen, 1996). Even teachers’ names are being specially designed. Some cram schools put teachers’ faces on posters, photographs and drawings, hanging them high in front of the cram school door.

Most important, nearly every “star teacher” has a set of gimmicks to sort out major points and condense the teaching material. They are able to arrange the important details of textbooks into compartmentalized lectures. Using all kinds of special skills like association and outlines, they can actually ram the crucial points of exams into the students’ brains. Nonetheless, after the test is over, neither teachers nor students really care whether this “dead knowledge” is of any use.

This traditional pedagogic method - the teacher prepares and organizes all the teaching materials and lectures, the students listen - causes students to lose the opportunity to learn to organize their own thinking. When writing a composition, the students do not know how to build the order and structure in their minds. Thus, most their articles are filled with contradiction and poor reasoning. To counteract this loss, I will teach students to use graphic organizers to help them to structure their thinking.
**Students' Lack of Problem Solving Skills**

Chinese always believe that "all things are beneath contempt, only education is to be esteemed." Most Chinese parents, affected by the traditional pressure, think that learning is the only path to success. With such concern for their children, parents are willing to invest much money and effort. There is a commercial slogan - "Don't let your child fall behind at the starting line." A classic description of the pressure on the modern child features English lessons at three, music or arts classes at five, a multi-vitamin every day, and a health drink for children to take along with them to school (Li, 1992). Because of these customs, few parents will take the time to consider whether or not the children are enjoying what they are studying or what they are eating.

The parents' only concern is "competition." They always think what they do is best for their children. They make efforts to send their children to the best schools, choose the subjects for their children, and even find jobs for their children. They solve children's financial, educational, and social problems. To sum up, Chinese parents try to solve all problems that arise for their children.
Under these circumstances, today Taiwan’s young people lack the ability to solve problems. This is especially true when they are confronted with an intellectually demanding task such as writing. Thus, most of their compositions just follow the teacher’s instruction and lack creativity. To counteract this, I will teach students the concepts of problem solving and give them the opportunities to solve problems by themselves.

The Textbook and Academic Pressures

For many years, the curriculum for primary and secondary education in Taiwan has been centrally planned by national education policy makers. For the most part, textbooks provide difficult and boring material. The academic pressure of exams causes many teachers to merely follow the textbooks. It is assumed that the best teacher is the one who strives to pour everything from the textbooks into the students. At present, the examination questions test students’ memories. Most teachers have students memorize the entire textbook from which exam questions are taken.

Why do students have to memorize so much content? Except for taking exams, for what is it useful? Students never consider who decides what they should learn, and
whether or not there might be alternatives. Both students and teachers rarely question the content of the textbooks.

The English composition comprises 15 percent of the English component of the entrance exam. In the usual English writing class, the teacher puts a topic on the board and gives students a model article. The teacher usually encourages students to memorize and imitate the model articles presented in the textbook. Seldom do teachers spend time to teach the basic writing process to students. Therefore, most students cannot write an English letter even when they graduate from college.

In the 1990s in Taiwan, a textbook revolution is taking place. After five or six years of planning and pressure, primary and secondary school textbook production will be opened to the private sector, ending the standardized national text system. More and more people will participate in the decisions about what children learn. In order to improve students’ writing skill, I will teach them the basic writing process.

**Lack of Learning Strategies**

In Taiwan, beginning English writers traditionally learn to write through a bottom-up process. The mechanics of handwriting are developed first, followed by copying of words and sentences, exercises for punctuation and spelling,
and finally the development of paragraphs, or longer compositions on assigned topics. This traditional approach to writing emphasizes a mainly bottom-up approach in which the writing processes are mastered separately. The assumption underlying this approach is that students will eventually be able to integrate all the separate skills and thus will be able write to express meaning.

In newer approaches to writing, the meaning of what is written is considered to be more important than the separate skills underlying writing (Chamot & O’Malley, 1994). Studies of how writers actually go about the task of producing written text and of the differences between novice and expert writers have resulted in a process-oriented approach to writing instruction which emphasizes the communication of meaning through writing and de-emphasizes the importance of correct form until the final editing process (Chamot & O’Malley, 1994).

In order to improve Taiwanese students’ performance on language learning tasks, I will investigate some of the newer learning strategies and adapt appropriate strategies to different types of tasks. Once students begin to regulate their own learning through a strategic approach to learning tasks, they are no longer totally dependent on the
teacher. Thus, they can become successful learners in foreign language contexts.

Objectives of This Project

My goal is to help students obtain an environment of joyful learning, far from the distorted value system of the "examination hell." I hope all my students will grow up to be self-confident and interested in learning new things. My teaching goals will be the following:

- Critical thinking: Students who not only are not afraid of controversy, but are conscious of alternative viewpoints, and tolerate diversity.
- Graphic organizers: Students who can organize their thinking by using graphic organizers as a tool.
- Problem solving: Students who are able to collect information, collate it, analyze it, and solve problems by themselves.
- Writing process: Students who can generate topics, write fluently, and edit their own work as they compose.
- Learning strategies: Students who are able to use a variety of strategies to assist them in gaining knowledge.

The Significance of This Project

Vocational high school students go into society
directly after graduating from school. In spite of obtaining professional knowledge, students also have to learn the skills to adapt to society. Writing is very important in current society; for example, a resume, a letter or a project has to incorporate proficient writing skills. A good composition can express the writer’s thoughts well and can also impress the readers. This curriculum design will focus on improving students’ abilities in critical thinking, organized thinking, problem solving, writing process, and learning strategies. I believe these will help students to think critically, to organize their thoughts, to solve problems, to write creatively, to learn effectively, to discover where their own strong points and interests lie, and to design their future more actively.
CHAPTER TWO: REVIEW OF THE LITERATURE

Based upon the above observations, five aspects relate to the goal of improving Taiwanese vocational high school students’ writing: (1) critical thinking, (2) graphic organizers, (3) problem solving, (4) writing processes, (5) learning strategies. Each of these areas represents a potential addition that would enhance the curriculum.

Critical Thinking

Langer and Applebee (1987) point out that good writing and careful thinking go hand in hand. The National Assessment of Educational Progress (1981) finds that by age seventeen, most students were able to read a range of material appropriate for their age level and to formulate and express their initial interpretations of that material. Unfortunately, as the report states,

Students seem satisfied with their initial interpretations of what they have read and seem genuinely puzzled by requests to explain or defend their points of view. As a result, responses to assessment items requiring explanations of criteria, analysis of a text, or defense of a judgment or point of view were generally disappointing. Few students could provide more than superficial responses to such
tasks, and even the “better” responses showed little evidence of well-developed problem-solving strategies or critical thinking skills (p. 2).

Applebee, Langer and Mullis’ report (1986) on achievement make it clear that the problem continues:

A major conclusion to draw from assessment is that students at all grade levels are deficient in higher order thinking skills. The findings indicate that students have difficulty performing adequately on analytic writing tasks, as well as on persuasive tasks that ask them to defend and support their opinions. Some of these problems may reflect a pervasive lack of instructional emphasis on developing higher order thinking skills in all areas of the curriculum. (p. 11)

Writing and thinking are deeply intertwined; however, most children do not write frequently enough, and the writing tasks they are given do not require them to think deeply enough (Langer & Applebee, 1987). Thus, the first concern of this project is with the development of critical thinking.

Definitions of Critical Thinking

The term “critical thinking” has been defined in different ways. According to Kurfiss (1988), critical thinking is a rational response to questions. He defines
critical thinking as "an investigation whose purpose is to explore a situation, phenomenon, question, or problem to arrive at a hypothesis or conclusion about it that integrates all available information and that can therefore be convincingly justified" (Kurfiss, 1988, p. 2).

Ennis (1985) defines critical thinking as "reflective and reasonable thinking that is focused on deciding what to believe or not do" (p. 45). Brookfield (1987) describes critical thinking as questioning the assumptions that underlie habitual ways of thinking. Bruner (1966) suggests that critical thinking is the ability to form hypotheses. Meyers (1986) defines it as the ability to produce generalizations, see new possibilities, and defer judgment. For Smith (1990), it includes analyzing, drawing inferences, and making judgments on the basis of some standards. Taba (1959) sees critical thinking as generalizing, concluding, or comparing and contrasting. For Wertheimer (1964), critical thinking is productive thinking that leads to advances in knowledge.

In critical thinking, all assumptions are "open to question, divergent views are aggressively sought, and the inquiry is not biased in favor of a particular outcome" (Kurfiss, 1988, p. 2). In addition, Kurfiss suggests that the outcomes of a critical inquiry are twofold: a conclusion
(or hypothesis) and the justification offered in support of it. These outcomes are usually set forth in the form of an argument, defined as "the sequence of interlinked claims and reasons that, between them, establish the content and force of the position for which a particular speaker is arguing" (Toulmin, Rieke, & Janik, 1979, p. 13). The need for justification arises from the ill-defined nature of problem to which the term "critical thinking" generally applies. Because conclusions cannot be tested, the arguer must demonstrate their plausibility by offering supporting reasons (Voss, Tyler, & Yengo, 1983).

Academic and professional fields offer many opportunities for critical thinking. Kurfiss (1988) provides the following examples. A student offering evidence from a literary text to support an insight about what the author purposes is engaged in critical thinking. Students investigating divergent reasons of a historical event and attempting to formulate a plausible interpretation of what really happened or to decipher the meaning of events are engaged in critical thinking. Faculty studying a new curriculum proposal are engaged in critical thinking.

According to Brookfield (1987), critical thinking can result in a decision, a speech, a proposal or experiment, or a document like a position paper. It can result in a new
way of approaching significant issues in one's life or a deeper understanding of the basis for one's actions.

**Acquiring Knowledge for Critical Thinking**

Students often fail to use knowledge from their courses to analyze new problems (Voss *et al.*, 1983). Nisbett, Fong, Lehman and Cheng (1987) note that two, perhaps three, courses taught by traditional methods may be necessary to influence students' use of knowledge and discipline-specific reasoning strategies. The following section reviews studies with implications for accelerating development of students' abilities in critical thinking in discipline-based instruction.

**Declarative Knowledge.** Acquiring large amounts of information does not ensure that will be used in subsequent reasoning (Bransford, 1986). Declarative knowledge can be acquired through memorization, but knowledge acquired by rote is not helpful in solving unfamiliar problems or thinking about complex issues (Collins, Brown, & Newman, 1986). Kurfiss (1988) suggests that knowledge must be well understood - reconstructed in schemas in memory - to be useful to the learner. He also notes that knowledge must also be organized and accessible to the learner.

Students' success as problem solvers is "often hampered by limited or incorrect understanding of concepts needed to
construct an adequate model of the problem” (Kurfiss, 1988, p. 34). Students often hold intuitive conceptions or misconceptions that persist even after college-level instruction (Carey, 1986). Misconceptions are “consistent ideas reliably held by the reasoner, which differ from scientific conceptions held by experts” (Linn, 1986, p. 167). If misconceptions are present, the learner must do more than acquire information. Vosniadou and Brewer (1987) state that knowledge may have to be restructured, with new conceptions replacing old ones, for true understanding to occur.

Inquiry methods are useful in teaching causal relationships and correcting misconceptions. Collins and Stevens (1982) provide an analysis of inquiry methods. They analyzed the dialogue of teachers who used inquiry methods with students in order to identify the goals and strategies they used to foster students’ reasoning. According to Collins and Stevens, goals include teaching basic facts and concepts relevant to the topic; teaching specific rules or theories in a domain; and teaching how to derive a rule or theory. Collins and Stevens also observed that teachers used inquiry methods to encourage students to analyze a situation in search of causal factors. They deliberately asked questions, selected examples, and used entrapment
strategies to elicit misconceptions in students' thinking so that they could be corrected.

The schemas developed by students are influenced by the organizational structure of the materials used to teach them (Eylon & Reif, 1984). Armbruster (1984) suggests that teachers and textbooks should often point out the organizing principles, generalizations, or causal relationships that will help students construct an adequate representation of the material.

Students' performance of complex tasks is enhanced when information is presented in hierarchical form, with information most relevant to the task placed at the top of the hierarchy (Eylon & Reif, 1984). Students who received the information in a logical, linear, sequential fashion performed less effectively than students who were given a general procedure followed by the specific rules (Kurfiss, 1988).

People need to use their knowledge to solve problems. When the learner is not informed that the knowledge will be useful, access to relevant knowledge is greatly reduced (Perfetto, Bransford & Franks, 1983). Bransford (1986) points out that providing a personally relevant context for new material may increase its accessibility. For example, in a lecture, the concept of attention was presented to one
group of students by relating it to situations students encounter daily. Another group simply learned about experiments on the subject. Both groups initially learned the material equally well. The context group, however, reported thinking about the concept more often in the following two days than those who simply learned about the experiments (Bransford, 1986).

Simply presenting declarative knowledge to students is "no guarantee that they will be able to use it to solve problems, write essays, or think critically about issues for which the knowledge is relevant" (Kurfiss, 1988, p. 38). Kurfiss (1988) claims that critical thinking tasks should be withheld from students until they have acquired a foundation of knowledge. He also suggests that thinking tasks can build from short assignments focused on one or two key concepts to more complex assignments that encourage students to integrate ideas from many sources so that they simultaneously acquire knowledge and develop skill in using it.

Procedural Knowledge. Declarative knowledge suffices to talk or read about a subject; procedural knowledge makes it possible to do something in the subject domain (Greeno, 1980; Larkin, Heller & Greeno, 1980; Simon, 1980). Procedural knowledge relevant to critical thinking includes
Knowledge of how information is obtained, analyzed, and communicated in a discipline (Loacker, Cromwell, Fey & Rutherford, 1984).

Procedural knowledge can be taught directly to students using a variety of methods that incorporate practice and feedback on the desired skill. Hillocks, Kahn and Johannessen (1983) provide an example about learning to write a good definition. They note that students acquire the greatest skill when they are given examples that might illustrate a concept and asked to develop definitional criteria. Students who analyze extended definitions and write short definitions show no significant gains in the overall quality of their definitions or in the use of criteria and examples. In composition instruction generally, writing improves most when students use inquiry strategies to develop their essays (Hillocks et al., 1983).

**Critical Thinking Should Be a Part of Every Course**

Today both teachers and students can easily get much information. Teachers sometimes despair of knowing how to sort all the new information in their disciplines by determining what students need to know. Compared to teachers, students are less capable of coping with new information and of making sense of the complex world. Teachers can help their students deal with this complexity
by suggesting analytical frameworks and perspectives for sorting things out and thinking critically about them (Meyers, 1986, p. 115).

Critical thinking abilities do not develop by just attending a course, nor will they arise from listening to lectures, reading texts, and taking exams. Meyers (1986) points out that teachers must know explicitly what they mean by critical thinking in the context of their disciplines and must provide opportunities for students to practice critical thinking skills and attitudes. In addition to teaching explicit skills and analytical frameworks, Meyers suggests that teachers must nurture attitudinal aspects of critical thinking - students' innate source of interest, wonder, and inquisitiveness. Whiten and (1967) also states that significant learning usually takes place only when learners are motivated by some sense of wonder, mystery, and personal interest. Thus, all teachers must be prepared to create that interest.

In addition to creating classroom environments that encourage discussion, teachers use questioning, probing, and pondering to foster critical thinking. Such environments can be developed partly by structuring classroom time to include more discussion and by designing clear, effective written assignments” (Meyers, 1986, p. 116).
Common Features of Critical Thinking Courses in the Disciplines

A common pedagogic for teaching critical thinking is that teachers establish an agenda that includes learning to think about subject matter. Students are active, involved, consulting and arguing with each other, and responsible for their own learning. Kurfiss (1988) provides the following review of teaching practices that support critical thinking.

1. Critical thinking is a learnable skill; the instructor and peers are resources in developing critical thinking skills.

2. Problems, questions, or issues are the point of entry into the subject and a source of motivation for sustained inquiry.

3. Successful courses balance challenges to think critically with support tailored to students' developmental needs.

4. Courses are assignment centered rather than text and lecture centered. Goals, methods, and evaluation emphasize using content rather than simply acquiring it.

5. Students are required to formulate and justify their ideas in writing or other appropriate modes.
6. Students collaborate to learn and to stretch their thinking for example, in pair problem solving and small group work.

7. The developmental needs of students are acknowledged and used as information in the design of the course. Teachers in these courses makes standards explicit and then help students learn how to achieve them. (pp. 88-89)

It is clear that students' capacity for critical thinking can be developed in the classroom, and that critical thinking abilities form an important component of a writing curriculum.

**Graphic Organizers**

Graphics convey concepts and data so that objects and scenes are easy to visualize, processes are easy to follow, comparisons are easy to make, and trends and other relationships are easy to spot (Harris & Cunningham, 1994). Graphic organizers can be used to illustrate how information is related. The graphic organizers depict key skills (compare and contrast, sequence, part/whole relationships, classification, and analogy) and involve students in active thinking about textual information to promote clearer understanding of content lessons (Parks & Black, 1990). Diagrams serve as "mental maps to depict complex
relationships in any subject and at any grade level" (Parks & Black, 1990, p. 2). Thus, graphic organizers become a metacognitive tool to transfer the thinking processes to other lessons which feature the same relationships.

The use of graphic organizers encourages students to see information as components of systems or as contrasting concepts, rather than as isolated facts. Parks and Black (1990) state that once information and relationships have been recorded on graphic organizers, students then use the pictorial outline to form more abstract comparisons, evaluations, and conclusions (see Figure 2). Parks and Black also note that these diagrammatic outlines help students organize their thinking for writing, for oral or visual presentations, and for problem solving.

What Are Graphic Organizers?

According to Jones, Pierce, and Hunter (1988), graphic organizers are visual illustrations of verbal statements. Many graphic organizers are used commonly in daily life; for example, flow charts, pie charts, line charts, bar charts and family trees. More sophisticated graphics include fishbone maps, T-charts, compare/contrast matrices, spider maps, cluster diagrams, continuum/scale diagrams, network tree diagrams, venn diagrams and so on (see Figures 3, 4, 5, 6, 7, 8, 9 & 10).
Figure 2. The Functions of Graphic Organizers (Parks & Black, 1990, p. 2).

- Record relationships in textual material for more abstract examination and evaluation
- Depict information as a prewriting tool
- Organize ideas in preparing essays, reports, or oral presentation
- Illustrate and explain relationships found in textual material
- Prepare effective lectures and demonstrations
- Assist visual learners to perceive abstract concepts
- Understand and manage their own thinking and learning
- Prepare displays and demonstrations
- Improve memory or factual information
- Assist students who have a limited vocabulary in organizing ideas before writing
- Provide visual linkage of thinking skills programs to content learning
- Design bulletin boards, murals or multimedia presentations
Figure 3. Fishbone Map with Explanation (Jones, Pierce & Hunter, 1988).

A Fishbone Map is used to show the causal interaction of a complex event (an election, a nuclear explosion) or complex phenomenon (juvenile delinquency, learning disabilities).

Key frame questions: What are the factors that cause X? How do they interrelate? Are the factors that cause X the same as those that cause X to persist?

Figure 4. T-Chart with Explanation (Jones, Pierce & Hunter, 1988).

This chart can be used to help students see relationships between information. It can be used to list causes (left column) with effects (right column) or to list words associated with a topic or story character.
Figure 5. Compare/Contrast Matrix with Explanation (Jones, Pierce & Hunter, 1988).

<table>
<thead>
<tr>
<th>Name 1</th>
<th>Name 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute 1</td>
<td></td>
</tr>
<tr>
<td>Attribute 2</td>
<td></td>
</tr>
<tr>
<td>Attribute 3</td>
<td></td>
</tr>
</tbody>
</table>

The Compare/Contrast Matrix used to show similarities and differences between two things (people, places, events, ideas, etc.).

Key frame questions: What things are being compared? How are they similar? How are they different?

Figure 6. Spider Map with Explanation (Jones, Pierce & Hunter, 1988).

The Spider Map is used to describe a central idea: a thing, a process, a concept, a proposition. The map may be used to organizer ideas or brainstorm ideas for a writing project.

Key frame questions: What is the central idea? What are its attributes? What are its functions?
Clustering is a nonlinear activity that generates ideas, images and feelings around a stimulus word. As students cluster, their thoughts tumble out, enlarging their word band for writing and often enabling them to see patterns in their ideas. Clustering may be a class or an individual activity.

Continuum/Scale is used for time lines showing historical events, ages (grade levels in school), degrees of something weight), shades of meaning or rating scales (achievement in school).

Key frame questions: What is being scaled? What are the end points?
Figure 9. Network Tree with Explanation (Parks & Blacks, 1990).

Network Tree is used to show causal information (causes of poverty), a hierarchy (types of insects), or branching procedures (the circulatory system).

Key frame questions: What is the superordinate category? What are the subordinate categories? How are they related? How many levels are there?

Figure 10. Venn Diagram with Explanation (Jones, Pierce & Hunter, 1988).

The Venn diagram is made up of two or more overlapping circles. It is frequently used as a prewriting activity to enable students to organize thoughts or textual quotations prior to writing a compare/contrast essay. This activity enable students to organize similarities and differences visually.
Most of the graphic organizers are associated with frames. Jones et al. (1988) point out that frames are sets of questions or categories that are fundamental to understanding a given topic. Figures 3 to 10 present a frame for each of the graphic structures.

Graphic organizers are important because they help the learner to comprehend, summarize, and synthesize complex ideas in ways that, in many instances, surpass verbal statements (Patten, Chao & Reigeluth, 1986). In addition, graphic organizers add a visual aid to the thinking processes involved in the comprehension of text. A good graphic organizer can show the key parts of a whole and their relations. Therefore, a good graphic organizer can allow a holistic understanding that words alone cannot convey. Constructing a graphic organizer can help students to think how information is related and classified (Heimlich & Pittelman, 1986; Johnson & Pearson, 1986). Further, graphic representations provide input in two modes (visual and verbal), rather than just one (Paivio, 1971). Once a graphic has been constructed, the task students find difficult will become easier.

**Constructing Graphic Outlines**

An important rule in constructing graphic organizers is that "the structure of graphic should reflect the structure
of the text it represents" (Jones, Pierce & Hunter, 1988, p. 21). The generic graphic outlining procedure described below is developed by Jones, Pierce and Hunter (1988, pp. 21-24) to serve as a model for ordinary chapter assignments.

Survey. First of all, the students survey the title, subheadings, illustrations and their captions, the initial summary or abstract, and the objectives of the text to determine what the passage discusses and how the discussion is structured. Students should ask themselves questions like these: Are concepts presented in a hierarchy? Does the text suggest a timeline of information? Does the author compare and contrast two or more concepts? Is the text an explanation of something? What signal words are apparent? In this questioning process, the students interact intensively with the text and their thoughts go back and forth from the text to memory and current graphic organizers.

Represent. Students begin to form a hypothesis about the structure of the text and mentally search their repertoire of graphic structures for the best fit. All graphic organizers have a corresponding mental model. The mental model is constructed by the students' fundamental understanding of a given text or problem. At this point, the mental model is essentially a tentative prediction of
which graphic organizer would best express the information
in the text.

Whether or not the students are able to construct a
graphic at this point depends on the students' prior
knowledge, the clarity of the text, the weight of the
evidence in support of the students' hypothesis, and the
purpose for learning. If the text is poorly written or if
the students are confused or lack prior knowledge of an
appropriate structure, they may be unable to construct a
graphic organizer without sustained reading and repeated
corrections. Once a graphic form has been predicted,
students need to examine their background knowledge of the
topic and the structure and to survey the text features
again to determine how the specific graphic should be
organized.

Read with comprehension monitoring. Having
hypothesized a graphic outline, the students are ready to
read the material with the following purposes: to fill in
gaps in understanding, to look for ideas not yet accounted
for in the organizer, and to clarify any questions raised
during the survey or while reading. This is a stop/start
process requiring numerous pauses to compare new information
to the hypothesized organizer and to one's prior knowledge
of the topic. In making these comparisons, the students can
test anticipated ideas and relations as well as clarify or revise previous ideas.

After students have read the passage, they should reflect on their overall understanding, asking questions such as these: What were the most important ideas in the text, and how do they relate? Were the graphic organizers I chose the most accurate and complete? How should I revise my mental model? Are there any points that I find puzzling or unclear? Are they important? Do I need further clarification or research?

Outline. After having chosen one of the graphic forms, students should complete the graphic outline, using the questions or categories in the appropriate frame as a guide. Students may add some details from their own background knowledge, or even change the organizer at this point.

Summarize. Finally, students should construct a summary based on the information in the graphic outline. Paragraphs or oral reports should be build around the major parts of the graphic outline.

**Training Students to Use These Procedures**

It is very important to introduce graphic outlining to students in a positive way. According to Jones et. al. (1988), there are five steps for teachers to use to train students in these procedures.
Step 1. Present at least one good example. Present at least one good example of a completed graphic outline that match the type of outline teachers will teach. Use cooperative learning to ensure that students examine the sample graphic outlines closely.

Step 2. Model how to construct the graphic outline. Model how to construct either the same graphic outline or the one to be introduced. Describe the decision-making process, and show students how to use frame questions to choose and plan an outline.

Step 3. Provide procedural knowledge. Discuss when students should use the graphic organizer and why, and what their responsibility is in the learning process. Students need to appreciate and practice the technique, which will help motivate students to invest the time to develop their repertoires of graphic outlining strategies.

Step 4. Coach the students. Have students work as a whole class and then in small groups to plan their first graphic. Ask them to share and compare their outlines with the other groups. Also, ask them to explain how and why they made the decisions that they did. Teachers should provide them with ample feedback.

Step 5. Give the students opportunities to practice. Teachers should give students opportunities to practice
outlining individually and independently, and then give them feedback.

In addition to following the above steps, Jones et al., (1988) also recommend that teachers address the following issues when teaching these strategies. First, when students become more capable of organizing information for themselves, teachers should shift responsibility to students. Second, teachers must be willing to permit individual differences in thinking. Third, teachers need to be willing to reveal their own thinking processes, including confusion and making mistakes, when they demonstrate how to revise a hypothesis, graphic outline, or summary. Fourth, teachers need to set clear objectives; tests must be based on the objectives; and passages should be chosen to support those objectives.

Writing as Problem Solving

One important way to view writing is as problem solving (Hayes, 1989). Beaugrande (1984) and McCutchen (1986) state that one significant characteristic of writing is that it involves solving problems at a number of different levels, with considerable interaction among levels. Interaction here means that solutions achieved at one level influence those at another. A choice of text organization, for instance, may affect the kinds of arguments that may be
advanced, or a choice of type of appeal to make to readers may constrain the choice of vocabulary (Bryson, Bereiter, Scardamalia & Joram, 1991).

Beaugrande (1984) proposed a "multilevel parallel-stage interaction model" of composing processes (see Figure 11), which focuses on the kinds of symbolic structures manipulated during text production and on the interactions between component processes.

Figure 11. A Parallel-stage Interaction Model (Beaugrande, 1984).

A critical feature of this model is that the organization of component processes is based on notions of parallel interactive processing, such that activity at any single level can influence (and be influenced by) activity at any
other level/levels of the model (Hinton & Anderson, 1981; Rumelhart & McClelland, 1982). As the model depicted in Figure 9 suggests, the various levels are organized so as to represent "processing depth," with the shallowest level at the top (Sounds/Letters) and the deepest at the bottom (Goals). The jagged line moving from left to right suggests that, with time, composing-related thinking gradually shifts from primarily deep to primarily shallow levels of processing, albeit with considerable allowances for departures from a simple linear trend. Beaugrande (1984) suggests that it is critical for student-writers to automatize text production factors, such as mechanics, due to the heavy processing load created by the coordination of writing processes.

Flower and Hayes (1980, 1981) emphasize both the goal-directed and the recursive nature of problem solving during writing, and suggest that much mental effort during composing is directed toward the elaboration and coordination of plans designed to reduce cognitive strain. These authors notes that "As a dynamic process, writing is the act of dealing with an excessive number of simultaneous demands or constraints. Viewed this way, a writer in the act is a thinker on a full-time cognitive overload" (p. 33).

To view writing as problem solving, therefore, is to
view it in a somewhat paradoxical light (Bryson, Bereiter, Scardamalia & Joram, 1991). The paradox can be largely removed by adopting the premise that expert and nonexpert are solving different problems. This premise is reasonable because of the ill-structured nature of writing problems. In particular, the goal state in writing tasks is usually defined in only general terms, leaving the specification up to the writer. Consequently, it is possible for writers who are ostensibly engaged in carrying out the same assignment to be pursuing radically different goals. Even allowing for differences in goals, however, there remain some serious questions about problem solving in novice and expert writers. These questions have to do with the cognitive load imposed by the sheer multiplicity of problems that must be addressed or circumvented in some way in order for written composition to proceed.

Problems in Writing Composition

Goal setting and planning. In complex problem solving tasks, planning serves to bridge the gap between an initial state and a final goal state by providing a manageable set of signposts for negotiating uncharted territory (Bryson et. al., 1991). Thus, a good plan reduces a large and unmanageable problem into a series of reasonable subproblems (Miller, Galanter & Pribram, 1960). Expert writers are
trying to deal with multiple goals simultaneously during composing, such as goals pertaining to truth and novelty of the content as well as clarity and interest of the final text (Hayes & Flower, 1986; Scardamalia & Paris, 1985). Breuleux (1987) uses Frederiksen's (1975, 1987) propositional analysis system in order to conduct detailed analyses of the thinking-aloud protocols of expert writers. He reports that writers plan extensively throughout composing, and that their plans are typically shallow so as to "allow contextual refinements or inexpensive reorganizations at lower levels according to local properties of the problem-state" (p. 1). This view of planning is consistent with data gathered from expert and nonexpert writers' thinking-aloud protocols reported by Flower and Hayes (1980), who suggest that "good plans are rich enough to work from and argue about, but cheap enough to throw away" (p. 23).

As Flower and Hayes (1980) suggest, the expert writer is dealing with an entirely different range of problems during composing from those faced by the novice. For the expert writer, the writing problem is not given by the topic statement, but emerges in multiple attempts made by the writer to complete the following: (1) interpret the significance of the topic on a different, generally more
abstract level; and (2) transform the topic so that it can be placed within a personally meaningful epistemological perspective. Studies which have compared expert and novice writers reveal that skilled writers' thinking-aloud protocols exhibit a high density of goal-directed epistemological search operations in the construction and solution of problems throughout composing (Bereiter, Burtis & Scardamalia, 1988; Berkenhotter, 1983; Breuleux, 1987; Flower & Hayes, 1980; Paris, 1986; Scardamalia & Paris, 1985).

Novice writer's thinking-aloud protocols typically reveal little or no planning activity (Burtis, Bereiter, Scardamalia & Tetroe, 1983; Hayes & Flower, 1986; Perl, 1979). Amount of planning appears largely to be a function of level of expertise in writing, and not primarily an age-related, developmental phenomenon. The novice writers in Perl's (1979) study started writing a few minutes after getting the topic sentence as their primary content planning strategy, and interrupted content-related thinking frequently with surface-feature concerns about spelling or punctuation. At the earliest stages of written language development, planning seems to consist of activities such as drawing pictures or making telegraphic notes that are designed to delimit a chunk of content that will reappear
uncharged in the final text. Himley (1988) points out that for emergent writers, the task of writing is conflated with surface features of the final product, and there appears to be little or no awareness of the communicative or intentional dimensions of writing. For school-age writers, planning appears to consist of the elaboration of content rather than the representation of goals and subgoals for achieving specific rhetorical or ideational effects. Scardamalia and Paris (1985) report that when school-age writers are asked to state their main goal after writing, they tend to provide a summary of their main idea, or to rephrase the topic.

Generating content. This level of processing is the level at which main ideas or main points are determined. Bereiter, Burtis and Scardamalia (1988) note that expert writers spent significantly longer than novices in the development of main points during composing. The expert writers' main points are rated as representing a substantial transformation of the topic assignment, which indicates that mental effort is invested in "going beyond the problem as given" (Bryson et al., 1991, p. 67). These authors also point out that the effect of age on the rated quality of text-based statements of main point is almost entirely mediated by amount of problem solving during composing.
Novice writers arrive at their main points in half a minute or less and devote the rest of their composing time to generating specific content.

Reprocessing. Data from studies of writer's revision activities reveal conclusively that experts, in sharp contrast to novices, (1) think of revision as a process of rethinking that can be applied to mental entities, like main points, goals, and plans, as well as to textual entities, such as words and sentences (Flower, Hayes, Carey, Schriver and Stratman 1986; Murray, 1978); (2) engage in significantly more revision than novices (Sommers, 1980); and (3) make substantive changes to texts that are correlated with higher ratings of test quality (Bridwell, 1980).

Alternative Organizations of the Composing Process

The dialectic between rhetorical and content problems. There are numerous testimonials from writers indicating that writing itself plays an important role in the development of their understanding (Murray, 1978). In an interview, Sam Shepard (Sessums, 1988) states

The great thing about writing is that in the course of going after it, it teaches you something. You start out thinking you know something about it, but then you discover you hardly know anything. And the more you do
it, the more things begin to inform you about where you’re going. (p. 78)

Writing involves solving two general kinds of problems—content problems, which are problems of the writer’s own knowledge and beliefs, and rhetorical problems, which are problems having to do with achieving the goals of the composition (Bryson et. al., 1991). Scardamalia and Bereiter (1985) report that problems arising in the “rhetorical space” are often translated into problems requiring solution in the “content space.” New decisions arrive at in the content space create new problems in the rhetorical space, and so on in a dialectical fashion. The result will often be that by the end of the composing process, both the writer’s ideas and the nature of the written product have evolved in unexpected ways. Hence “the experience of writing as discovery” (Bryson et. al., 1991, p. 72).

The dialectical process is the distinctive characteristic of what Bereiter and Scardamalia (1987) have elaborated as the knowledge-transformation model of composition (see Figure 12). In this model, knowledge growth may or may not be a goal of the writer, but the interactive working out of rhetorical and content problems can lead to knowledge transformation.
Figure 12. Structure of the Knowledge-transforming Model (Bereiter & Scardamalia, 1987).

Mental representation of assignment

Problem analysis and goal setting

Content knowledge

Discourse knowledge

Content problem space

Rhetorical problem space

Problem translation

Problem translation

Knowledge telling process
Knowledge-telling as a problem-reducing strategy. According to the knowledge-telling model (Bereiter & Scardamalia, 1987), novice writers follow a procedure that enables them to reduce the problems of writing to a routine procedure for "telling what one knows about the topic" (Scardamalia & Bereiter, 1986, p. 792). According to this model (see Figure 13), knowledge-tellers, once provided with a writing assignment (e.g., Is computer game a good influence on teenagers?) begin automatically to retrieve knowledge using two kinds of cues. Topic identifiers (e.g., "computer games," "good aspects," and "teenagers") serve as cues that prime associated concepts through a process of spreading activation (Anderson, 1983). Discourse knowledge provides a second type of cue. For instance, a writer whose opinion essay schema consisted of "say what you believe about the question and give reasons" would use "say what you believe and reasons" as retrieval cues, which in combination with topic identifiers, would retrieve ideas relevant to defending an opinion about teenagers and computer game (Anderson, 1983).

The Shift from Knowledge-telling to Knowledge-transforming

According to Bryson et. al. (1991), knowledge-telling is developed at an early age as a way in which novice writers can deal with the complexity of the writing task.
Figure 13. Structure of the knowledge-telling Model (Bereiter & Scardamalia, 1987)

Mental Representation of Assignment

Knowledge telling process

Locate topic identifiers

Locate genre identifiers

Construct memory probes

Retrieve content from memory using probes

Run tests of appropriateness

Pass

Write (notes, draft, etc.)

Update mental representation of text

Content knowledge

Discourse knowledge
The knowledge-transforming process only develops through efforts to cope with significant problems of content on one hand (What do I really believe? Is this belief really tenable? What are my true feelings?) and significant problems of communication on the other. Knowledge telling is not abandoned. It remains an efficient way to deal with routine tasks. But knowledge transforming develops as a way of doing serious writing.

Many people never develop a knowledge-transforming approach. The blame is often placed on schools for treating writing as an exercise and never engaging students with its epistemic aspects (Applebee, 1981; Emig, 1971; Graves, 1983). That may be a justifiable charge, but it cannot be the full explanation. And school educators have reported that even with a very enlightened writing program, in which writing activities are designed to engage students' interests and concerns as fully as possible, many children who start out as serious and thoughtful writers begin, by the middle years of school, to lapse into mindless routines and to avoid writing that really challenges their abilities (Bryson et. al., 1991). Therefore, there seem also to be cognitive barriers to developing the knowledge-transforming process. A way to investigate cognitive barriers to problem solving in writing is through instruction aimed at
supporting a shift from knowledge telling to knowledge transforming. Instructional studies in this domain could be divided into two primary categories, as follows.

**Reducing cognitive load during composing.** Several instructional interventions for improving writing arise from the assumption that problem solvers have a finite set of mental resources that can be devoted to a task, and that all writers have higher-level strategies available, but that they are suppressed as a result of attending to lower-level concerns. One such intervention for teaching writing is free writing, in which writers are instructed to ignore low-level problems like spelling during first draft composing in order to free their mental capacity for higher-level concerns such as planning (Elbow, 1973; Stover, 1988; Tomkins & Camp, 1988).

In order to test the idea that reduction in writers' attention to production factors would enhance written composition, Scardamalia, Bereiter, and Goelman (1982) compare children's handwritten and dictated text. They finds that students produced longer texts when freed from mechanical concerns, but that the quality of dictated texts is not superior to those that are handwritten.

In a study by Joram, Lindsay, Bryson and Woodruff (1986), average and above average Grade-8 students are
instructed not to attend to errors during first draft composing, and to postpone correcting their texts to a subsequent writing session. Students write with either paper and pencil or with word processors throughout and are directed to think aloud during all writing sessions.

Rating of final drafts indicates that instruction to postpone editing is only of benefit when students write with word processors, while when writing with paper and pencil, they perform best when permitted to edit as usual. Students’ final drafts are rated as more creative in this condition, but not as being holistically superior. Joram, Lindsay, Bryson and Woodruff (1986) point out that analyses of thinking-aloud protocols indicates that when writing with word processors, students make more general evaluative statements when they are permitted to edit their texts. Under these circumstances, students appear to be quite concerned with the mechanical errors incurred from using computers, and thus instructions not to worry about making errors is an effective intervention. The fact that instruction not to edit is of no benefit in the paper-and-pencil condition suggests that even above average Grade-8 writers do not engage in high-level problem solving when their attentional capacity is freed up. Burtis, Bereiter, Scardamalia & Tetroe, (1983) report that typical of
adolescent writers, there is little evidence in their thinking-aloud protocols of high-level planning or metacognitive statements.

Accordingly, Bryson, Bereiter, Scardamalia and Joram (1991) conclude that these results provide no evidence that novice writers have at-hand a repertoire of high-level problem solving strategies that are ready to emerge when low-level attentional demands are reduced. These authors also note that instructions to immature writers to ignore low-level concerns do not free them to focus on high-level problem solving because they are not engaged in solving high-level problems.

Cognitively-based instructional environments which foster expert-like problem solving. An instructional study conducted by Bryson (1989) investigated the role of reflective problem solving during argument construction. The study's two main goals were (1) to determine the role played by reflective problem solving in normally achieving and reading disabled adolescent students' argument construction processes; and (2) to investigate the extent to which reflectivity in argument construction could be enhanced through the provision of a specially designed computer-supported instructional environment called M.U.S.E. (Monitoring Understanding + Strategic Execution).
Thinking-aloud protocol data and argument-type expository texts were collected from Grade-10 students before and after exposure to instruction. Students in the experimental group were taught specific procedures for reflecting on the adequacy of knowledge accessed in the generation of arguments. Experimental students received direct instruction in a set of reflective operations, as well as in the general processes of dialectical inquiry. The operations included the following: Plan, identify new learning, identify confusions, build an argument, challenge its assumptions, elaborate statements, search for additional ideas, and put it together. Students in the control group were provided with instruction in the structural elements of persuasive arguments. Control group students got the same exposure to modeling argument construction via thinking-aloud by the instructor and the students, as in the experimental group. Rather than being provided with thinking prompts, control group students were provided with definitions of each of the elements in a discourse knowledge model of a persuasive argument. These elements included the following: (1) beliefs on both sides; (2) reasons on both sides; (3) facts, descriptions, and examples; and (4) conclusions.

Pretest results indicated that the normally achieving
students' texts received higher quality and complexity ratings than did those written by reading-disabled students. However, both normally achieving and reading-disabled students tended, for the most part, to construct arguments which were one-sided, and engaged in little or no in-process problem solving during composing. The protocols generated by the reading-disabled students contained clusters of task-irrelevant and self-denigrating statements in response to perceived failure. In contrast, negative self-denigrating by the more confident and capable students was frequently followed by a shift in the kind of activity they were engaged in and consequent revision or refinement of ideas.

Posttest results indicated a significant increase in problem solving during argument construction for both normally achieving and reading-disabled experimental students. Path analysis of the results indicated that the level of rated main point in students' texts was mediated by the amount of in-process problem solving activity. Experimental reading-disabled students' protocols contained significantly fewer negative, self-denigrating attributional-type statements at posttesting. Texts written by the normally achieving students continued to receive higher text ratings than did those written by reading disabled students. However, experimental reading-disabled
students' texts were rated more highly at posttesting than at pretesting.

Achieving at different levels of sophistication is linked to the ability to represent persuasive-essay tasks at increasingly complex levels, and in turn, to the availability of strategies for coping with increasingly problematic composing episodes. Bryson (1989) states that internal models of argument develop from conceptions grounded in fighting, to those of back-and-forth verbal exchanges, to those of reconciling opposing arguments by shifting to a more comprehensive level of analysis. The strategies that underlie these different levels of task representation correspondingly reflect those that young writers bring to bear when they are, respectively, fighting, engaging in verbal exchanges, or reflecting on different points of view. The posttest results suggest that it is, nonetheless, possible to foster reflective problem solving during writing by providing students with on-line "thinking tools" embedded in an environment that enables novice writers to sustain reflective inquiry independently; that is, without the external source of feedback provided by a teacher (Bryson et al., 1991). The above findings seem to indicate that novices need to learn to think like writers, for whom it seems that composing is, and will always remain,
a particularly difficult and demanding intellectual pursuit.

The Writing Process

It is not possible to think about everything all at once, so most experienced writers handle a piece of writing in a process of rethinking and rewriting a topic through several stages (Blum, Brinkman, Hoffman & Peck, 1984). However, not everyone talks about the writing process in exactly the same way. Spandel and Stiggins (1990) point out that the real differences are usually just a matter of emphasis (more prewriting, less revision) or of terminology. Generally, the traditional stages within the writing process include prewriting, drafting, and revising. According to Hacker (1996), one should generally move from prewriting to drafting to revising, but one should also be prepared to circle back to earlier stages whenever the need arises (See Figure 14).

Figure 14. The Writing Process

```
\begin{figure}
\centering
\begin{tikzpicture}
  \node (pre) at (0,0) {Prewriting};
  \node (draft) at (2,0) {Drafting};
  \node (rev) at (4,0) {Revising};
  \draw[->] (pre) -- (draft);
  \draw[->] (draft) -- (rev);
  \draw[->] (rev) -- (pre);
\end{tikzpicture}
\end{figure}
```
Generate Ideas

Most people have experienced the frustration of being unable to think of fresh ideas. They often spend hours staring at a blank piece of paper, waiting for inspiration. Blum, Brinkman, Hoffman and Peck (1984) state that finding ideas and getting started is the most difficult part of writing. Martin (1989) suggests that no matter if a subject is readily available or assigned, the first step in becoming more comfortable with writing is to figure out what you think, decide what to say and then trap those thoughts on paper. He states that an interesting thing about the thinking-and-trapping-ideas process is that "as you begin to write down your ideas, you will think of yet more ideas" (Martin, 1989, p. 4). The invention strategies listed below will help to explore ideas. Leki (1989) claims that every writer should experiment with each of these strategies to determine which works best for them.

**Brainstorming.** Brainstorming is one of the simplest ways to begin the writing process (Schiffhorst & Pharr, 1997). It is useful when one is dealing with an unfamiliar topic, or it will speedily reveal what one know and what one need to learn about the topic (Blum et. al., 1984).

To begin brainstorming, write the topic at the top of a page. Then list whatever ideas, images, or details come to
mind when thinking about the topic. Let the mind move freely. As one runs out of immediate ideas, Blum et. al. (1984) suggest to begin by asking the following two sets of questions about the topic. The first set of questions is easily remembered and may be applied to almost any topic: Who? What? When? Where? Why? How? The second set of questions are more complex: What can you describe about your topic? What changes have occurred in it? Can you relate an incident about it? What do you remember about it? What are its parts, sections, or elements? Can you give instructions for making or doing it? How do you respond to it or feel about it? Why is it valuable or important? What causes it? What results it? Can you clarify it by comparing it to something? Are you for or against it? Why? When brainstorming, do not ignore "crazy" ideas. These may turn out to be the most important ones of all. Brainstorming is not a neat procedure, so do not worry about being messy. Blum et. al. (1984) say that the goal of brainstorming is "to generate lots of new ideas, not to produce a tidy list of what you already know" (p. 17).

After one has completed a brainstorming list, the next step is to begin considering how it might be developed into a paper. Blum et. al. (1984) provide the following questions that may help analyzing one's brainstorming lists:
(1) What is the focus of the brainstorming list? What is it mainly about? (2) What different kinds of papers might one draw from the brainstorming list? (3) What is most interesting about the brainstorming list? (4) Given the topic focus, what is missing in the brainstorming list?

Freewriting. Freewriting is an excellent method for getting ideas down on paper, and as one writes, one will come to understand the ideas better (Martin, 1989). Hacher (1996) defines freewriting as simply nonstop writing. Schiffhorst and Pharr (1997) say that freewriting is like tape recording on paper. Begin by jotting down thoughts about the topic, writing continuously for fifteen minutes without stopping. Try to record whatever comes to mind as fast as they occur. When doing freewriting, one does not do any editing, ignoring mechanical errors such as spelling, punctuation, sentence fragments, or run-on sentences, and the fit of ideas together (Martin, 1989). One just lets the ideas flow from brain through fingertips and onto a sheet of paper (or onto a keyboard). If one gets stuck, write "I’m stuck" and keep going (Schiffhorst & Pharr, 1997, p. 6). After fifteen minutes, select anything from the notes that looks worthwhile. When discovering something promising, one can use the freewriting exercise again on this new idea.

Clustering. Martin (1989) states that the human brain
does not always function in logical symmetry. The human brain leaps from one idea to another by association. Clustering can help one generate ideas and see the relations between these ideas. Blum et al. (1984, p. 19) point out that clustering results in a better "map" of people's thinking.

Instead of sentences, clustering uses single terms, which are easier to jot down quickly (Schiffhorst & Pharr, 1997). Clustering (see Figure 15) begins in the middle of the page (not the top) and works outward in all directions (Hacker, 1996; Leki, 1989; Blum et al., 1984; Schiffhorst & Pharr, 1997). To cluster, write a concept in the center of a blank sheet of paper. Circle that concept. Then write the ideas that occur when one thinking of the central concept. Circle each idea after writing it, and then draw a line connecting the new idea with the idea that inspired it (Martin, 1989).

Branching. It possible to develop about everything, so most experience can be used in the process of rethinking and rewriting a context through several steps. Furthermore, most people have experience not to think of fresh ideas. They often spend hours staring at a blank piece of paper, waiting for inspiration. Therefore, the strategy of branching can pull you and ideas closer. The traditional
stages within the writing process are to think in writer’s minds, not to have a organizational graph or structure. Right now One can gradually move form pre thinking to drafting to revising, but one should also be prepared to circle back to earlier and rethink and review the whole process. In the process of development, the human brain leaps from one idea to another by association. The strategy of branching can help one generate ideas and see relations between these ideas. Branch can result in a better map of people’s thinking. Branching brings out from several ideas of brains to generate the main ideas, which also help people think the central concept. Then, one can develop the detail ideas and write it. At first, thinking about what you want to write down is necessary and one also need to consider what happen in the next step.

The strategy of branching also highlights relations among ideas. According to Martin (1989) and Hacker (1996), to use the branching strategy, put the main idea at the top of a page and then list major supporting ideas beneath it, leaving plenty of space between ideas. To the right of each major idea, branch out to minor ideas, drawing lines to indicate the connections. If minor ideas lead to even more specific ideas, continue branching. Figure 16 is a branching diagram for an innovative magnet high school.
Draft the Essay

While roughing out an initial draft, keep the prewriting materials close at hand. Begin by reading over the prewriting materials to see what interesting insights or connections one can explore. To begin think to read
the prewriting materials to see what interesting insights or connections one can explore. Look for points to be developed, subdivided, or deleted. For most kinds of writing, "an introduction announces a main idea, several body paragraphs develop it, and a conclusion drives it home" (Hacker, 1996, p. 21).

Plan the draft with a outline. When beginning to write, one needs to consider a plan to help to group the various points that have been developed. Kinsella (1985) points out that a rough outline can give a clear sense of direction and make sure that the essay has a logical sequence that the reader can follow. Most writers make rough outlines before composing and then continue to organize as they write. They use an outline to guide the development of their ideas and do not feel restricted by it. Rough outlines, consisting of phrases arranged to show some relationship, can emerge from the prewriting material (Schiffhorst & Pharr, 1997). Rough outlines can take many forms. Perhaps the most common is simply the thesis followed by a list of major supporting ideas, as in this example provided by Hacker (1996, p. 19).

Hawaii is losing its cultural identity.
- pure-blooded Hawaiians increasingly rare
- native language diluted
- native Hawaiians forced off ancestral lands
- little emphasis on native culture in schools
- customs exaggerated and distorted by tourism

Early in the writing process, rough outlines have certain advantages over the more formal ones. They can be produced more quickly, are more obviously tentative, and can be revised more easily should the need arise. However, Hacker (1996) states that a formal outline may be useful later in the writing process, especially if the subject matter is complex. A more formal outline can provide a complete point-by-point layout of the entire essay. According to Schiffhorst and Pharr (1997), to develop a more formal outline, start by using the points on the rough outline as the major divisions (labeling them with Roman numerals I, II, III, etc.). Then develop subdivisions (labeling them A, B, C, etc.) for each major point. Although two levels may be enough for a short paper, a third level (labeled 1, 2, 3, etc.) will help to organize details in longer projects. Sometimes even a fourth level is useful (labeled a, b, c, etc.). Figure 17 shows an example of the formal outline.

Write an introduction. A good introduction serves two important functions: it attracts the reader’s interest and focuses that interest on the thesis (Schiffhorst & Pharr,
Figure 17. A Sample Outline (Kinsella, 1985, p. 43).

Introduction

I. Disadvantages

A. Financial
1. Have to pay property tax
2. Have to pay cost of maintenance and upkeep

B. Other
1. Have to cut grass, etc.
2. Cannot move at will
   a. Undesirable neighbors
   b. Commercial buildup

II. Advantages

A. Financial
1. Increase in value of property
2. Tax write-off
3. Fixed house payments for time span of mortgage

B. Other
1. Remodel and decorate at will
2. Have more privacy than in apartment
3. Have yard for children to play in
4. Can raise a garden
5. Is easier to have pets

Conclusion
Therefore, to write a good introduction, it is necessary to know what the thesis is and why the reader might care about. The most common strategy is to open the paragraph with a few sentences that engage the reader and to conclude it with a statement of the essay's main point (Hacker, 1996). Kinsella (1985) suggests that the length of the introduction depends on the length of the paper. A short composition may need just two or three sentences; sometimes just one sentence will do. A longer composition, on the other hand, may require half a page or even a whole page.

In narrative and descriptive writing, it is not always necessary to have an explicitly stated thesis. However, an introduction without a thesis should clearly suggest the purpose and direction of the essay to follow (Hacker, 1996). Sometimes, the revision stage of the writing process provides the best opportunity to produce a good introduction. After having completed a first draft and having clarified the ideas, one can then return to the opening and rework it (Schiffhorst & Pharr, 1997).

Fill out the body. Hacker (1996) suggests that before drafting the body of an essay, one should take a careful look at the introduction, focusing especially on the thesis sentence. It is important to keep the thesis in mind, and
then try to block out the paragraphs according to the preliminary outline.

**Attempt a conclusion.** The conclusion should echo the main idea, without dully repeating it. By the end of the essay, readers should already understand the main point; the conclusion simply drives it home and perhaps suggests its significance (Leki, 1989; Hacker, 1996). In addition to echoing the main idea, a conclusion might summarize the essay’s key points, pose a question for future study, offer advice, recommend a solution to problems, or propose a course of action (Kinsella, 1985; Hacker, 1996; Blum et al., 1984).

Whatever concluding strategy one chooses, it is important to avoid introducing entirely new ideas at the end of an essay. Also avoid apologies and other limp, indeterminate endings. Do not repeat the same words and examples used earlier. Hacker (1996) points out that the essay should end crisply, preferably on a positive note.

**Making Revisions**

Revision means to “look again,” to rethink and clarify what one has written (Schiffhorst & Pharr, 1997). Leki (1989, p. 122) notes that “even professional writers revise, rereading what they wrote, crossing out sections, rereading again, moving sections from one place to another, constantly
comparing what they have on paper to an image in their minds of what they want to communicate." Revision does not mean recopying or just correcting errors but recognizing that the draft is unfinished, that words and ideas can be added, deleted, or rearranged. Hacker (1996) suggests that as one revises, one needs to examine his/her initial ideas, purpose, and audience to get a more objective perspective on the work.

When reading the first draft, one may need to change the thesis, purpose, and writing strategy after comparing the draft with the original intention. When one proceed from large overall concerns to specific sentence and word changes, the focus should shift from the writer to the reader (Hacker, 1996; Blum et al., 1984; Walvoord, 1986). First, read what the draft says, then read from the reader's viewpoint, and finally read with an eye for problems to be solved. Here are some basic tips for revising developed by Schiffhorst and Pharr (1997): As you write, leave plenty of space for changes. When you revise, try to work from a typed or printed, not handwritten, draft so that you can approach your work more objectively. Revise in stages, setting the draft aside for a "cooling off" period. When you return to it, you can then view it more critically. Read each draft aloud. If a sentence sounds awkward, reword
it until it sounds right. Listen also for omissions and repetitions. Let someone else read your drafts, and ask this person to react honestly to your ideas and style. Collaborative work is especially useful as you revise. Be willing to discard anything that does not relate to your purpose and thesis. Save all your draft, but do not waste time by recopying the whole paper after each stage of the revision process.

In making the work clearer for the reader, one makes it clearer for himself/herself. This point has been made by Murray (1985), who suggests a three-stage clarification process. With each reading, he says, the writer should focus on a different aspect of the writing, which are meaning, structure and style.

Revise for overall meaning. Murray (1985) suggests that when revision, consider the major areas of the essay before worrying about the minor ones. First, read the draft quickly for content and ideas. Try to be objective, ignoring word choice and other details and asking self these questions about the content: What is my main point? Does everything in the draft relate to this point? Do I have enough solid evidence to develop my point? What else does the reader need to know? Is the draft too short or too long? Are there parts I could cut? Does the draft follow
through on what the title and introduction promise? Murray (1985) also suggests comparing the thesis and introduction with the body of the paper to make sure that the essay has unity. If they do not match, rewrite the introduction or revise paragraphs that stray from the main point.

Revise for structure. Murray (1985) suggests to read the draft quickly again, and avoiding questions of style in the attempt to be objective. Focus on whether each part of the essay is developed well and is in the right order by asking these questions: Is my title effective? Will my introduction capture the reader’s interest? Do I have a clear thesis statement? Is every paragraph related to my thesis? Does each paragraph make one point? Is each paragraph fully developed? Am I using facts and examples to support my thesis? Does the conclusion sum up the main points and return to the thesis?

At this stage in the revision, Schiffhorst and Pharr (1997) suggest that writer look for any irrelevant information that can be cut. Then examine the paragraphs. If the paragraphs are skimpy, consider what examples or facts can be added from the prewriting content.

Revise for style. Now that the content is well established and the structure is firm, Murray (1985) suggests the writer to read the essay slowly out loud, line
by line, and to examine the sentence patterns and word choice. Ask these questions: Are there any unnecessary repetitions, wordy phrases, or jargon? Are there any words whose meanings I am unsure of? Is my diction appropriate for my audience and purpose? Have I avoided unnecessary passive verbs? Are my tenses consistent? Have I deleted all unnecessary words and phrases? Do I lead the reader smoothly from one point to another and from start to finish?

When revising for style, Schiffhorst and Pharr (1997) suggest to

examine the topic sentence of each of the paragraphs to see if that sentence clearly defines the doer (subject) and the action (verb). By asking who, what, where, when, how, and why, one can give each paragraph a more specific focus and place the emphasis where it is needed. (p. 43)

**Edit for errors.** The final stage in revising is editing the final draft for correctness. Martin (1989) states that no matter how interesting the topic, if the essay contains errors, the reader is sure to think less of the work. At this point, the writer needs to make sure to allow himself/herself enough time for proofreading (Hacker, 1996; Kinsella, 1985; Martin, 1989; Schiffhorst & Pharr, 1997). Hacker (1996, p. 29) explains that proofreading is
"a slow and methodical search for misspellings, typographical mistakes, and omitted words or word endings."

To begin, try proofreading aloud, looking at individual words. One may also try proofreading sentences in reverse order, starting with the last word. Check for repeated words as well as for spelling, punctuation, and grammatical errors. Check the dictionary for the meanings of any words which are unsure. Although proofreading may be dull, it is crucial. A carefully proofread essay sends a positive message: "It shows that you value your writing and respect your readers" (Hacker, 1996, p. 29).

Different teachers will find different ways to help students develop effective writing practices. It is important, however, to avoid imposing a rigid method on students, such as requiring outlines at a certain point in the writing process. Instead, teachers should try to make students conscious of their writing behavior and help them find their own best writing techniques (Walvoord, 1986).

Learning Strategies

The Cognitive Academic Language Learning Approach (CALLA) is an instructional model that was developed by Chamot and O’Malley (1994) to meet the academic needs of students learning English as a second language in American schools. A central component of CALLA is the integration of
learning strategies with instruction in academic language and content. The basic premise is that students will learn academic language and content more effectively by using learning strategies. According to Chamot and O’Malley (1994), students who use strategic approaches to learning will comprehend spoken and written language more effectively, learn new information with greater facility, and be able to retain and use their second language better than students who do not use learning strategies.

**Types of Learning Strategies**

Learning strategies are defined as thoughts or activities that assist in enhancing learning outcomes (Weinstein & Mayer, 1986). Three broad categories of learning strategies have been proposed by Brown, Bransford, Ferrara, and Campione (1983), Brown and Palinscar (1982), and O’Malley and Chamot (1990). The three types of learning strategies (see Table 1) are metacognitive strategies, that is, planning for learning, monitoring one’s comprehension and production, and evaluating how well one has achieved a learning objective; cognitive strategies, that is, manipulating the material to be learned mentally (as in making images or elaborating) or physically (as in grouping items to be learned or taking notes); and social/affective strategies, that is, either interacting with another person...
Table 1. Learning Strategies in the Classroom (Chamot & O’Malley, 1994).  

<table>
<thead>
<tr>
<th>METACOGNITIVE STRATEGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategy Name</strong></td>
</tr>
<tr>
<td><strong>Planning</strong></td>
</tr>
<tr>
<td>Advance Organization</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Organizational Planning</td>
</tr>
<tr>
<td><strong>Selective Attention</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Self-management</td>
</tr>
<tr>
<td><strong>Monitoring</strong></td>
</tr>
<tr>
<td>Monitoring Comprehension</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Monitoring Production</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Evaluating</strong></td>
</tr>
<tr>
<td>Self-assessment</td>
</tr>
<tr>
<td>METACOGNITIVE STRATEGIES</td>
</tr>
<tr>
<td>--------------------------</td>
</tr>
<tr>
<td><strong>Strategy Name</strong></td>
</tr>
<tr>
<td>Self-assessment</td>
</tr>
</tbody>
</table>

| COGNITIVE STRATEGIES |  |
|----------------------|--|------------------|
| **Strategy Name** | **Strategy Description** | **Strategy Definition** |
| Resourcing | Use reference materials | Using reference materials such as dictionaries, encyclopedias, or textbooks. |
| Grouping | Classify Construct graphic organizers | Classifying words, terminology quantities, or concepts according to their attributes. |
| Note-taking | Take notes on idea maps, T-lists, etc. | Writing down key words and concepts in abbreviated verbal, graphic, or numerical form. |
| Elaboration of Prior Knowledge | Use what you know Use background knowledge Make analogies | Relating new to known information and making personal associations. |
| Summarizing | Say or write the main idea | Making a mental, oral, or written summary of information gained from listening or reading. |
| Deduction/Induction | Use a rule/Make a rule | Applying or figuring out rules to understand a |
Table 1. (Continued)

<table>
<thead>
<tr>
<th>COGNITIVE STRATEGIES</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategy Name</strong></td>
<td><strong>Strategy Description</strong></td>
<td><strong>Strategy Definition</strong></td>
</tr>
<tr>
<td>Deduction/Induction</td>
<td></td>
<td>concept or complete a learning task.</td>
</tr>
<tr>
<td>Imagery</td>
<td>Visualize</td>
<td>Using mental or real pictures to learn new information or solve a problem.</td>
</tr>
<tr>
<td></td>
<td>Make a picture</td>
<td></td>
</tr>
<tr>
<td>Auditory Representation</td>
<td>Use your mental tape recorder</td>
<td>Replaying mentally a word, phrase, or piece of information.</td>
</tr>
<tr>
<td></td>
<td>Hear it again</td>
<td></td>
</tr>
<tr>
<td>Making Inferences</td>
<td>Use context clues</td>
<td>Using information in the text to guess meanings of new items or predict upcoming information.</td>
</tr>
<tr>
<td></td>
<td>Guess from context</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Predict</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOCIAL / AFFECTIVE STRATEGIES</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategy Name</strong></td>
<td><strong>Strategy Description</strong></td>
<td><strong>Strategy Definition</strong></td>
</tr>
<tr>
<td>Questioning for Clarification</td>
<td>Ask questions</td>
<td>Getting additional explanation or verification from a teacher or other experts.</td>
</tr>
<tr>
<td>Cooperation</td>
<td>Cooperate</td>
<td>Working with peers to complete a task, pool information, solve a problem, get feedback.</td>
</tr>
<tr>
<td></td>
<td>Work with classmates</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coach each other</td>
<td></td>
</tr>
<tr>
<td>Self-Talk</td>
<td>Think positive</td>
<td>Reducing anxiety by improving one’s sense of competence.</td>
</tr>
</tbody>
</table>
in order to assist learning, as in cooperative learning and asking questions for clarification, or using affective control to assist learning tasks.

**Metacognitive strategies.** Metacognitive strategies enable one to anticipate or plan for a task, determine how successfully the plan is being executed, and then evaluate the success of the learning and the plan after learning activities have been completed. The metacognitive strategies include planning, monitoring, and evaluating learning activities (see Table 1). In a writing or speaking activity, a learner can use organizational planning by creating an outline or structure that will be followed in a communication. While the learning activity transpires, individuals can use self-monitoring to determine whether or not the learning is fulfilling the original learning goals. At the conclusion of the learning activity, individuals can use self-evaluation by checking on their success in accomplishing targets for learning.

**Cognitive strategies.** The cognitive strategies shown in Table 1 fall into three broad categories: rehearsal, organization, and elaboration strategies (Weinstein & Mayer, 1986). The elaboration strategy sometimes is used as a generic category for other strategies, such as imagery, summarization, inference, transfer, and deduction.
Cognitive strategies are often linked to individual tasks, for example, classification or grouping is often used in learning vocabulary or for organizing concepts, and note-taking and summarizing are more often used in listening or reading comprehension. Elaboration of prior knowledge is a cognitive strategy which has applications to all types of content learning, and to listening, speaking, reading, and writing.

Social/affective strategies. Social/affective strategies (see Table 1) are "particularly important in second language acquisition because language is so heavily involved in cooperation and asking questions for clarification" (Chamot & O'Malley, 1994, p. 63). Students learning specific language functions or structures can practice these in cooperative learning settings and obtain feedback from other students on the effectiveness and coherence of efforts to communicate orally or in writing. Asking questions for clarification is particularly critical for ESL students because they will so often need to exercise this skill in their grade-level classrooms. Another social/affective strategy, self-talk, is useful for students who have any degree of anxiety about learning activities. In using self-talk, students reassure themselves through inner speech that they will be able to perform successfully
on the task at hand (Krashen, 1982).

**How to Select Learning Strategies**

Chamot and O'Malley (1994) note that the selection process requires familiarity with the curriculum because strategies that are included in instruction must be valid for the types of activities students work on in classrooms. This will give the students a sense that the strategies are current and are directly linked to important classroom tasks and experiences.

According to Chamot and O'Malley (1994), the first general rule that governs strategy selection is that the strategies are determined by the nature of the instructional task. That is, teachers begin with the language and content goals, objectives, and tasks and then decide on the types of strategies that are appropriate and would be most effective. Basically, the language, the content, and task drive the strategy selection.

A second general rule is that teachers should start with a small number of strategies (one or two) for students to learn rather than attempt to introduce a lot of strategies all at once. Pressley, Goodchild, Fleet and Zajchowski (1988) recommend starting with a single strategy, only expanding to others when the one strategy has been thoroughly learned. Chamot and O'Malley (1994) also suggest
that to begin with a highly complex strategy or too many strategies for students to learn easily could make students feel that strategies are too difficult to be worth the effort required to learn them.

A third rule is that the task with which the strategy is used should not be too difficult. If the task is exceedingly difficult, students will not have an opportunity to experience success early and will believe that the strategy is not useful. When material are exceedingly difficult, even the best of strategies cannot overcome the density of the materials and students can too easily become frustrated (O’Malley, Chamot, Stewber-Manzanares, Russo & Kupper, 1985).

A fourth guideline in strategy selection is to choose strategies for which there is strong empirical support (Pressley, 1990). Ideally, the research support for the strategies the teacher selects should be with the type of students to whom the strategy instruction will be applied. Chamot and O’Malley (1994) suggest that the teachers can select strategies for which there has been strong empirical support with native-speaking students and tailor the strategy to students who are learning English.

A fifth rule is to select a strategy that will prove useful across different content domains (Pressley,
Goodchild, Fleet & Zajchowski, 1988). If the strategy is useful for reading comprehension in literature, social studies, and science, students will be more likely to adopt the strategy as a regular part of their repertoire (Chamot & O’Malley, 1994).

**How to Teach Learning Strategies**

The most important point about teaching learning strategies is to use proven methods for strategy instruction (Presslet, 1990). Chamot and O’Malley (1994) recommend a five-step procedure for strategy instruction that is: Preparation, Presentation, Practice, Evaluation, and Expansion.

**Preparation.** The purpose of the Preparation phase is to develop students’ awareness that their prior knowledge can be applied to the topic of the unit. There are a number of things teachers can do during the Preparation phase. One activity that will assist students to understand their own strategies and the importance of a strategic approach to learning is to organize students into small groups and ask them how they studied for or learned information in their native language. Students can compare their strategic approaches in their native language and English, determining if there are similarities in the techniques or strategies they use in their native language and in learning English.
Each group should prepare a brief oral report to discuss their strategies with the class (O’Malley, Chamot, Stewner-Manzanares, Kupper & Russo (1985). Following the small group discussions, the teacher can direct a full-class discussion of the different strategies students in the various groups report. Teachers should write the strategies students report on the chalkboard, using the exact terms they use to describe the strategies. Students can try to evaluate whether some strategies seem preferable to others.

A second approach is for the teacher to model “thinking aloud” to identify one’s own strategies (Chamot & O’Malley, 1994, p. 67). The purpose of modeling at this point is to increase student awareness of the strategies they currently use by giving them a tool to identify additional strategies. In modeling thinking aloud, teachers describe their own metacognitive knowledge of the task, for example, what the task calls on them to do, of similar tasks they have experienced in the past, and of the strategies that should be useful in learning. Teachers then describe aloud what they are doing as they work on this task themselves, what step-by-step procedure they are following in learning, and how they are determining their success as a learner. The teacher then encourages students in small groups to take turns “thinking aloud” as they work on the task.
Presentation. In the Presentation phase, the teacher uses explicit instruction to teach a particular learning strategy and in providing guidance on the use of the strategy. In teaching, the teacher explicitly names the strategy to be learned, indicates how the strategy is used with a specific task, and tells why the strategy is important for learning. Chamot and O’Malley (1994) state that this type of instruction increases the students’ metacognitive awareness of the task requirements and of the connection between strategy use and learning.

Chamot and O’Malley (1994) suggest that the teacher can begin by refreshing the students’ memories about the discussions of strategies which took place during the Preparation phase. The teacher then suggests a name for strategy. The teacher can use the technical name for the strategy, or use a name the students have devised and feel comfortable. After having agreed on a name for the strategy, the teacher describes how the strategy is used with specific classroom learning activities. The description should be as complete as possible, identifying each step required to use the strategy, including recognizing why the strategy is appropriate for the task or materials being used.

Practice. The teacher’s role in the Practice phase
differs depending on the amount of experience students have had with the strategy. Early on in learning a strategy, teachers provide more guidance in strategy use than they do as students become more adept at using a strategy. Scaffolding is a process in which more extensive instructional supports are provided early in learning and gradually withdrawn as the students gain more skill and independence (Bruner, 1976). The teacher initially provides sufficient instructional supports to ensure that the students are learning to use the strategy effectively.

In the Practice phase, students are given either individual or group assignments in which they have opportunities to use and apply a strategy. The assignments should resemble the type of task on which the strategy was modeled by the teacher or with which the strategy was described in the Presentation phase. If students work independently in applying a strategy, they should be given an opportunity afterwards to discuss their use of the strategy in small groups.

Evaluation. In the Evaluation phase, students reflect on their strategy use and appraise their success in using it as well as the contribution the strategy makes to their learning. Essentially, students are being asked to plan for, monitor, and evaluate their strategy applications.
Chamot and O'Malley (1994) suggest that teachers can ask students to write down the strategies they used during an activity or classroom assignment, indicate how the strategy worked, and note any changes in the strategies from the way in which they were originally described in class. The teacher then guides a full class discussion of the strategies. Chamot and O'Malley (1994) also suggest that students can keep dialogue journals about strategy use and share these with the teacher. Students comment on their success in using the strategy, what difficulties they encountered, and how they overcame them. The dialogue journals can be maintained throughout the school year. Students might compare their own performance on a task completed without using learning strategies and a similar task in which they applied strategies. Students can also use a checklist to indicate strategies they have used with different materials.

Expansion. In the Expansion phase, teachers apply the strategies to materials that were not part of the original classroom examples or instruction. Teachers can give students reminders to use a strategy that was part of an earlier Presentation phase, providing scaffolding prompts as needs, and encourage students to try the strategies with materials they are using in other classes. Teachers can
encourage students to try different strategies and compare them for effectiveness. Thus students not only evaluate the effectiveness of strategy use but can do so by comparing one strategy with another. Students can also bring examples for discussion of some of their strategy applications in other classes. Chamot and O'Malley (1994) note that the most useful instructional outcome of these discussions can be guidelines for students concerning where and when to use individual strategies.

Student motivation for school learning is the result of their expectations for success on academic tasks, the value they assign to learning, and their attribution of responsibility for successful performance (Zimmerman, 1990). These factors determine the amount of effort students are willing to expend on learning activities, and how long they will persist in attempting to learn new information. Each of these factors is linked to personal experiences which act to influence a student's overall motivation for school learning. Generally, students who have more "skill" in performing academic tasks can be expected to have more "will" that will lead them to expand their involvement in learning (Paris & Oka, 1986). Learning strategy instruction is designed to enable students to be independent and autonomous learners whose motivation for school learning...
comes from an awareness of their own skills as a learner, experience in using these skills with materials of the kind they expect to encounter, and value in being able to link new information either to personal experience or to new applications. Furthermore, if students believe that they are learning important tools for learning through strategy instruction, self-esteem and self-confidence should increase accordingly (Chamot & O'Malley, 1994).
CHAPTER THREE: THEORETICAL FRAMEWORK

Research presented in the literature review may be combined in a model that provides the theoretical framework for this curriculum project (see Figure 18). In this model, the content domain is problem solving. Sometimes when in the process of writing we want to identify, define, and then solve a problem. We have to solve problems all the time: we may have to figure out how to settle an argument with roommates; or to decide how to continue our education although our parents can no longer afford to pay it. Even making choices is a problem in our lives; we have to make choices when we face the issues such as marriage, education, career, immigrant and so on. Sometimes we can solve problems by thinking alone or by discussing them with others. Other times we need to solve the problem on paper. This project contain two units of lessons about problem solving (Making Choices and Career Choices), giving students an opportunity to practice their problem-solving skills.

The writing process, critical thinking, graphic organizers and learning strategies are interdependent (see Table 2). When generating ideas, one uses certain skills of critical thinking, graphic organizers, and learning strategies. When drafting, one uses still other critical thinking skills, graphic organizers, and learning
strategies. When revising, a third set of critical thinking skills, graphic organizers and learning strategies is used.

In each stage of the writing process, certain critical thinking skills are needed (see Table 2). For example, in the stage of generating ideas, one needs to use the skills of evaluating, analyzing, classifying and/or generalizing. When drafting, the skills of applying, grouping, analyzing, making inference, making judgments, comparing, and contrasting are used. In the stage of revising, the skills of interpreting, analyzing, comparing and contrasting are needed.
Table 2. The Relation of the Writing Process to Critical Thinking, Graphic Organizers and Learning Strategies

<table>
<thead>
<tr>
<th>Stages of the Writing Process</th>
<th>Critical Thinking</th>
<th>Graphic Organizer</th>
<th>Learning Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generating Ideas</td>
<td>Evaluating</td>
<td>Cluster Diagram</td>
<td>Brainstorming</td>
</tr>
<tr>
<td></td>
<td>Analyzing</td>
<td>Branching</td>
<td>Predicting</td>
</tr>
<tr>
<td></td>
<td>Classifying</td>
<td></td>
<td>Scanning</td>
</tr>
<tr>
<td></td>
<td>Generalizing</td>
<td></td>
<td>Note-taking</td>
</tr>
<tr>
<td>Drafting</td>
<td>Applying</td>
<td>T-Chart</td>
<td>Summarizing</td>
</tr>
<tr>
<td></td>
<td>Grouping</td>
<td>Fishbone Map</td>
<td>Using Context</td>
</tr>
<tr>
<td></td>
<td>Analyzing</td>
<td>Tree Diagram</td>
<td>Imagery</td>
</tr>
<tr>
<td></td>
<td>Synthesizing</td>
<td>Character Web</td>
<td>Making Inferences</td>
</tr>
<tr>
<td></td>
<td>Making Inferences</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Making Judgment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comparing</td>
<td>Character Analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contrasting</td>
<td>Chart</td>
<td></td>
</tr>
<tr>
<td>Revising</td>
<td>Interpreting</td>
<td>Venn Diagram</td>
<td>Self-Assessment</td>
</tr>
<tr>
<td></td>
<td>Analyzing</td>
<td></td>
<td>Cooperation</td>
</tr>
<tr>
<td></td>
<td>Evaluating</td>
<td></td>
<td>Peer Assessment</td>
</tr>
<tr>
<td></td>
<td>Comparing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contrasting</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Graphic organizers can be effective tools for organizing ideas in each writing stage (see Table 2). In the stage of generating ideas, one can use cluster diagram and branching. In the stage of drafting, the T-chart, fishbone map, tree diagram, character web, main idea chart and/or character analysis chart can be used. When revising, one can use venn diagram.
In each stage of the writing process, certain learning strategies are needed (see Table 2). When generating ideas, one needs to apply the strategies of brainstorming, resourcing, predicting, scanning and/or note-taking. When drafting, the strategies of summarizing, using context, imagery and making inferences are needed. In the stage of revising, the strategies of self-assessment, peer assessment and cooperation are used.

From the above model, we can conclude that in each stage of the writing process, critical thinking skills, graphic organizers and learning strategies are needed. Therefore, I am going to apply this model into the design of the curriculum to help Taiwanese vocational high school students to write well.
CHAPTER FOUR: DESIGN OF THE PROJECT

This curriculum project is designed to improve problem-solving skills for EFL vocational high school students in Taiwan using the writing process. Based on the model in the theoretical framework, I have designed two units: "Making Choices" and "Career Choices." Because they may lack problem-solving abilities, most Taiwanese students feel hesitant when they face choices. In fact, the first choice the vocational high school students have to make after graduation is a career choice. Therefore, these two units include topics that may prove to be useful and practical for vocational high school students.

The unit "Making Choices" presents procedures about how to make choices. In this unit, students can learn how to weigh the pro's and con's when facing a choice. They should be able to analyze the consequences and consider opposing viewpoints. They also can learn how to look for alternatives when making difficult choices. At the end of this unit, students will have the opportunity to think about choosing a mate by applying these procedures. The second unit, "Career Choices," also relates to the theme of choices. In this unit, students will focus on choosing a career of interest to them. They can learn how to collect information about this career and how to evaluate the
working environment. They will discuss the difficult decisions that people have to make while pursuing a career. In addition, they will learn how to predict tomorrow's jobs. At the end of this unit, students should be able to choose their short-term and long-term goals.

In this curriculum design, each unit is divided into five lessons. The suggested implementation schedule is three hours for each lesson. Every lesson has specific objectives and activities. The activities built into each lesson are varied. Some activities direct students to work alone, in pairs, or in small groups; other activities involve the whole class, working together. Some activities call for drafting essays; others direct students to solve problems, analyze written texts, or relate information. The core components of the teaching material and teaching strategies are as follow:

**Posters.** Each poster displays one kind of graphic organizer, such as a tree diagram, cluster diagram, T-chart, character's web, fishbone map and so on. In teaching, teachers use graphic organizers to analyze readings. Students use graphic organizers to organize their thoughts for prewriting and drafting.

**Focus sheets.** Focus sheets are designed to meet the lesson objectives. Every lesson contains one reading text
on a focus sheet which relates to the unit theme. The readings are representative of a number of different genres: magazine and newspaper articles, autobiographical and expository essays, poems and short stories, and textbook excerpts. Following a reading, various activities let students connect with their own knowledge, experience, and opinions in order to build a framework for comprehending a reading. Students are also called on to bring these connections into their writing. A great deal of the focus in the activities is on helping students develop and use the strategies of predicting, scanning, taking notes, summarizing, finding main ideas, and inferencing.

Work sheets. The work sheet is based on an interactive pedagogy that values collaboration and meaningful communication as powerful tools for learning. In practice, this part takes the form of classroom activities in which students discuss, read, and write together. In the writing activities, students gain greater fluency, strengthen their individual voices, increase their awareness of writing as a process, and apply strategies such as analyzing, evaluating, interpreting, etc. to enhance the process.

Homework sheets. The homework sheets relate to the work of the lesson. By reviewing students' homework, teachers can find out what students are doing well and where
they need to improve. Students can use homework sheets for self-assessment. In take-home writing tasks, students are free to come up with what they want to say. If students interpret the lesson differently and veer in different directions in completing the assignment, that is no problem. Students will receive a grade and teacher’s feedback for the homework.
CHAPTER FIVE: EVALUATION

To evaluate the effectiveness of this curriculum design, I focus on two types of assessment. The first type is informal assessment, and I will use this procedure to keep track of students' progress. The second type is product assessment, which deals with the quality of student's finished compositions. Through these two types of assessment, the teacher will be able to identify students' strengths and weaknesses; identify specific writing problems; evaluate the effectiveness of an instructional program; check mastery of skills; verify students' application of content; determine achievement levels; and provide positive feedback. To sum up, the goal of these two types of assessment is to help students become better writers.

Informal assessment involves student's self-assessment and peer assessment. In self-assessment, students are responsible for assessing their own writing. Students can assess their rough drafts as well as their finished compositions. Teachers can develop a self-assessment questionnaire for students (see Table 3). Some of the questions deal with the writing process and others with the compositions students have just finished.

Peer assessment focuses on evaluating the other group
Table 3. Self-Assessment Questionnaire

| Name: | Title: | Date: | Topic | | | | Organization | | | | Content | | | | Mechanics | |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|       |        |       | Did I prewrite to gather ideas for the topic? | No | Some | Yes |       | Did I organize my writing into paragraphs? | No | Some | Yes |       | Did I use synonyms so that I did not use the same word too often? | No | Some | Yes |       | Did I make changes based on suggestions from my writing group? | No | Some | Yes |       | Is my point of view consistent? | No | Some | Yes |       | |
|       |        |       | Have I kept to my topic? | No | Some | Yes |       | Does my conclusion summarize the topic? | No | Some | Yes |       | Did I combine short, choppy sentences? | No | Some | Yes |       | |
|       |        |       | DO all my paragraphs relate to my topic? | No | Some | Yes |       | |
|       |        |       | Does my title relate to the topic? | No | Some | Yes |       |

members’ performances while doing group work. For example, if there are five students in a group, each student needs to assess the other four students. Students can use...
Table 4. Peer Assessment Checklist

<table>
<thead>
<tr>
<th>Peer Assessment Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>1. The individual comes to the group prepared for the group work.</td>
</tr>
<tr>
<td>2. The individual completes all individual tasks for the group on time and with quality.</td>
</tr>
<tr>
<td>3. The individual participates in a constructive manner.</td>
</tr>
<tr>
<td>4. The individual encourages others to participate in a constructive manner.</td>
</tr>
<tr>
<td>5. The individual is a good, active listener.</td>
</tr>
</tbody>
</table>

Scale: 1 (not at all) 2 (poorly) 3 (adequately) 4 (well) 5 (extremely well)

the peer assessment checklist to assess the other group members’ performances (see Table 4).

Product assessment. Product assessment focuses on the quality of students' compositions, graphic organizers, critical thinking skills and presentations. Each of these four kinds of products has a rubric for scoring. An essay grading chart will be used for assessing compositions (see Table 5). A graphic organizer assessment checklist will be used for evaluating the effectiveness of using graphic
organizers (see Table 6). A critical thinking assessment checklist will be used for evaluating students' abilities of applying critical thinking skills (see Table 7). Presentations made during class will be evaluated by classmates by using a presentation checklist (see Table 8).

In the essay grading chart, the essay scores run from 5 to 1. Score of 5 considered excellent; score of 4 considered good; score of 3 considered adequate; score of 2 considered poor; and score of 1 considered failing.

The informal assessment takes 20% of the total grade, and the product assessment takes 80% of the total grade. If the average grade of the class is about 80%, then the curriculum design is effective.
Table 5. Essay Grading Chart (Applen, Jensen, McNenny, 1992, p. 28)

<table>
<thead>
<tr>
<th>Score</th>
<th>Content</th>
<th>Organization</th>
<th>Expression</th>
<th>Usage and mechanics</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>An important controlling idea fully developed with concrete and vivid detail.</td>
<td>Essay ordered in necessary steps that reveal a sense of symmetry and emphasis; paragraphs unified and coherent; transitions that aid the reader.</td>
<td>Sentences that are varied and forceful; diction that is fresh, precise, and idiomatic; tone that complements the subject, distinguishes the writer, and defines the audience.</td>
<td>In accord with standard usage.</td>
</tr>
<tr>
<td>4</td>
<td>A controlling idea developed with consistently pertinent detail.</td>
<td>Order of essay apparent; paragraphs unified and for the most part coherent; transitions functional.</td>
<td>Sentences that are correct but varied; diction that is clear and idiomatic; tone that fits the subject, persona and audience.</td>
<td>No serious deviations from standard usage.</td>
</tr>
<tr>
<td>3</td>
<td>A controlling idea that is apparent and supported with relevant detail.</td>
<td>Order and emphasis of essay inappropriate; paragraphs jumbled or under-developed; transitions unclear, mechanical, or tedious.</td>
<td>Sentences that lack necessary subordination, are tediously patterned, or immature; diction that is vague or unidiomatic; tone inconsistent.</td>
<td>Few deviations from standard usage, punctuation, and spelling.</td>
</tr>
<tr>
<td>2</td>
<td>A controlling idea that is too general, vague, or confused and insufficiently supported with specific details.</td>
<td>Essay ordered in necessary steps; paragraphs unified and coherent; transitions that aid the reader.</td>
<td>Sentences that are incoherent; diction that is nonstandard; tone indiscernible.</td>
<td>Difficulty with fragments or comma splices, agreement or other errors in usage, punctuation, or spelling.</td>
</tr>
<tr>
<td>1</td>
<td>No discernible idea controlling random details.</td>
<td>Sentences that are varied and forceful; diction that is fresh, precise, and idiomatic; tone that complements the subject, distinguishes the writer, and defines the audience.</td>
<td>Sentences that lack necessary subordination, are tediously patterned, or immature; diction that is vague or unidiomatic; tone inconsistent.</td>
<td>Serious problems with fragments with fragments, agreement and reference errors, or other errors in usage, punctuation, and spelling.</td>
</tr>
</tbody>
</table>
Table 6. Graphic Organizer Assessment Checklist

<table>
<thead>
<tr>
<th>Graphic Organizer Assessment Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: ____________________</td>
</tr>
<tr>
<td>3 = Excellent  2 = OK  1 = Needs Work</td>
</tr>
<tr>
<td>1. An appropriate type of graphic organizer is used.</td>
</tr>
<tr>
<td>2. The graphic organizer is used accurately.</td>
</tr>
<tr>
<td>3. The data are plotted accurately.</td>
</tr>
<tr>
<td>4. The graphic organizer is neat and presentable.</td>
</tr>
<tr>
<td>5. The graphic organizer is easy to interpret.</td>
</tr>
</tbody>
</table>
Table 7. Critical Thinking Assessment Checklist

<table>
<thead>
<tr>
<th>Critical Thinking Assessment Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name:</strong> __________________________</td>
</tr>
<tr>
<td>5 = Good  4 = Above Average  3 = Average  2 = Below Average  1 = Poor</td>
</tr>
<tr>
<td><strong>Score:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Application:</strong></td>
</tr>
<tr>
<td>Uses information methods, theories, and principles in new or appropriate situations.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Analysis:</strong></td>
</tr>
<tr>
<td>Breaks information into component elements or parts.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Synthesis:</strong></td>
</tr>
<tr>
<td>Combines elements or parts into whole unit.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Evaluation:</strong></td>
</tr>
<tr>
<td>Makes judgments about value usefulness</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Interpreting:</strong></td>
</tr>
<tr>
<td>Understands the meaning of information and ideas.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Classifying:</strong></td>
</tr>
<tr>
<td>Accurately sorts the identified items into the categories.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Comparison:</strong></td>
</tr>
<tr>
<td>Accurately identifies the similarities and differences among the items, using the identified characteristics.</td>
</tr>
</tbody>
</table>
Table 8. Presentation Checklist

<table>
<thead>
<tr>
<th>Name</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>5</td>
</tr>
<tr>
<td>Content</td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td></td>
</tr>
<tr>
<td>Expression</td>
<td></td>
</tr>
<tr>
<td>Usage of words</td>
<td></td>
</tr>
</tbody>
</table>

5 = Excellent 4 = Good 3 = Adequate 2 = Poor 1 = Fail

Creativity
UNIT OVERVIEW

Unit One: Making Choices

Lesson 1: Weighing the Pros and Cons
   Reading: The Dog and the Wolf
   Graphic Organizer: T-Chart
   Critical Thinking Strategy: Applying

Lesson 2: What Are the Consequences
   Reading: Crashing into Adulthood
   Graphic Organizer: Fishbone Map
   Critical Thinking Strategy: Evaluating

Lesson 3: Opposing Viewpoints
   Reading: Environment or Energy
   Graphic Organizer: Main Idea Chart
   Critical Thinking Strategy: Analyzing

Lesson 4: Looking for Alternatives
   Reading: a. Why We Like Hard, Positive Choice
       b. Deciding
   Graphic Organizer: Cluster Diagram
   Critical Thinking Strategy: Interpreting

Lesson 5: Final Project - Choosing A Mate
   Reading: a. My Rule
       b. Winner
   Graphic Organizer: Note-taking Chart
   Critical Thinking Strategy: Evaluating
OBJECTIVE:

1. To learn how to weigh the pros and cons when making choices
2. To learn to use a T-chart
3. To learn a critical thinking strategy - Applying

VOCABULARY: fable, beneath, guard, ranch, curious, collar, chain.

MATERIAL:

1-1 Focus Sheet, 1-2 Focus Sheet, 1-3 Work Sheet, 1-4 Work Sheet.

INVOLVING STUDENTS' BACKGROUND, INTERESTS, AND PRIOR KNOWLEDGE:

Ask students the following questions:

What are the pros and cons of studying abroad?
What are the pros and cons of living in a city?
What are the pros and cons of using a credit card?

TEACHING WITH VARIETY:

VISUAL: Distribute 1-1 Focus Sheet (T-chart) to students to show what a T-chart is.

ACTIVITY: 1. Divide students into groups of five. Have each group choose one of the above questions and list their answers in the chart on 1-1 Focus Sheet. Ask them to consider what choice they would make based on the list of pros and cons.

2. Distribute 1-2 Focus Sheet (The Dog and the Wolf) to students. In this fable, a wolf has to make a difficult choice. Read the first paragraph of the story and ask students to predict what this choice might be.
3. Read and explain the fable to check students' prediction from Activity 2.

4. Have students read the fable again; ask them to find what reasons the wolf had for and against going to live with the dog. Students need to list the reasons in a T-chart; then compare and share lists with classmates.

5. Divide students into groups of five; have them discuss the following questions. In the group, every student will write answers to the questions and then one student will report the group's ideas to the class. Each student will give one idea for each of the questions.

   (1) Who made the better choice, the dog or the wolf? Why? Give five reasons.
   (2) In your opinion, what does it mean to be free?

6. Distribute 1-3 Work Sheet to students. Have them read the sentences from the story and restate them in their own words.

7. Pair students and distribute 1-4 Work Sheet. Ask them choose the ideas listed on the Work Sheet they would include in a one-paragraph summary. Students have to share ideas with classmates and tell why they think a particular idea is central to the fable.

Responding to diversity with a range of activities:

Drawing and writing project: First, give students ten minutes to discuss with a classmate about what lesson they learned from this fable. Second, direct students to draw a situation in which they may apply this lesson. Every student may need to draw five to six pictures to describe the situation and tell what they would do. Third, have students write two to three sentences in each of the pictures to explain the pictures. Final, have students present and describe their works to the class.
Learning center: Offer some relevant Chinese fables to students.

Primary language support: Label the vocabulary cards in Chinese.

Take home: Every student interviews three married couples and asks their pros and cons for getting married. Every couple provides two pros and two cons. Students need to list the answers in a T-chart.

Assessment:

Have students make a T-chart to record their pros and cons of living in a big city. Every student needs to provide four pros and four cons. Ask students to identify the pros and cons from the wolf/dog fable. Each student will add a sentence to their T-chart to tell if the pros and cons from the wolf/dog story can apply to their situation.

Assessment rubric: Graphic Organizer Assessment Checklist
LESSON PLAN TWO
What Are the Consequences?

Objective:

1. To explore the possible consequences of a choice
2. To learn a Fishbone Map
3. To learn a critical thinking strategy - Evaluating

Vocabulary: smirking, dunce, carport, pals, show off, stable, wiped out, hit the gas, restitution, sobering, maturity, catastrophic, gratification

Material:

2-1 Poster, 2-2 Focus Sheet, 2-3 Focus Sheet, 2-4 Work Sheet.

Involving students' background, interests, and prior knowledge:

Ask students: What are the possible consequences, or effects, of the actions below?

- You neglect to read your class assignments and rarely attend class.
- You are often late for work.
- You invite a friend to lunch and then you forget to go.

Teaching with variety:

**Visual:** Use 2-1 Poster to show students what a Fishbone Map is.

**Activity:** 1. Distribute 2-2 Focus Sheet (Crashing into Adulthood) to students. Have them read the essay, and write their own thoughts and questions in the margin.

2. Divide students into groups of five. Have them discuss the following questions:

   (1) What is your opinion of the title of this essay? Why?
(2) Did you like the way the writer started the essay? Do you think it is a good introduction? Why or why not?
(3) What choice did the narrator of the story make? What were the consequences of this choice?

3. Distribute 2-3 Focus Sheet to students. Have them write a short essay to explain what happened in their own words.

4. Teacher collects the essays from previous activity and gives some commands. Then have students revise their essays, and read their revised essays to a classmate.

5. Divide students into groups of five, and distribute 2-4 Work Sheet to them. Have them complete this chart. Each student needs to provide one answer for one paragraph.

6. Reread the essay on 2-2 Focus Sheet and use 2-1 Poster to explain how the author organized his ideas; and have students take notes on the Fishbone Map.

Responding to diversity with a range of activities:

Writing project: Have students write an essay about evaluating a choice that they made in the past. Students should explain the consequences of this choice and tell how they feel about it now. Here are some suggestions students can follow:
(1) With several classmates, brainstorm a set of difficult choices that they each made in the past.
(2) When a topic has been chosen, collect details about it. Students should ask themselves questions of who, what, when, where, why, and how about this experience. Then quickwrite for several minutes.
(3) Students will make a Fishbone Map first to organize their ideas before they start to write.
(4) Write a first draft.
(5) Students get together with a group of classmates, and take turns reading each other’s papers.
Learning center: Provide students some quickwriting tips.

Take home: Have students revise their writing projects.

Assessment:

Have students write a one-to-two-page essay to evaluate a significant experience or achievement that has special meaning to them.

Assessment rubric: Critical Thinking Assessment Checklist and Essay Grading Chart

Assessing homework: Assess of homework using 0-5 global scoring (5=best).
LESSON PLAN THREE
Opposing Viewpoints

Objective:

1. To search for the opposing viewpoints of a choice
2. To learn how to use a Topic/Main Idea Chart
3. To learn a critical thinking strategy - Analyzing

Vocabulary: dam, marshy, touched off, eliminate, cite, habitats, fragile.

Material:

3-1 Focus Sheet, 3-2 Work Sheet.

Involving students' background, interests, and prior knowledge:

Ask students to state the opposing viewpoint for each of the opinions below.

People should not be allowed to smoke in public places.
It's never okay to lie.

Teaching with variety:

Activity: 1. Distribute 3-1 Focus Sheet (Environment or Energy) to students. Have students study the map and the pictures and answer the questions below:

(1) Where is the Arctic National Wildlife Refuge (ANWR)?
(2) How would you describe the land inside ANWR?
(3) What do you think this land is used for?

2. Read and explain the article on 3-1 Focus Sheet to the class. Have students look for opposing viewpoints and underline the reasons each side gives to support its opinion.

3. Divide students into groups of five.
Have each group discuss its opinions about for or against oil exploration in the ANWR region. Then students report the group ideas to the class.

4. Pair students. Distribute 3-2 Work Sheet (Topic/Main Idea Chart). Have them identify the topic and main idea in each paragraph. Then they complete the chart.

Responding to diversity with a range of activities:

Hold a debate. The topic is: Abortion should be legal. Divide students into groups of three. One group stands for, one group stands against, and one group be the judge. Students are free to choose to join one of the groups.

Learning center: Offer videotapes, pictures, magazines and books about nature that are relevant to this topic.

Take home: Writing assignment. Every student chooses a controversial issue; collects background information; and collects ideas and information about the opposing viewpoints on this issue. Students might interview classmates, parents or neighbors. Then write a one-page essay. In the writing, students need to give credit to others for their ideas, whether they quote directly or indirectly.

Assessment:

Every student makes a ten-minute oral presentation. The topic is "Opening Casinos in Taiwan." Students need to analyze their own opinions about this issue first, then provide at least three opposing viewpoints.

Assessment rubric: Critical Thinking Assessment Checklist and Presentation Checklist

LESSON PLAN FOUR
Looking for Alternatives

Objective:

1. To know how to look for alternatives when making a choice
2. To learn to use a Cluster Diagram
3. To learn a critical thinking strategy - Interpreting

Vocabulary: script, stigmatize, diminishing, impulsive, trap.

Material:

4-1 Poster, 4-2 Focus Sheet, 4-3 Work Sheet, 4-4 Focus Sheet.

Involving student’s background, interests, and prior knowledge

Ask students the following question:

Think back to Nick Sergi’s essay in Lesson Two. Sergi and his friends wanted to play basketball but the car was blocking the hoop. What were their alternatives?

Teaching with variety:

Visual: Use 4-1 Poster to show students what a Cluster Diagram is.

Activity: 1. Have students read the title and study the pictures on 4-2 Focus Sheet (Why We Like Hard, Positive Choices). Then ask them the questions below:

(1) What do you think this article is about?
(2) What kind of article is it - fiction or nonfiction?

2. Read and explain the article on 4-2 Focus Sheet. Ask students to underline the important ideas and write any ideas.
and questions that come to mind in the margin.

3. Have students write a short essay about what interested them most in this article? What ideas, questions, or personal memories did it bring to mind? Students then take turns revise each other's essays with a classmate.

4. Pair students and distribute 4-3 Work Sheet to them. Students have to tell if they agree or disagree with these ideas and give an example to support their opinion.

5. Divide students into groups of five. Have them reread the folk tale in Lesson One. Then discuss what connection can they make between this story and the article "Why We Like Hard, Positive Choices." Students then share ideas with classmates.

Responding to diversity with a range of activities:

Study a poem. Distribute 4-4 Focus Sheet (Deciding) to students; and have some students read aloud. Divide students into groups of five. Have each group make a Cluster Diagram to interpret Moore's ideas. The Cluster Diagram starts with the word choice such as 4-1 Poster. Every group presents its diagram and ideas to classmates.

Learning center: Provide some relevant poems to students.

Take home: In this unit, students have read four selections related to the theme of choice. Based on what they have read as well as students' own experience, they respond to the quotation below. Every student writes a one-to-two-page essay discussing a difficult choice they had to make or will have to make.

"The difficulty in life is the choice."
-George Moore (Irish novelist and poet)
ASSESSMENT:

Give students ten minutes to think about their essay. Students will find the three most difficult aspects of their situation and form three clusters. They will then find ideas or possible outcomes connected to each cluster. Students will discuss their cluster with a peer and add ideas. They will then write one paragraph about what they have added to their ideas about making a difficult choice.

Assessment rubric: Graphic Organizer Assessment Checklist and Essay Grading Chart
LESSON PLAN FIVE
Final Project: Choosing a Mate

Objective:

1. To explore the characteristics of a good mate
2. To learn to use a Note-taking Chart
3. To learn a critical thinking strategy - Evaluating

Vocabulary: dumpling, stew, soothe, knack, rake up, hail, shovel.

Material:

5-1 Poster, 5-2 Work Sheet, 5-3 Focus Sheet, 5-4 Focus Sheet, 5-5 Homework Sheet.

Involving student's background, interests, and prior knowledge:

Ask students the following questions:

How do you define "mate" in Chinese and in English?
What do you think are the characteristics of a good mate?

Teaching with variety:

Visual: Use 5-1 Poster to identify the activities in the poem "My Rule"

Activity: 1. Have students get together with five to six classmates of the same gender. List the characteristics of a good mate in order from the most important to the least important. List the groups' ideas on the board and compare lists with the other groups.

2. Distribute 5-2 Work Sheet to students. Have them read the sentence on it; and write their ideas about what the person will say.

3. Distribute 5-3 Focus Sheet (My Rule) to students; and read the poem to the class.
4. As the poem is read, have some students take turns pantomiming the tasks in the photographs on 5-1 Poster. Let students guess the task. Then pair students; have them read the poem aloud to each other.

5. Divide students into groups of five; have them discuss the following questions. Then they share ideas with the class.

(1) Do you think the speaker of the poem is a man or a woman? Why?
(2) Would you advise someone to marry this person? Why or why not?
(3) What message might this poem have for young people?

Responding to diversity with a range of activities:

To do a simulation. Divide students into groups of four, and have each group develop a play based on the poem "My Rule."

Learning center: Offer several newspaper advertisements about looking for a mate.

Primary language support: Label the vocabulary cards in Chinese.

Take home: Distribute 5-4 Focus Sheet (Winner) and 5-5 Homework Sheet to students. Ask them read the poem and complete the chart.

Assessment:

Have students imagine that they are Mrs. Macey in the poem "Winner." Students write a one-to-two-page essay to explain what happened to them, and tell how they feel about these events.

Assessment rubric: Essay Grading Chart

Grade homework: Use 0-5 as a global score for evaluating note-taking (5=best).
UNIT OVERVIEW

Unit Two: Career Choices

Lesson 1: Choosing a Career
Reading: So-So Student, Nobel Prize-Winner
Graphic Organizer: Tree Diagram
Critical Thinking Strategy: Interpreting

Lesson 2: Choosing Where to Work
Reading: Why I Quit the Company
Graphic Organizer: Cluster Diagram
Critical Thinking Strategy: Comparing

Lesson 3: Making Difficult Career Decisions
Reading: The Hopeland
Graphic Organizer: Character Web
Critical Thinking Strategy: Synthesizing

Lesson 4: Predicting Tomorrow's Jobs
Reading: Which Occupations Offer Tomorrow's Jobs?
Graphic Organizer: T-chart
Critical Thinking Strategy: Analyzing

Lesson 5: Final Project - Choosing Goals
Reading: At 81, This Graduate Proves It's Always Possible to Learn More
Graphic Organizer: Character Analysis Chart
Critical Thinking Strategy: Classifying
LESSON PLAN ONE
Choosing a Career

Objectives:

1. While exploring career possibilities, students can list four career options for themselves
2. To learn how to make a Tree Diagram
3. To learn a critical thinking strategy - Interpreting

Vocabulary: so-so, Depression year, spurred him on, conceptual, budding, innate, unconventionally, the little kid who said the emperor has no clothes, collaborations, contiguous.

Material:

A-1 Poster; A-2 Focus Sheet, A-3 Focus Sheet; A-4 Work Sheet, A-5 Work Sheet; A-6 Homework Sheet.

Involving students' background, interests, and prior knowledge:

Use A-1 Poster to ask students the following questions:

Which of the occupations shown here is interesting to you? Why?
What kinds of things do these people do at work?
What kinds of training do these people need for their jobs?

Teaching with variety:

Visuals: Use A-2 Focus Sheet (Tree Diagram) to show what a tree diagram is.

Activity: 1. Distribute A-3 Focus Sheet (So-So Student, Nobel Prize-Winner) to students and have them write a short essay of the following questions.

(1) What does the title of the newspaper article mean to you?
(2) Based on the title, what do you think the article is about?
2. Divide students into groups of five; have
them discuss what it takes to be a successful scientist. List students’ ideas in a Tree Diagram on the board.

3. Read and explain the article on A-3 Focus Sheet to students and then have them underline the words and phrases that describe a successful scientist.

4. Distribute A-4 Work Sheet (Guess the Meaning) to students; have them use context to guess the meaning of the underlined words.

5. Pair students and distribute A-5 Work Sheet (Making Inferences) to students; have them make inferences based on the information in the given sentences.

Responding to diversity with a range of activities:

Divide students into groups of five. Ask each group to brainstorm a list of careers and then each student chooses one that interests him/her. Have them list what they have already know about this career. For example, what a person does in this career on the job, and what personal qualities and abilities a person in this career need to have.

Learning center: Invite some professional experts to class to discuss their jobs with students.

Primary language support: Label vocabulary cards in Chinese.

Take home: Distribute A-6 Homework Sheet. Ask students to look for information about the career they choose in the library and then complete the Tree Diagram.

Writing process: Draft and peer edit.

Assessment:

Working from the Tree Diagram. Each student list four career options for himself/herself. Then everyone writes a
one-to-two-page essay to tell the reasons why he/she chooses these four career options.

**Assessment rubric:** Essay Grading Chart

**Grade homework:** Peer assessment using the Graphic Organizer Assessment Checklist.
LESSON PLAN TWO
Choosing Where to Work

Objective:

1. To identify what would be an ideal place to work
2. To review how to use a Cluster Diagram
3. To learn a critical thinking strategy - Comparing

Vocabulary: prestigious, yuppie, stifling, sick leave, annual leave, norm, brainwashed, throw their money around, opt out of.

Material:

B-1 Poster, B-2 Work Sheet, B-3 Focus Sheet, B-4 Worksheet, B-5 Work Sheet.

Involving students' background, interests, and prior knowledge:

Ask students the following questions:

What are the characteristics of an ideal place to work?
How do you describe a company from the point of view of an unhappy employee?

Teaching with variety:

Visual: Use B-1 Poster (Cluster Diagram) to show students what a cluster diagram is.

Activity: 1. Divide students into groups of five. Distribute B-2 Work Sheet (Cluster Diagram) to each group; let students together brainstorm a set of ideas about what are the characteristics of a good place to work. Every student takes turns writing his/her ideas on the cluster diagram. Ask each group together to choose the three most important characteristics; then share with class.

2. Distribute B-3 Focus Sheet (Why I Quit the Company) to students. Read the title of the article and the first paragraph to
students; ask them to predict what reasons might the writer give to explain why he quit the company. Teacher and students work together to list several possible reasons on the board.

3. Have students scan the article on B-3 Focus Sheet and look for the reasons why the writer, Tomoyki Iwashita, quit the company. Students underline any reasons they find. Then together look back at the list of possible reasons in Activity 2. Ask students to identify which of Iwashita's reasons appear on the list.

4. Pair students and have them discuss the following questions:

(1) Which of Iwashita's reasons for quitting makes the most sense to you? Why?
(2) What would you like about working for the company described in the article? What wouldn't you like?

5. Distribute B-4 Work Sheet to students; have them look back at the article to find the two-word verbs. And then complete the exercise.

6. Divide students into groups of five; give them B-5 Work Sheet. Have them look over the article with a writer's eye and discuss the questions written on the work sheet. Students take turns reporting each group's ideas to the class.

Responding to diversity with a range of activities:

Students will make two Cluster Diagrams. One from Tomoyki Iwashita's viewpoints and the other from students' own viewpoints of an ideal place to work. Students then make a Compare/Contrast Matrix to compare these two diagrams. Then students write one paragraph summarizing the differences between Tomoyki Iwashita's ideas of a good place to work and yours.
Learning center: Offer students a cassette of a conversation between two employees at the company cafeteria.

Take home: Have students ask their parents or friends about places where they worked. Find out what they liked and disliked. Then students write a one-to-two-page essay to report their findings.

Assessment:

Each student makes a ten-minute oral presentation about their ideal place to work.

Assessment rubric: Presentation Checklist

Grade homework: Essay Grading Chart
LESSON PLAN THREE
Making Difficult Career Decisions

Objective:

1. To know what are some of the decisions that people have to make while pursuing a career
2. To learn how to make a Character Web
3. To learn a critical thinking strategy - Synthesizing

Vocabulary: snubbing, trunk, eking out, relegated, fan, startled, taut, redress.

Material:

C-1 Poster, C-2 Focus Sheet, C-3 Work Sheet, C-4 Work Sheet, C-5 Homework Sheet.

Involving student's background, interests, and prior knowledge:

Ask students the following questions:

What are some of the decisions that people have to make while pursuing a career?
Which of these decisions might be especially hard to make? Why?

Teaching with variety:

Visual: Use C-1 Poster to show students what the Character Web is.

Activity: 1. Distribute C-2 Focus Sheet (The Hopeland) to students. Tell students that the passage on the C-2 Focus Sheet is an excerpt from a longer essay. In this part of the essay, the writer explains that her father had to defer, or put aside, his plans for the future. Have students think why might this be and together brainstorm a set of possible reasons.

2. Read the first paragraph of the passage to students and then pair students; have them discuss the following questions.
(1) From whose point of view is the passage written?
(2) What seems to be the writer's topic?
(3) What questions does this paragraph raise for you?

3. Read the rest of the passage to students and ask them to underline the important ideas; have them write their thoughts and questions in the margin. At the same time, ask students the following questions.

(1) What career opportunities did the writer's father have? What did he choose to do? Why?
(2) What conflict does the writer feel? What advice would you give her?
(3) Do you think the writer's father is proud of his children? Why or why not?
(4) Do you think the writer's father is a successful man? Why or why not?

4. Divide students into groups of five; ask them to look over the reading with a writer's eye. Have them discuss the following questions and write a short essay for each question. Share each group's ideas with the class.

(1) What do you think the writer's purpose is? Does the writer state her purpose?
(2) Which of the writer's words and phrases really help you to "see" her father? Give several examples.
(3) Which details do you find the most interesting? Why?

5. Divide students into groups (7-8 persons) and have them role-play "The Hopeland."

6. Pair students and distribute C-3 Work Sheet; have them complete the exercises,
and then share their answers with classmates.

Responding to diversity with a range of activities:

Distribute C-4 Worksheet (Character Web) to students and ask them to interview their parents or grandparents. The students have to ask them about their dreams, careers, what decisions that they did while pursuing the dreams or careers, what decisions were the hardest to make, and do they think they are succeed, why or why not. Students have to write an article according to their interview and complete the Worksheet. Have every student to share his/her Character Web and make a presentation.

Learning center: Invite two or three teachers to share their experiences about making difficult career decisions.

Primary language support: Label the vocabulary cards in Chinese.

Take home: Distribute C-5 Homework Sheet to students; have them complete the exercises from their own experiences.

Assessment:

Every student needs to make a character web for himself/herself. According to their character web, students write a one-to-two-page essay to describe themselves.

Assessment rubric: Graphic Organizer Assessment Checklist and Essay Grading Chart

Assessing homework sheet: Use 0-5 as a global score for evaluating homework (5=best).
LESSON PLAN FOUR
Predicting Tomorrow's Jobs

Objectives:

1. To predict tomorrow's jobs
2. To review how to use a T-chart
3. To learn a critical thinking strategy - Analyzing

Vocabulary: lay off, baby boomlet, baby boomers, spillover, litigious, trends, radon, affluent.

Material:

D-1 Poster, D-2 Work Sheet, D-3 Focus Sheet, D-4 Work Sheet, D-5 Work Sheet.

Involving students' background, interests, and prior knowledge:

Ask students the following questions:

Which occupations offer tomorrow's jobs?
Why will these occupations be needed?

Teaching with variety:

Visual: Use D-1 Poster (T-Chart) to teach students what a T-chart is.

Activity: 1. Distribute D-2 Work Sheet (Predicting Tomorrow's Jobs) to students and have them list their ideas in the chart. Compare their T-chart with classmates.

2. Distribute D-3 Focus Sheet (Which Occupations Offer Tomorrow's Jobs) to students. Ask them to scan this newspaper article to find the occupations mentioned by the writer. Have students add these occupations to the D-2 Work Sheet and then students predict why these occupations will be necessary.

3. Read and explain the article on D-3 Focus Sheet to students and then discuss
students' predictions and the writer's ideas.

4. Divide students into groups of five. Distribute D-4 Work Sheet (Dictionary Definition) to students; have them discuss and answer the questions. Later, each group shares their answers with classmates.

5. Distribute D-5 Work Sheet (Source of Quote) to students; have them complete the chart. Then pair students. Every student has to share ideas about these people to his/her partner, as in the example: According to Patricia Aberdeen, in the future...

6. Have students look at the article on D-3 Focus Sheet again with a writer's eye. This article lacks a conclusion. Ask students to write a conclusion for this article.

Responding to diversity with a range of activities:

Ask students to imagine that they work for the Taiwan Bureau of Labor Statistics and a young person writes to them for advice in choosing a career. Students should give this young person advice according to their knowledge of the job market in the future. Every student has to write his/her response and then submit the letter to the instructor. The instructor will give students some commands about their letters. Then students need to revise the letters and submit them again.

Learning center: Offer several local newspapers; have students study the Help Wanted section and look for the areas that offer today's jobs. Discuss with students which areas seem to need the most people and which occupations are advertised most frequently.

Take home: Every student makes a T-chart to record their observations from the Help Wanted section in the local newspapers.
Assessment:

Each student writes a one-to-two-page essay to predict three jobs which will be needed in the year of 2010. Students need to analyze the reasons why they think these jobs will be needed in the future.

Assessment rubric: Critical Thinking Assessment Checklist and Essay Grading Chart

Grade homework: Use Graphic Organizer Assessment Checklist.
LESSON PLAN FIVE
Final Project: Choosing Goals

Objective:

1. To explore short-term and long-term goals
2. To learn how to use a Character Analysis Chart
3. To learn a critical thinking strategy - Evaluating

Vocabulary: skullcap, volunteer, stroke, pneumonia, pacemaker.

Material:

E-1 Work Sheet, E-2 Focus Sheet, E-3 Work Sheet.

Involving students' background, interests, and prior knowledge:

Ask students the following questions:

How do you define a short-term goal?
How do you define a long-term goal?

Teaching with variety:

Visual: Draw a Character Analysis chart on board to show students how to make a Character Analysis Chart.

Activity: 1. Distribute E-1 Work Sheet to students. Have them complete the exercise.

2. Distribute E-2 Focus Sheet to students. Read and explain the article to students.

3. Pair students and distribute E-3 Work Sheet (Character Analysis chart) to them. Have students scan the article to find the information and complete the chart.

4. Divide students into groups of five. Have each group discuss the following questions:

(1) What interested you most in this article?
(2) Would you like to know Jacob Blitzstein? Why or why not?
(3) When you are 81, what goals do you think you will have?

5. Have students write their responds about above questions on the paper. They need to write one paragraph for each of the questions. Then every student exchanges his/her paper with a classmate, and takes turns read and revise each other’s paper.

Responding to diversity with a range of activities:

Students choose one of the people below. Describe the graduation ceremony at Central High School from this person’s point of view. The description should reveal something about the speaker’s personality, attitudes, and judgments. Write the description in the first person.
1. Jacob Blitzstein
2. Jesus Ibarra
3. Lanny Nelms
4. Jacob Blitzstein’s grandchild

Learning center: Share my own experience about graduation ceremony in CSUSB with students.

Take home: Every student interviews one of his/her best friend. Students need to record this friend’s information on a Character Analysis Chart. According to this chart, every student writes a one-to-two-page essay to evaluate this friend.

Assessment:

Every student makes a ten-minute oral presentation about his/her short-term and long-term goals.

Assessment rubric: Presentation Checklist

APPENDIX B: MATERIALS OF UNIT ONE
This chart can be used to list information associated with a topic. List your group’s answers in the chart. Based on your list of pros and cons, what choice would you make?

<table>
<thead>
<tr>
<th>Pros (reasons for)</th>
<th>Cons (reasons against)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Once there was a wolf who was nearly dead with hunger. He was very thin, so thin that the outline of his bones could be seen clearly beneath his thinning coat of hair. With hardly enough energy to walk, the wolf had little hope of finding food. As he lay beneath a large tree, a dog out for a walk noticed him. Seeing how thin and hungry-looking the wolf was, the dog felt sorry for him and said, "You are in terrible shape! You look as if you haven't eaten for many days."

"You're right," said the wolf. "I haven't eaten because you and your friends are doing such a good job of guarding the sheep. Now I am so weak that I have little hope of finding food. I think I shall surely die."

"Then why not join us?" asked the dog. "I work regularly and I eat regularly. You could do the same. I will arrange it. You can help me and the other dogs guard the sheep. In that way, we won't have to worry about your stealing the sheep any more and you won't have to worry about going hungry any more. It's a good deal for both of us."

The wolf thought it over for a few minutes and then decided that the dog was right. So they went off together toward the ranch house where the dog lived. But, as they were walking, the wolf noticed that the hair on a certain part of the dog's neck was very thin. He was curious about this, for the dog had such a beautiful coat everywhere else. Finally, he asked the dog about it.
“Oh, don’t worry about that,” said the dog. “It’s the place where the collar rubs on my neck when my master chains me up at night.”

“Chained up!” cried the wolf. “Do you mean that you are chained up at night? If I come to live with you, will I be chained up at night too?”

“That’s right,” answered the dog. “But, you’ll get used to it soon enough. I hardly think about it anymore.”

“But, if I am chained up, then I won’t be able to walk when I want to take a walk or to run where I want to run,” the wolf said. “If I come to live with you, I won’t be free anymore.” After saying this, the wolf turned and began to run away.

The dog called after the wolf, saying, “Wait! Come back! I may not be able to do everything I want to do, but I’m healthy, well-fed, and I have a warm place to sleep. You are too worried about keeping alive to enjoy life. I’m more free than you are.”
1-3: Work Sheet

Read these sentences from the story and restate them in your own words.

a. Once there was a wolf who was nearly dead with hunger.

b. He was very thin, so thin that the outline of his bones could be seen clearly beneath his thinning coat of hair.

c. Seeing how thin and hungry-looking the wolf was, the dog felt sorry for him.

d. "Now I am so weak that I have little hope of finding food."

(Blanton & Lee, 1995a, p. 86-86)
A summary is a short version of a story in your own words. It gives the main ideas, but it leaves out unnecessary details. Which of these ideas would you include in a one-paragraph summary of the fable "The Dog and the Wolf."

☐ 1. A wolf was sitting under a large tree.
☐ 2. The wolf was starving to death.
☐ 3. A dog was taking a walk.
☐ 4. The dog's job was to guard the sheep.
☐ 5. The dog felt sorry for the wolf.
☐ 6. The dog invited the wolf to come live with him.
☐ 7. The dog lived in a ranch house.
☐ 8. The wolf noticed the thin hair on the dog's neck.
☐ 9. The dog's coat was beautiful except around his neck.
☐ 10. The wolf learned that the dog was chained up at night.
☐ 11. The dog didn't mind being chained up at night.
☐ 12. The wolf didn't want to lose his freedom.
☐ 13. The wolf ran away.

(Blanton & Lee, 1995a, p. 88)
A Fishbone Map is used to show the causal interaction of a complex event (an election, a nuclear explosion) or complex phenomenon (juvenile delinquency, learning disabilities).
Crashing into Adulthood
by Nick Sergi

As I started the car, I remember looking at my friends and smirking. It wasn't a real smirk, but an I'm-scared-but-still-cool smirk. I looked at them, hoping one of them would try to stop me, even though I probably would not have let him. As I took my foot off the brake, I got a feeling of power and control. I felt like Neil Armstrong stepping on the moon. Even though my friends encouraged me to do it, none of them would have tried it. Then, as quickly as it began, I was staring at crushed metal and splintered wood. I was no longer on a cloud; I was more the dunce sitting in the driveway. The crushed metal was just my brother's bicycle (which I had to replace), and the splintered wood was one of the supporting posts of our carport.

When this accident occurred, I was fourteen, trying to become an adult; however, after it happened I felt more like a child than ever. It was late Saturday afternoon; Wyatt and Dave, pals of mine, were going to play some basketball in my driveway but our car was blocking the hoop. Since

(Continued)
my parents were not at home and neither of my friends could drive, I decided to pull the car in and show off the driving lessons I had been receiving from my dad. Our carport is much like a garage, except instead of walls it is held up by nine posts, cemented for support. The structure is very stable, but not necessarily if a one and one-half ton object runs into one of those posts.

As a student of physics, I've learned about Isaac Newton and his laws of motion. The first law is called inertia and says when an object is at rest it stays at rest unless acted on by an outside force. Well, thankfully for me, the car's force was not enough to upset the inertia of the carport. Otherwise, thousands of pounds of wood and shingles would have fallen on top of me and the car. I would have been in considerably more trouble than I was.

When confronted by my father, I honestly could not recall what happened. For some reason, those three seconds of my life were totally wiped out of my memory. Later, as I tried to describe the sequence of events, my dad's anger was replaced with a smile. He knew what had happened right away and he was very eager to share it with me (and half the neighborhood). "You hit the gas instead of the brake, and you are not the first person to make that mistake." I felt better but still very foolish. The price of this foolish moment (Continued)
was a few hundred dollars and many hours of labor as restitution. How could I have done something that cost me the equivalent of about three months of earnings from newspaper delivery? I hated delivering newspapers.

Cars, responsibility, and adulthood are sobering. Unfortunately, a lot of people don't understand the danger a car represents or the responsibilities of maturity until something catastrophic happens. Clearly, most people learn about life by experiencing it. Sometimes I wish we could learn without pain, suffering, or harming others. It is both painful and helpful now when I remember the crash, my friends cheering me on, my own foolish pride, how it turned out, and how I felt.

Three years later, I find myself thinking about my decisions and actions more carefully. I try to consider what could go wrong before I step forward. I realize that whatever I do, I alone am responsible for the consequences. I have found that when I can get by the desire for instant gratification and self-admiration, a much better opportunity usually occurs later. I think of all the "crashes" in my past and I feel prepared to face the challenges I will encounter in the upcoming years.
The diagram below shows the carport at Nicholas Sergi's house. Using the diagram, explain in your own words what happened.

(Blanton & Lee, 1995a, P. 95)
How did Sergi organize his ideas? Reread his essay and take notes in the chart.

<table>
<thead>
<tr>
<th>Paragraph</th>
<th>Topic/Main idea</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

(Blanton & Lee, 1995a, P. 97)
Environment or Energy

from A More Perfect Union, a social studies textbook

The facts point to the urgent need to open 1.5 million acres of the Coastal Plain of the Arctic National Wildlife Refuge (ANWR) to exploration. The facts also highlight the industry's ability to develop arctic oil in an environmentally sound manner.

—Oil Company Publication
Winter 1989

If we're going to develop this [the ANWR coastal plain], we might as well go ahead and dam' the Grand Canyon. You can make the same arguments for national energy needs. So why don't we? Because the nation has decided it's in its own best interest to preserve the Grand Canyon and find our energy elsewhere.

—Tim Mahoney,
"An Arctic Dilemma,"
National Geographic,
December 1980

BACKGROUND

1 The wild and remote lands of northeast Alaska are home to a variety of wildlife—grizzly bears, wolverines, Dall sheep, foxes, moose, and North America's largest caribou herd. These lands are also the summer nesting places of snowy owls, peregrine falcons, golden eagles, and many other birds.

2 In 1960, to protect the wildlife in this unspoiled region, Congress set aside 8.9 million acres as the Arctic National Wildlife Range. Twenty years later, in 1980, Congress added 10 million acres to the protected area, and renamed it the Arctic National Wildlife Refuge (ANWR). Congress also said that 1.5 million

(Continued)
acres of the refuge could be studied as a possible source of oil and gas. The area to be studied was the coastal plain—the flat, marshy land between the rugged mountains of the Brooks Range and the Arctic Ocean.

In early 1987, the U.S. Department of the Interior released the results of a six-year study of the ANWR coastal plain. Their report stated that the region might contain as much as 9.2 billion barrels of oil.

CONFLICT OVER THE LAND

The report recommended beginning oil exploration as soon as possible, and touched off a heated debate between oil companies and environmentalists. Producers argue that the nation needs the energy and that the ANWR region is the most promising oil exploration site in the country. Developing the site, they say, would eliminate the need to purchase imported oil. It would also help the Alaskan economy by bringing in money and jobs. They cite polls showing that most Alaskans want to develop the state’s mineral resources.

Environmentalists argue that oil drilling would be harmful to the environment, destroy wildlife habitats, and disturb the fragile balance of the Alaskan wilderness. The oil industry cannot be trusted to protect the environment, they say, pointing to the oil spills that have happened around the world, despite the industry’s assurances that such events will not happen.
### 3-2: Work Sheet

Identify the topic and main idea in each paragraph.

<table>
<thead>
<tr>
<th>Paragraph</th>
<th>Topic</th>
<th>Main idea</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Animals that live in northeast Alaska</td>
<td>Many different kinds of animals live in northeast Alaska.</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
hard to choose

sometimes too many

alternatives

Choice

freedom
difficult choices

(Blanton & Lee, 1995a, P. 117)
We feel most free personally when we have a manageable number of positive alternatives. Negative alternatives look like no choice at all, and too many choices kill freedom.

The pipe under your kitchen sink springs a leak and you call in a plumber. A few days later you get a bill for $40. At the bottom is a note saying that if you don't pay within 30 days, there'll be a 10 percent service charge of $4. You feel trapped, with no desirable alternative. You pay $40 now or $44 later.

Now make two small changes in the script: The plumber sends you a bill for $44, but the note says that if you pay within 30 days you'll get a special $4 discount. Now you feel pretty good. You have two alternatives, one of which will save you $4.

In fact, your choices are the same in both cases—pay $40 now or $44 later—but your feelings about them are different. This illustrates a subject we've been studying for several years: What makes people feel free? One factor we've studied is that individuals feel freer when they can choose between positive alternatives (delaying (Continued)
We seek out positive alternatives; choosing among negative choices seems like no choice at all.

payment or saving $4) rather than between negative ones (paying immediately or paying $4 more).

Choosing between negative alternatives often seems like no choice at all. Take the case of a woman trying to decide whether to stay married to her inconsiderate, incompetent husband, or get a divorce. She doesn’t want to stay with him, but she feels divorce is a sign of failure and will stigmatize her socially. Or think of the decision faced by many young men when they were forced to choose between leaving their country and family or being sent to Vietnam.

When we face decisions involving only alternatives we see as negatives, we feel so little freedom that we twist and turn searching for another choice with some positive characteristics.

But freedom also has another side—too much choice. A law of diminishing returns takes over, eventually reaching the point where freedom becomes confusing rather than pleasant. Some of our own experiments have confirmed this reversal of attitude, and instances are common in everyday life. Renting an apartment is an example.

(Continued)
The more alternatives we have, the more we enjoy decisions, until too many choices turn pleasure into confusion.

You usually have many possibilities to choose from, and to make a rational choice you should analyze each of them in terms of location, cost, size, condition, neighbors, the landlord’s disposition, type of lease, and so on. To make matters worse, you are often under pressure to make the decision as soon as possible.

With all this to consider, it’s easy to feel overwhelmed. You have so much freedom that making a logical choice becomes a burden, and you’re likely to end the tension by making an impulsive decision. Under conditions that should give rise to high feelings of perceived choice, you feel trapped by too much information.
4-3: Work Sheet

Tell if you agree or disagree with these ideas and give an example to support your opinion.

a. Individuals feel freer when they can choose between positive alternatives rather than between negative ones.

__________________________

__________________________

__________________________

b. Choosing among negative choices seems like no choice at all.

__________________________

__________________________

__________________________

c. Too many choices kill freedom.

__________________________

__________________________

__________________________

(Blanton & Lee, 1995a, P. 112-113)
Deciding

Wendy Wilder Larsen
Tran Thi Nga
from Shallow Graves

We went to the office every day.
Though the situation was critical,
people at work said nothing.
Province Chiefs were running.
We told the Big Boss our country would be lost.
We told him we would blow ourselves up
if we could not leave.

I sat at my desk doing the financial report.
My thoughts went round and round.
Should I leave?
Should I go alone?
Should I take my mother?
She did not want to go.
She feared they wouldn’t let her chew the betel.
Should I leave my children?
How would I make a living?
What would happen when the communists came?

When I made up my mind,
pictures of my childhood floated to the surface
as clear and strong as dreams.

(Continued)
Our old house in Hadong.
The bamboo in the backyard.
We ate the shoots.
The soldiers made a fence from the stalks.
My sister and I painted the fence
first white, then blue, then her favorite yellow.
The small antigonon vine we planted
with its pink blossoms in spring.

Our ponds.
The many steps down
to the small bridge
where we'd sit hour after hour
letting our hands dip into the water
trying to catch the silver-brown fish.

Airplanes bombing
running from our house
people dying, people calling from outside the walls
don't take me. I'm not dead yet.
The family hiding together in our house in Cholon
sunlight coming through the bullet holes.
Read the sentence below. What do you think the person will say? List several ideas. Then read them to the class.

"If you want to marry me," my fiancé(e) said, "Here's what you'll have to do:"

(Blanton & Lee, 1994, P. 88)
My Rules

If you want to marry me, here’s what you’ll have to do
You must learn how to make a perfect chicken dumpling stew
And you must sew my holey socks and you must soothe my troubled mind
And develop the knack for scratching my back
And keep my shoes spotlessly shined
And while I rest you must rake up the leaves
And when it is hailing and snowing
You must shovel the walk, and be still when I talk
And—hey, where are you going??

—Shel Silverstein
Winner

Mrs. Macey worked behind
the meat counter at Janelli’s Market
until her husband took up
with the Methodist’ organist,
leaving her to wear embarrassment
like split pants.
Then she won the Am Vets’ raffle—
a trip to Miami
during the Fourth of July’ weekend—
and never returned.
Instead
she sent a postcard of flamingos
on the lawn of an awninged hotel
that Mr. Janelli butcher-taped
on the meat case:
“Met a wonderful man
wears a slender moustache,
plays trumpet in a jazz band,
and calls me Cara Mia.”

— Paul B. Janeczko
What do you know about the people below? List information from the poem.

<table>
<thead>
<tr>
<th>Mr. Macey</th>
<th>Mrs. Macey</th>
<th>Mr. Janelli</th>
<th>The Jazz Player</th>
</tr>
</thead>
<tbody>
<tr>
<td>worked in a grocery store</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Blanton & Lee, 1994, P. 93)
APPENDIX C: MATERIALS OF UNIT ONE
A-1: Poster
A-2: FOCUS SHEET
Tree Diagram

(topic) a successful scientist

(categories) personal qualities abilities

hardworking good with numbers

(Blanton, & Lee, 1995b, P. 4)
As particle physicist Leon M. Lederman remembers it, he wasn't naturally good with his hands. As a youngster growing up in the Depression years in New York City, he wasn't all that curious about how things worked. He wasn't a very good student. He found math difficult. His first year as a graduate student in physics at Columbia University was terrible. So he applied to transfer to the Massachusetts Institute of Technology—and was refused.

And then, in 1988, he shared the Nobel Prize in physics for his 1962 discovery of a second neutrino, an elementary subatomic particle.

What got him launched and kept him going? In an interview in his office at the Fermi National Accelerator Laboratory, which he directed from 1979 until 1989, he points to the people who spurred him on.

Two things happened, he recalls, when he was 10 years old. First, one day when he was sick in bed, his father brought him a book co-authored by Albert Einstein about relativity. "It started out comparing physics to a detective story," he says, "and it was in big print. That's very important at ten years old."

"The other thing was a front-page article in The New York Times about the winning of the Nobel Prize by Carl Anderson for discovering the positron. It told how he took a cloud chamber to the top of a mountain. And that was the most romantic thing I could think of—to drag some instrument up there and see something."

Later, during high school, Lederman began hanging around the chemistry lab with "three or four friends" after school. The lab assistant was "a lively guy who let us fool around and blow glass." It was these friendships, more than any conceptual fascination, that kept his interest in science alive.

But it wasn't until graduate school—after finishing City College and spending three years in the Army—that he finally developed self-confidence as a budding scientist.

One day, he says, he came back to the laboratory after spending a few
months studying for his qualifying exams, and “there was a guy mopping the floor and singing in Italian, and I said, ‘Oh, a new janitor.’ And as I came in he said something incomprehensible, and I said, ‘Yeah, but watch out for those wires—don’t get ‘em wet.’”

As it happened, the man was a visiting physics professor from Rome—part of the flood of scientists fleeing postwar Europe. Having just arrived, he was given directions to the lab, found it was dirty, and began cleaning it up. “He was doing research in cosmic rays. And he was the first one who made me think that maybe I was not all that dumb.”

So if an innate* gift for science is not essential, what are the qualities that make a scientist?

The first, says Lederman, is “total dedication.” Scientists need “resistance to being discouraged,” he says. “You’ve got to be able to live through the low periods, of which there are many. You need a willingness to work hard and be single-minded—think about what you’re doing while you’re shaving. It’s got to be able to obsess you completely, so that you’re not interested in vacations or sleeping or eating or anything. Naturally at some point you’ve got to lift your head up. But you need to be able to go for three months or so with naps on cots and whatever food comes out of the coin machine.”

Equally important, says Lederman, is imagination. “A lot of people are tremendously insightful—they have mathematical abilities, they have analytical abilities. They’re super students. But there must be something else, because I don’t have any of those, and I’m successful.”

By imagination, he says, he means the ability to say, “look, there are 500 bright guys looking at the same problem you’re looking at. Since it’s still a problem, not one of those guys has gotten it. Therefore this problem must have some side to it that none of those 500 guys has seen. What could it be? I know we’re going to solve this problem within the next ten years, so why can’t I do it tonight?”

“I think it’s not only the ability but almost the preference for thinking unconventionally—and trying hard to identify with the little kid who said the emperor has no clothes.”

In addition, Lederman feels it’s important for today’s scientist to be “a people person.” In the kind of experiments conducted at Fermilab, “you need these large collaborations—and it’s helpful if you’re a social person. You get more out of it.”
That sort of sociability also helps broaden scientists beyond their basic field—an important part of modern science. "You need to keep in touch with many of the contiguous fields," he says, "because you never know when a good idea will come out that you can apply."

According to Lederman, the thrill of scientific discovery is still part of his experience. "When you know something that you're the only one to know—and there are 4 or 5 billion people on the planet, and it's so profound that it will affect all of their lives at some point—that's something science can do. And there's nothing else I know of that can do that."
Guess the Meaning

Use the context (the words and ideas around an unfamiliar word) to guess the meaning of the underlined words below. Then look up each word in a dictionary and choose the meaning that best fits the word in this context.

a. "What got him launched and keep him going?"
   My guess: ____________________________
   Dictionary definition: ____________________________

b. "...he [Anderson] took a cloud chamber to the top of a mountain. And that was the most romantic thing I could think of - to drag some instrument up there and see something."
   My guess: ____________________________
   Dictionary definition: ____________________________

c. "One day, he [Lederman] says, he came back to the laboratory after spending a few months studying for his qualifying exams, and there was a guy mopping the floor and singing in Italian, and I said, 'On, a new janitor.'"
   My guess: ____________________________
   Dictionary definition: ____________________________

d. "It [your work] has got to be able to obsess you completely, so that you’re not interested in vacations or sleeping or eating or anything."
   My guess: ____________________________
   Dictionary definition: ____________________________

(Blanton & Lee, 1995b, p. 8)
What inferences can you make based on the information in the sentences below?

a. "Two things happened, he [Lederman] recalls, when he was 10 years old. First, one day when he was sick in bed, his father brought him a book co-authored by Albert Einstein about relativity."

What can you infer about Lederman's father?

b. "..., during high school, Lederman began hanging around the chemistry lab with 'three or four friends' after school. The lab assistant was 'a lively guy who let us fool around blow glass.'"

What can you infer about the lab assistant?

c. "..., the man was a visiting physics professor from Rome - part of the flood of scientists fleeing postwar Europe. Having just arrived, he was giving directions to the lab, found it was dirty, and began cleaning it up."

What can you infer about the visiting physics professor?

Share ideas with your classmates.

(Blanton & Lee, 1995b, P. 9)
What personal qualities and abilities does a person in this career need to have? To answer this question, look for the information in the library. Then write the information on the tree diagram.

(career)

(categories)

personal qualities

skills/abilities
a good place to work

- equal treatment of employees
- working conditions
  - safe
  - clean
B-2: Work Sheet
Cluster Diagram

What are the characteristics of a good place to work? Together brainstorm a set of ideas and create your own cluster diagram. Take turns writing your group’s ideas on the cluster diagram. Then look over your group’s cluster diagram and together choose the three most important characteristics. Tell your classmates which characteristics you choose.

a good place to work
Why I Quit the Company

by Tomoyuki Iwashita

from The New Internationalist

When I tell people that I quit working for the company after only one year, most of them think I’m crazy. They can’t understand why I would want to give up a prestigious and secure job. But I think I’d have been crazy to stay, and I’ll try to explain why.

I started working for the company immediately after graduating from university. It’s a big, well-known trading company with about 6,000 employees all over the world. There’s a lot of competition to get into this and other similar companies, which promise young people a wealthy and successful future. I was set on course to be a “yuppie.”

I’d been used to living independently as a student, looking after myself and organizing my own schedule. As soon as I started working all that changed. I was given a room in the company dormitory, which is like a fancy hotel, with a twenty-four-hour hot bath service and all meals laid on. Most single company employees live in a dormitory like this, and many married employees live in company apartments. The dorm system is actually a great help because living in Tokyo costs more than young people earn—but I found it stifling.

My life rapidly became reduced to a shuttle between the dorm and the office. The working day is officially eight hours, but you can never leave the office on time. I used to work from nine in the morning until eight or nine at night, and often until midnight. Drinking with colleagues after work is part of the job; you can’t say no. The company building contained cafeterias, shops, a bank, a post office, a doctor’s office, a barber’s...I never needed to leave the building. Working, drinking, sleeping, and standing on a horribly crowded commuter train for an hour and a half each way: This was my life. I spent all my time with the same colleagues; when I wasn’t involved in enter-

(Continued)
taining clients on the weekend, I was expected to play golf with my colleagues. I soon lost sight of the world outside the company.

5 Overtiredness and overwork leave you little energy to analyze or criticize your situation. There are shops full of “health drinks,” cocktails of caffeine and other drugs, which will keep you going even when you’re exhausted. Karoshi (death from overwork) is increasingly common and is always being discussed in the newspapers. I myself collapsed from working too hard. My boss told me: “You should control your health; it’s your own fault if you get sick.” There is no paid sick leave; I used up half of my fourteen days’ annual leave because of sickness.

6 The company also controls its employees’ private lives. Many company employees under thirty are single. They are expected to devote all their time to the company and become good workers; they don’t have time to find a girlfriend. The company offers scholarships to the most promising young employees to enable them to study abroad for a year or two. But unmarried people who are on these courses are not allowed to get married until they have completed the course! Married employees who are sent to train abroad have to leave their families in Japan for the first year.

7 In fact, the quality of married life is often determined by the husband’s work. Men who have just gotten married try to go home early for a while, but soon have to revert to the norm of late-night work. They have little time to spend with their wives and even on the weekend are expected to play golf with colleagues. Fathers cannot find time to communicate with their children and child rearing is largely left to mothers. Married men posted abroad will often leave their family behind in Japan; they fear that their children will fall behind in the fiercely competitive Japanese education system.

8 However, there are some signs that things are changing. Although many new employees in my company were quickly brainwashed, many others, like myself, complained about life in the company and seriously considered leaving. But most of them were already in fetters—of debt. Pleased with themselves for getting into the company and anticipating a life of executive luxury, these new employees throw their money around. Every night they are out drinking. They buy smart clothes and take a taxi back to the dormitory after the last train

(Continued)
has gone. They start borrowing money from the bank and soon they have a debt growing like a snowball rolling down a slope. The banks demand no security for loans; it's enough to be working for a well-known company. Some borrow as much as a year's salary in the first few months. They can't leave the company while they have such debts to pay off.

I was one of the few people in my intake of employees who didn't get into debt. I left the company dormitory after three months to share an apartment with a friend. I left the company exactly one year after I entered it. It took me a while to find a new job, but I'm working as a journalist now. My life is still busy, but it's a lot better than it was. I'm lucky because nearly all big Japanese companies are like the one I worked for, and conditions in many small companies are even worse.

It's not easy to opt out of a life-style that is generally considered to be prestigious and desirable, but more and more young people in Japan are thinking about doing it. You have to give up a lot of superficially attractive material benefits in order to preserve the quality of your life and your sanity. I don't think I was crazy to leave the company. I think I would have gone crazy if I'd stayed.
B-4: Work Sheet
Two-word Verbs

Look back at the article to find the two-word verbs below. Use context to guess the meaning of each verb. Then write your own sentences using these verbs.

a. Paragraph #2: get into
   My definition: __________________________________________________________
   New sentence: __________________________________________________________

b. Paragraph #3: look after
   My definition: __________________________________________________________
   New sentence: __________________________________________________________

c. Paragraph #5: use up
   My definition: __________________________________________________________
   New sentence: __________________________________________________________

d. Paragraph #8: pay off
   My definition: __________________________________________________________
   New sentence: __________________________________________________________

e. Paragraph #10: give up
   My definition: __________________________________________________________
   New sentence: __________________________________________________________

(Blanton & Lee, 1995b, P. 19-20)
B-5: Work Sheet
Group work

Look over the article with a writer's eye. As you discuss each question below, take turns recording your group's ideas.

a. How do you think this article would be different if it were written for a Japanese audience? What information might the writer add or delete?

b. What is Iwashita's purpose in writing this article? Where in the article does the writer's purpose become clear to you?

c. Do you think the writer provides enough details and examples to build a strong argument? Give an example.

d. Give your opinion of the introduction and the conclusion - excellent, food, fair, or poor - and explain why.

(Blanton & Lee, 1995b, P. 20)
He had worked hard to pursue his dream.

Week after week, he sat under the glaring fluorescent lights of the classroom eking out gram-ma-ti-cal essays.

He regrets of an uneducated past.

Come to America.

language barriers, uncertainties, prejudices, fears

Never compare yourselves to those below you, only to those above you.

Heregrets of an imeducated past.
As a young man, my father lived in Hong Kong. He had worked hard to come to America, taking English classes at night to improve his timid, halting speech. He postponed marriage until he was thirty-one, reluctant to take a wife when he might leave for America the following year. But after a decade of pursuing his dream, he decided to marry my mother in 1959. Three years later, America opened her arms to my father, willing to embrace him after years of snubbing. My mother, less eager, stood defenseless against the powerful charms of America.

My father rarely speaks any more of his deferred dreams. But I have plowed restless fingers through his bookshelves and stumbled upon Shakespeare readers tucked between the Chinese novels with their musty trunk smells, and then a series of English grammar texts, old and yellowed with blotches of tea stains on the pages. I've raided his bookshelves section by section and have found hidden delights each time—a Sinclair Lewis novel, a Tennessee Williams play, a book of poetry. It was impossible for me to imagine my father's thickly accented syllables wrapping themselves around the elegant words.

When he first came to this country, his dreams incubated in the heat of a stuffy kitchen by day and pecked a little further out of their confining shells at night. Hard shells—language barriers, uncertainties, prejudices, fears—were chipped away bit by bit as he attended night school and struggled to become an educated man, a new success in a new land. Week after week, he sat
under the glaring fluorescent lights of the classroom eking' out
gram-ma-ti-cal essays as English teachers with pleased smiles and
small nods of approval assigned him book after book of
“American reading.”

But somewhere far in the past, my father stopped the weary
tasks of “American reading” and writing assigned essays. He re-
egated' his American books to the shelves and focused his energy
upon the persistent questioning of his children, each of whom
had gone off to college.

“What are you going to do next year when you graduate?”

“I’m not sure yet, Dad. I’m thinking of working for a couple
of years, and then maybe I’ll go back to school,” answers his son,
the one who studied economics.

“Why don’t you become a dentist?” my father urges.

“It’s not that easy, Dad. Besides, I don’t want to become a dentist.”

Once, when I worked for a group of attorneys in San Francisco, my father asked where all of them had attended law
school. “Where do they go on vacations? Do they ski? Do they
own houses up in the mountains?” I was reluctant to answer, not
wanting to fan’ age-old disappointments. Before I could reply, he
sighed, “You know, a very nice doctor comes into the restaurant all
the time, and he always seems sad to me. I ask him what is wrong
and he tells me his son is no good—uses too many drugs. Sells
them, too. He asks me what my kids do and I tell him four are
college graduates. He says that’s beautiful, says I’m a lucky man.”

His words startled‘ me. When we had run home from grade
school with near-perfect report cards, my father admonished us
solemnly. “Never compare yourselves to those below you, only
to those above you,” he said year after year. My mother chided
us, too. “You must study hard and make something of yourselves.
When I was in China, I had to leave school at fourteen and start

(Continued)
working as a seamstress in Hong Kong when I was sixteen. If I
had been given the same opportunities you've received, I could
have become anything I wanted—anything."

Their words seep into my blood and cause my muscles to pull
taut. At times I am frustrated by the pressure to succeed, yet I am
driven by guilt and sadness to redress my parents' lost dreams
and regrets of an uneducated past.
C-3: Work Sheet
Using Context and Making Inferences

1. Choose a word from the list to replace each underlined word or phrase. Then rewrite each sentence, using the words that you chose.

a. “...I have plowed restless fingers through his bookshelves and stumbled upon Shakespeare readers tucked between the Chinese novels. ...”

   found
   used
   placed
   written
   pushed
   touched

b. “When he first came to this country, his dreams incubated in the heat of a stuffy kitchen by day and pecked a little further out of their confining shell at night.”

grew
waited
moved
placed
lay
died

2. Read the sentences below and use context to come up with your own definition of each underlined word or phrase.

a. I had to plow through the reading assignment because I only had one hour to read 100 pages.

   My definition: ________________________________

b. While we were looking for a grocery store, we stumbled upon a great restaurant.

   My definition: ________________________________ (continued)
c. He tucked a letter into his wife’s suitcase, knowing she would find it later.

My definition: ____________________________________________________________

d. Between writing first and second drafts of a paper, I usually need to let my ideas incubate.

My definition: ____________________________________________________________

e. I watched the chickens pecking the hard ground for small bits of corn left from the night before.

My definition: ____________________________________________________________

3. What inferences can you make based on these sentences from “The Hopeland.”

a. “As a young man, my father lived in Hong Kong. He had worked hard to come to America, taking English classes at night to improve his timid, halting speech.”

What inferences can you make about the writer’s father?

______________________________________________________________

b. “My father rarely speaks any more of his deferred dreams. But I have plowed restless through his bookshelves and stumbled upon Shakespeare readers tucked between the Chinese novels with their musty trunk smell, and then a serious of English grammar texts, old and yellowed with blotches of tea stains on the pages.”

What inferences can you make about the writer’s father?

______________________________________________________________

(Blanton & Lee, 1995b, P. 26-27)
PERSONAL CHARACTER

POSITIVE QUALITIES

NEGATIVE QUALITIES

SIGNIFICANCE IN THE ACTION

RELATIONSHIPS TO OTHERS

IDEALS

(Parks & Black, 1990, P. 79)
Write your response to each of the quotations below. You might, for example, explain what the quotation tells you about the writer or her father. You might also tell what it makes you think of from your own experience.

a. "But somewhere far in the past, my father stopped the weary task of 'American reading' and writing assigned essays. He relegated his American books to the shelves and focused his energy upon the persistent questioning of his children, each of whom had gone off to college."

b. "When we had run home from grade school with near-perfect report cards, my father admonished us solemnly. 'Never compare yourselves to those below you, but to those above you,' he said year after year."

(Blanton & Lee, 1995b, P. 28)
**T-chart**

This chart can be used to help students see relationships between information. It can be used to list information (right column) associated with a topic (left column).

<table>
<thead>
<tr>
<th>Topics</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## D-2: Work Sheet
Predicting Tomorrow's Jobs

Which Occupations Offer Tomorrow's Jobs?

<table>
<thead>
<tr>
<th>Occupations</th>
<th>Why</th>
</tr>
</thead>
<tbody>
<tr>
<td>doctors</td>
<td>growing population</td>
</tr>
<tr>
<td></td>
<td>more elderly people</td>
</tr>
</tbody>
</table>
Most career counselors tell their clients that the key to job satisfaction is finding a line of work they are interested in and enjoy. But for those about to embark on a course of training or study that will take years to complete (usually at considerable expense), there is comfort in knowing there will be a demand for their skills down the road.

So we look to the U.S. Bureau of Labor Statistics for projections on the occupations that will be most in demand over the next decade. Health care dominates as a hot career field with jobs expected to grow from 8.9 to 12.8 million between now and the year 2005. Outside the health-care field, here's what the Labor Department and futurists are picking:

**EDUCATION.** Teachers—primary and secondary and college levels—will be needed. This may be surprising as cities and towns struggle with budget cuts and lay off teachers. But the baby boomlet—children of middle-aged baby boomers—is hitting school age.

Between the years 1990 to 2005, elementary school age children will increase by 3.8 million; secondary school age by 3.2 million; and post-secondary school age by 1.4 million, according to the Bureau of Labor Statistics. In addition, foreign, older and part-time students will result in more post-secondary teaching positions. And there's a spillover from the demand in education: teacher aides, counselors and administrative staff are expected to increase. All in all, the need for teachers is expected to add 2.3 million jobs in education by the year 2005.
FINANCIAL SERVICES. Corporate jobs and entrepreneurship should do well in financial services—from accountants to market analysts, stock fund managers and stock brokers.

“We’re moving from an industrially based economy to an informationally based economy. And one of the most driving forces is finances,” says Patricia Aberdeen, author of “Megatrends for Women.”

PARALEGAL SERVICES. This is the second-fastest growing occupation, according to the Bureau of Labor Statistics. “We’re a very litigious society,” says Mary Sullivan, regional economist at the U.S. Bureau of Labor Statistics. “There are many routine kinds of things lawyers are able to hire paralegals to do.” People today are questioning whether they can get similar—but less expensive—services from paralegals.

ENVIRONMENTAL PRESERVATION AND RENOVATION. “We want to keep our environment pure and clean,” says Edward Cornish, president of
World Future Society, a nonprofit group that studies sociological and technological trends.

Any job that recycles, cleans up pollutants, preserves historic sites or restores forests will be a good pick, says Cornish.

This extends as well to our internal environments, such as our homes. People are finally paying attention to issues beyond heating and cooling their homes and are concerned, for example, with radon poisoning and lead paint.

TRAVEL. This has become the world's leading industry, in terms of employing workers, says Cornish. Travel and the hospitality industry will offer more jobs as people become more affluent and as technology makes transportation more comfortable and cheaper.

EATING AND DRINKING ESTABLISHMENTS. This ranks as the third-fastest growing occupation under the services sector, says the U.S. Labor Department. Although many of these jobs are not career-oriented—waiters and dishwashers—others include jobs with money-making potential, such as managers and chefs, points out Sullivan.
D-4: Work Sheet
Dictionary Definition

Choose the dictionary definition that best fits the meaning of the underlined words in the sentences below. Circle your answer. Then answer the questions that follow.

a. "Most career counselors tell their clients that the key to job satisfaction is finding a line of work they are interested in and enjoy."

**key n.** (1) an instrument, usually made of metal, that one puts into a hole and turns, to lock or unlock a door, start or stop a car engine, etc. (2) something that explains, answers, or helps you to understand. (3) any of the parts in a writing or printing machine or musical instrument that are pressed down to make it work. (4) a set of musical notes based on a particular note.

What do you think is the key to personal happiness?

b. "But, for those people about to embark on a course of training or study that will take years to complete (usually at considerable expense), there is comfort in knowing there will be a demand for their skills down the road."

**embark v.** (1) to go, put, or take onto a ship. (2) to start something new.

What advice would you give to someone who is embarking on a new career?

c. "Health care dominates as a hot career field with jobs expected to grow from 8.9 to 12.8 million between now and the year 2005."

(Continued)
dominate v. (1) to have or exercise controlling power. (2) to have the most important place or position. (3) to rise or to be higher than; provide a view from a height above.

What language dominates in the field of international business?

d. “Teachers - primary and secondary and college levels - will be needed. This may be surprising as cities and towns struggle with budget cuts and lay off teachers. But the baby boomlet - children of middle-aged baby boomers - is hitting school age.”

cut n. (1) the result of cutting; an opening; wound. (2) something obtained by cutting (pieces). (3) a reduction in size, amount, etc. (4) informal a share.

hit v. (1) to give a blow; to strike. (2) to (cause to) come against something with force. (3) informal to reach.

If you wanted to save some money, what cuts could you make in your current monthly budget?

If the retirement age is 65, in what year will you hit retirement? Why?

- Definitions from Longman Dictionary of American English

(Blanton & Lee, 1995b, P. 35-36)
### D-5: Work Sheet

**Source of Quote**

Who does the writer quote in her article? Look back over the article on 4-3 to find these people. Then complete the chart below.

<table>
<thead>
<tr>
<th>Source of quote</th>
<th>Information (in your own words)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patricia Aberdeen</td>
<td>In the future, there will be jobs in financial services because we are moving towards an informationally based economy.</td>
</tr>
</tbody>
</table>

Share ideas about these people, as in the example below. Example: According to Patricia Aberdeen, in the future...
### E-1: Work Sheet

A. Put these goals into the two groups below.

- I want to become a doctor.
- I plan to return to my country next year.
- I want to find a new apartment.
- I plan to have my own business.
- I hope to find a job soon.
- I hope to have a large family.
- I hope to earn a Ph.D.
- I hope to do well in my classes this semester.

<table>
<thead>
<tr>
<th>Short-Term Goals</th>
<th>Long-Term Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>to find a new apartment</td>
<td></td>
</tr>
</tbody>
</table>

B. List your own short-term and long-term goals.

<table>
<thead>
<tr>
<th>Short-Term Goals</th>
<th>Long-Term Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Blanton & Lee, 1994, P. 80-81)
At 81, This Graduate Proves
It’s Always Possible to Learn More
by Gary Libman
Los Angeles Times

LOS ANGELES – Jesus Ibarra was confused by the elderly man in the skullcap.

He was obviously much older than other students at Central Adult High School. And he was an Anglo on a campus where most students are Latinos, blacks, and Asian-Americans.

"I asked myself what he was doing here," says Ibarra, 21, of Los Angeles. "I thought he was a volunteer. The first time I talked to him, I asked a question in English, and he answered in Spanish. I never imagined that he would speak Spanish."

Jacob Blitzstein surprised his fellow students all the time. He isn’t some stuffy guy, despite his trim gray beard and conservative clothes.

Blitzstein is warm and gregarious. He likes to hear a good joke—and loves to tell a good story. He is tough, especially when it comes to pursuing his dream.

Recently, that dream came true. At a ceremony attended by two of his children and three grandchildren, Blitzstein, 81, graduated from high school.

After Principal Lanny Nelms handed him the diploma and announced his age, Blitzstein waved to the audience and cried.

And why not? He’s probably the oldest Central High graduate since the school opened in 1974. Although no records of such things are kept, a Los Angeles district spokesman says Blitzstein is the oldest graduate he’s ever heard of.

Earning his diploma took 10 years, during which the retired store owner suffered a stroke and two bouts of pneumonia, had two pacemakers installed, and lost his wife and two siblings.

He kept to his task for a reason. School “is the best medicine you can have,” he says. “You have something on your mind—a goal.”

With his diploma in hand, Blitzstein maintains that he’s not through yet.

“You know something? I’m going to college,” he told a visitor recently. He has checked out West Los Angeles and Santa Monica community colleges and says he hopes to transfer from there to a four-year school.

“It’s not a joke,” he says. “If I live to the year 2000, maybe I’ll be a doctor.”
Scan the article on E-2 Focus Sheet to find the information below.

Jacob Blitzstein

Age

Profession

Religion

Marital Status

Languages

Personality

Health

Goals

(Blanton & Lee, 1994, P. 83)
REFERENCES


199


