LEARNING VOCABULARY THROUGH JANUSIAN THINKING,

A UBIQUITOUS BUT NEGLECTED CREATIVE PROCESS

by

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(Under the Direction of Bonnie Cramond)

ABSTRACT

To prepare our students for the challenges of the ever-changing society in modern times, creative thinking should be incorporated into all content areas at all grade levels (Cropley, 2001). However, there has been a paucity of research on the instructional methods integrated with creative processes. The purpose of this study is to apply the creative thinking process in vocabulary instruction. The creative thinking process in this study is Janusian thinking, defined as "actively conceiving two or more opposite or antithetical concepts, ideas or images simultaneously" (Rothenberg, 1978, p. 175). The term Janusian thinking is named after Janus, the Roman god of gateways and beginnings, whose two faces look in opposite directions simultaneously. The concept of Janusian thinking shares a strong likeness with that of yin and yang in Taoism.

Rothenberg (1990) pointed out that "verbal opposition tends to be clearer and more specific than opposition in any other mode. Opposition between or among words is easier to define and to assess than other types of oppositional relationship" (p. 197). Based on this statement, it is worthwhile to examine the effects of Janusian thinking on vocabulary learning. The experimental design of this study is a 2*2 factorial structure for repeated measures. The

two factors in this design are sentence completion and display of antonyms. The independent variable was the teaching method and the dependent variable was the score on the posttest, containing exactly the same words taught in the experiment. There were four methods in this experiment: the traditional method, the traditional method plus sentence completion, the traditional method plus display of antonyms and the Janusian thinking method. The results indicated that the participants had the highest average score on the section of the posttest that measured the words learned by the Janusian thinking method, though the interaction between the two factors was not significant. Besides, the main effect of display of antonyms was significant. Moreover, the Janusian thinking method gave much promise of application in classrooms according to the participants' positive responses to the questions on the survey attached with the posttest.

INDEX WORDS: Janusian thinking, Creative processes, Yin and yang, Secondary process cognition, Paradox, Word-learning strategies

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DEDICATION

To my beloved father, Mu-fan Kao, who passed away in 2005.

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CHAPTER 1

INTRODUCTION

Creativity has been a fascinating word for me.

As a little child, I had a deep passion for playing with Legos. I seldom followed the instructions in the booklet going with the package but preferred to create my own world of Lego. I used the pieces not only to create people, animals, flowers, trees, houses, bridges, and other objects but also to describe storylines. I adapted the stories from fairy tales and cartoons or merely derived them from my luxuriant vivid imagination. While playing with Legos, I always murmured to myself, trying to "narrate" these stories or enrich the scenes with some sound effects. Without my explanation, it was very difficult for other people to understand what I really created with those small cubical pieces. I could immerse myself in the paradise of Lego hour after hour.

My grandfather, a retired school principal then, was the only family member who stayed home with me in the morning. He sometimes came by my room to watch what I was doing. He smiled, patted me on the head and told me "You are so creative." In my tender mind, the word "creative" meant that I did something good and special. Since then, I fell in love with this word because it was one of the first compliments I received.

After I went to elementary school, I had less and less time to play with Legos. It was, in fact, a luxury for me because of my homework, violin lessons, calligraphy lessons, abacus lessons, and supplementary English lessons. When I was in the fourth grade, my mother urged me to take part in the entrance examination for the math gifted class. One portion of this multi-

phased examination concerned creativity, or the so-called divergent thinking. My teacher gave me a tip before I took the exam: try to come up with as many unusual ideas as possible when solving the questions in this portion. In the class of assessment of gifted children and youth in 1999, I realized that this section was actually the Chinese version of the verbal TTCT. However, it was a pity that I could not remember what answers I gave in this test; otherwise, I could do some self-evaluation on my creative thinking. When I started my doctoral program, I decided to challenge myself and focused my dissertation on creativity, an intriguing but elusive psychological construct.

What is Creativity?

Throughout human history, creativity has played a significant role in the advancement of our culture and civilization. In spite of its importance, researchers did not pay serious attention to this enigmatic and kaleidoscopic construct until the 20th century. From time to time, descriptions or definitions offered by experts could only address a certain part of this complicated term. In our daily lives, the situation is even worse. The words “creative” or “creativity” have been loosely used, overused or misused (Rhodes, 1987).

No one component can cover the entire scope of creativity, no matter how critical it is. Creativity, currently regarded as a multi-dimensional construct, can be examined thoroughly through the perspectives of four P’s: people, process, product, and place (or press). These perspectives for the study of creativity were initially introduced by Rhodes (1987) decades ago. From then on, this study approach has received wide recognition in creatology, a term coined for the cross-disciplinary science of creativity (Richards, 1999). Rhodes defined creativity as “the phenomenon in which a person communicates a new concept (which is the product)” (p. 216). This succinct definition actually encapsulates the components of the four P’s, even though the

words “process” and “press” do not show up in it. As Rhodes (1987) argued, “Mental activity (or mental process) is implicit in the definition, and of course no one could conceive of a person living or operating in a vacuum, so the term press is also implicit” (p.216).

Creative Persons

When examining creativity from the perspective of creative people, researchers try to generalize the characteristics peculiar to the people who produce novelty. These characteristics include personality traits, abilities, cognitive styles, affective and motivational patterns and attitude and values. Richards (1999) pointed out that there exist core characteristics related to creative persons across various realms of endeavor. Dacey and Lennon (1998) mentioned that certain characteristics seem to appear with consistency across people and time, including tolerance of ambiguity, flexibility, functional freedom, willingness to take sensible risks, preference for complexity or asymmetry, delayed gratification, perseverance, high self-esteem and self-efficacy, wide range of interests, sensitivity to the existence of problems, humorousness and playfulness, intrinsic motivation, insusceptibility to exterior judgment and criticism, ability to think both convergently and divergently, ability to think both analytically and intuitively, and others.

Creative Products

Creative products indicate the “result or outcome of creative efforts” (Richards, 1999, p. 733). They can be tangible or intangible, concrete or abstract. The examples may include painting, sculpture, architecture, drama, poetry, novels, musical pieces, mathematical formulas, physical laws, artistic performances, culinary skills, new ideas or concepts and so on. If creativity does not lead to products, we cannot evaluate the creative act effectively and convincingly. There are no objective or agreed-upon criteria for judging creative products.

However, they are generally marked by two characteristics: originality and meaningfulness. Meaningful products are those that can communicate appropriately in the context where they are created (Richards, 1999). “Original” here means new, novel, and unusual. As mentioned by Rhodes (1987), when it comes to original ideas, they possess a certain degree of newness. He also recommended that creative products or outcomes be classified into categories, first by types and then within each type by levels of newness. In this way, the conundrum of how to study creativity can be resolved. In addition, an appropriate classification for creative products can expedite the advancement of research on creativity. Hennessey and Amabile (1998) pointed out that the combination of novelty and appropriateness (or meaningfulness) was found in most of the definitions of creativity. Martindale (1989) put forward an additional attribute, practicality, for creative products. He argued that the product had to be put to some use. Ludwig (1989) presented another attribute to evaluate creative products. As he stated, a product or response was creative, not only to the extent that it was judged as novel, appropriate and practical, but also to the extent that it was heuristic, rather than algorithmic in nature.

Creative Places

Place in the four P’s of creativity was initially called “press.” Press of environment refers to “the relationship between human beings and their environment” (Rhodes, 1987, p. 220). The word “place” was later used to substitute for “press” because the former is clearer and easier to understand. Creativity arises within a particular environment, rather than in a void (Williams & Young, 1999). Creativity is not a purely intrapsychic phenomenon or an autistic activity. Creative individuals and their works can by no means be separated from the setting where their actions are carried out. Creative products arise in response to what the society needs or values. There must be a certain cultural or technological heritage to facilitate invention and innovation

(Rhodes, 1987). Feldman and Goldsmith (1986) argued that the fortuitous convergence of highly specific individual proclivities with specific environmental receptivity allowed the achievements of creative prodigies to emerge. Csikszentmihalyi (1999) proposed that the phenomenon of creativity "is as much a cultural and social as it is a psychological event" (p. 313). According to Arieti (1976), creativity, a magic synthesis, cannot occur without inputs from the external world. The environmental milieu is always present and exerts significant influence on creative expression. Creative potentials can be encouraged or inhibited by a certain environment or situation. In general, the place characterized by free expression, rich resources, tolerance for difference and interest in unusual concepts can facilitate creativity. Creative places can take the form of micro-environments (e.g. homes, schools, working places, etc.) or macro-environments (e.g. society, country, culture, ethos, Zeitgeist, etc.). All too often, we commit a mistake of decontextualizing creativity (Lubart, 1999). Only when variables external to individuals are taken into considerations are we able to make clear when, where, and why innovative products and ideas are produced.

Creative Processes

The creative process is at the center of this study because creativity will be examined through this perspective. The creative process includes the ways in which creative persons direct themselves toward the generation of new and useful outcomes (Richards, 1999). A great number of models or theories concerning creativity address this aspect. After analyzing the thinking process of the well-known German physiologist and physicist Hermann Helmholtz, Wallas (1926) identified four steps in the creative process: preparation, incubation, illumination and verification. During the step of preparation, creators first detect a need or deficiency and then clarify or pin down the problem (Torrance, 1988). At that time, they also collect data, compare

and contrast information, analyze the problem and try to come up with the most promising solution (Starko, 1995; Rhodes, 1987). Incubation is the crux of this classic model. During incubation, creators do not think about the problem consciously. They engage in other activities but continue to mull over the problem subconsciously. Rhodes (1987) adroitly likened incubation to the fallow period. Illumination is considered the "Aha!" experience. Torrance (1988) described illumination as a flash of insight. During this step, all ideas fit together suddenly, the problem clicks, and the answer to questions becomes clear. Verification is the last step, during which the ideas are converted into a concrete, articulated form (Rhodes, 1987). Besides, the answer is evaluated for feasibility and effectiveness. The solution may also be elaborated or fine-tuned if necessary (Starko, 1995). Torrance (1988) also did research on creativity through the perspective of process. Influenced by the Wallas process, he defined creative thinking as a sequential process of "sensing difficulties, problems, gaps in information, missing elements, something askew; making guesses and formulating hypotheses about these deficiencies; evaluating and testing these guesses and hypotheses; possibly revising and retesting them; and finally communicating the results" (p. 47).

Rather than proposing sequential phases of the creative thinking process, as did Wallas and Torrance, Guildford extracted factors from the process. According to his SOI (The Structure of Intellect) cubical model, intelligence is made up of 180 components. These components can be classified into three dimensions, contents, products and operation (or process) (Guildford, 1959). Divergent thinking is one of the components in the dimension of operation. Included in divergent thinking are four factors: fluency (producing many ideas), flexibility (generating diverse ideas from different perspectives), originality (generating new and unusual ideas), and elaboration (adding details to initial concepts to improve them) (Guildford, 1959; Starko, 1995).

These four factors constituted the backbone of many studies and assessments on creativity. The creativity measurement TTCT (The Torrance Tests of Creative Thinking) is one of the well-known examples.

The similarity shared by the theories proposed by Wallas, Torrance and Guildford is that the creative process is comprised of several parts or components. From a different perspective, Mednick, Martindale, Gordon, and Rothenberg viewed the creative process as a one-phase or inseparable mental activity.

According to Mednick's Associative Theory (1962), the creative thinking process is described as combining associative elements to make new configurations that are either useful in some way or well-fitted to specified requirements. A person who can come up with many associations to a problem has a better chance to figure out a creative solution to the problem. The more creative people are, the more associations they can produce. Brainstorming, a process used to produce a large quantity of ideas, can improve association (Fasko, 1999). In a similar vein, Martindale (1989) regarded the creative process as combining old concepts in new ways.

Gordon (1981) de-emphasized the role of genius and contended that everyone could improve his or her creative abilities if he or she understood the underlying psychological processes. He coined the term "synectics," which originally meant "the joining together of different and apparently irrelevant elements" (Gordon 1981, p. 5). Similar to the theories of Mednick and Martindale, synectic methods are used to bring different or remote elements together to generate unusual solutions. Synectics, an effective way to empower creative thinking, has been recommended to be implemented in classrooms and also adapted for a series of workbooks and guides to curricular design. It is also used in business to enhance the originality of products and services (Starko, 1995).

Rothenberg (1990) proposed homospatial thinking and Janusian thinking, which "distinguish creative people from the rest of us" (p. 11). Homospatial thinking is defined as "actively conceiving two or more discrete entities occupying the same space, a conception leading to the articulation of new identities" (Rothenberg, 1978, p. 175). Through homospatial thinking, creators superimpose and blend elements from different temporal and spatial dimensions (Restak, 1993). Homospatial thinking is also considered the major process contributing to the development of simile and metaphor (Starko, 1995). Janusian thinking is the key term used in this study. A detailed description and explanation of this term are provided in Chapter 2.

The creative process can involve imagery as well as ideas. The definition of Janusian thinking also presented in Chapter 2 includes "images," the manipulation of which can lead to creative products. Imagery is defined as "schematic representations of thought generated from internal cues or motivations as opposed to external sensations and perceptions" (Houtz & Patricola, 1999, p. 2). Images can be transient or long-lasting. They can arise spontaneously or be purposefully invented by conscious efforts. People are able to create, interact with or manipulate images as they do to real objects (Houtz & Patricola, 1999). Imagery supplies an indispensable ingredient for creativity (Singer, 1999). Imagery has shared "a long history with creativity, which is evidenced by reports from both creative achievers and average persons that use imagery in their problem solving and creative work" (Houtz & Patricola, 1999, p. 11). After examining the effects of imagery on the creative process, Finke (1990) put forward the view that the major function of imagery is mental exploration. Imagery offers a place to toy with combinations and permutations of mental elements, thereby facilitating the emergence of creative ideas. Besides, like creative thinking, the generation of imagery can be nurtured. Guided imagery practice helps

students come up with more creative thinking in their writing than when imagery practice is not implemented. Moreover, imaging capacity is a critical predictor of performance on the major creativity assessment, the TTCT (Houtz & Patricola, 1999).

Creativity: A Hybrid Trait/State Construct

According to Webster and Martocchio (1992), traits are the in-born characteristics that are comparatively resistant to contextual stimuli whereas states are cognitive or emotional episodes that change as time goes by. In contrast with traits, states are affected by environmental factors. Just like other psychological constructs (e.g. anxiety and intelligence), creativity is also vulnerable to the state-trait debate or the nature-nurture argument. However, the perspectives of the four P's resolve these controversies and render them meaningless. Creativity has the elements of both a state and a trait. From the perspective of creative persons (e.g. personality traits), creativity is inherited and characterized by cross-situational consistency and temporal stability (Yager, Kappelman, Maples & Prybutok, 1997). Nonetheless, from the perspective of creative places, creativity fluctuates over time and is environmentally determined. Consequently, the interaction between individuals and situations can decide the development of creativity.

Creativity and Education

Because creativity has the properties of state, it can be improved if the environment is helpful and constructive. Broadley (1943) argued that when "well-directed and developed, [the creative potential] can lead you into deeply satisfying creative work" (p. 69). Rhodes (1987) viewed creativity as a learnable art as well as a teachable art. Cropley (2001) also mentioned that at least some elements of creativity can be promoted under appropriate learning conditions. Thus, with proper instruction and learning environments, students' creativity can be enhanced.

Today's world is marked by fast-paced technological advancement and dramatic change in social, political and economic arenas. Nothing is constant but change. To prepare our students for the challenges of the ever-changing society in modern times, creativity should be integrated with classroom activities. However, the application of creative processes in classroom activities is not valued by our educational systems. Some educational practitioners feel uncomfortable with introducing students to creative thinking, which, for them, is tantamount to instigating disobedience, inattention, and inefficiency. Others view an emphasis on creativity in classrooms as a threat to fundamental skills and well-established principles, such as true-false and good-bad standards. Still others even worry that a focus on creativity in school can challenge their authority (Cropley, 2001).

In addition, there has been a dearth of research on the effects of the instructional methods integrated with creative processes. Through this study, I intended to add to the limited information in this field. I applied the creative process, Janusian thinking, in vocabulary instruction and invented a vocabulary teaching method called the Janusian thinking method. The purpose of this study was to examine the effectiveness of the Janusian thinking method, as compared to other methods (the traditional method, the traditional method plus sentence completion, and the traditional method plus display of antonyms). English-native-speaking high school students learned low-frequency words through these four different methods and then took the posttest containing exactly the same words taught during the experimental activity. Their scores on the posttest were analyzed to find out if the Janusian thinking method was the most effective of the four methods.

CHAPTER 2

REVIEW OF LITERATURE

Truth is always paradoxical.
Lao-Tzu

The test of a first-rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function.
F. Scott Fitzgerald (1896 - 1940), "The Crack-Up" (1936)

What is Janusian Thinking?

Janusian thinking is a creative process that actively conceives "two or more opposite or antithetical concepts, ideas or images simultaneously" (Rothenberg, 1978, p. 175). The term Janusian thinking is named after Janus, the Roman god of gateways and beginnings, whose two faces command opposite directions simultaneously. Initially, Rothenberg (1971) used the term oppositional thinking to represent this thinking process but later replaced *oppositional* with *Janusian* because "it more accurately conveys the simultaneity of opposition and because, as a metaphor, it embodies the process it denotes" (p. 313). The feature of simultaneity in this creative thinking process has been emphasized. During Janusian formulation, the opposite concepts, ideas and images come together side by side, rather than in a temporal sequence. Janusian thinking does not lead to reconciliation or synthesis of opposites since their original traits, properties or functions are not lost. During and after integration, all the conflicting or contradictory entities within the single framework remain true and valid at the same time.

Therefore, for Janusian thinking, simultaneity characterizes not only its functioning of opposites held side by side, but also its validity in retaining the opposing components (Rothenberg, 1990).

Janusian thinking is prevalent in a wide variety of fields, but few people notice its existence, let alone its subtlety and charm. People engage in Janusian thinking while creating poems, novels, plays, philosophical concepts, paintings, sculpture, architecture, pieces of music and so forth. Janusian thinking also operates during the creation of original scientific theories, which contribute to significant discovery or invention (Rothenberg, 1978). Some examples of Janusian thinking that Rothenberg put forward are as follows. Frank Lloyd Wright described his Organic Architecture as "an affirmative negation, meaning that it negated the three-dimensional concept in architecture and affirmed it simultaneously" (Rothenberg, 1971, p. 317). Arnold Schoenberg's twelve-tone scale was established on a concept that "consonance and dissonance were equivalent" (p. 318). The mysterious smile of Mona Lisa appears both good and evil, as well as both sympathetic and relentless (Rothenberg, 1990). Crick and Watson's double helix structure of DNA contains identical but spatially opposite chains of molecules. Einstein's General Theory of Relativity involves the idea that an object can be both moving and at rest simultaneously (Rothenberg, 1978). One of the foremost surrealists, Salvador Dali also delineated both motion and rest at the same time in his masterpiece, Nature Morte Vivante (Rothenberg, 1990).

In addition to the above instances, Blasko and Mokwa (1986) pointed out that the Janusian notion is widely applied in TV commercials and printed advertisements. The examples of advertising slogans they provided included "Tough on Dirt. Gentle on Fabrics (Whirlpool Washers)," "Bet You Can't Say No to Yes (Dannon Yogurt)," and "Devilishly Good Taste, 90 Saintly Calories (Baskin Robbins Ice Cream)." Janusian thinking transcends ordinary logic and

rationality. Usually the Janusian process takes place in the early stage of a creative sequence, and simultaneous opposition may be modified or transformed in the outcomes. Sometimes the tension of opposing factors remains unresolved until the last moment, and the initial formulation of simultaneous opposition is manifest in the final products. From time to time, the simultaneous opposition formed in the early stage is not easy to discern in the subsequent outcomes (Rothenberg, 1990).

Opposition and the Creative Thinking Process

One of the reasons why creativity is such an elusive construct is its leaps of thought, which launch a risky and audacious thrust into the unknown and obscure. Oftentimes, extremely complicated and exquisite formulations of art and science result from leaps of thought. Although some of the artistic masterpieces and scientific inventions appear novel, unfamiliar or discontinuous, it is impossible for them to be entirely new. All creations are produced by human minds, and their contents must be communicated to other human minds. As a consequence, they cannot be completely detached from the former experience or knowledge base of creators and audience. Some level of familiarity is necessary for the production and comprehension of unfamiliarity. Conceiving opposites simultaneously is one of the best ways to bridge the familiar and the unfamiliar for human minds. Opposition triggers Janusian thinking and plays a significant part in diverse types of creation (Rothenberg, 1990).

Opposition can also explain two phenomena accompanying creativity, surprise and stimulation. The coexistence of opposites, seemingly illogical or even ludicrous, catches the audience's attention first. It is shocking for them to realize that the antitheses of the formerly held concepts and beliefs are not only functioning but also true. Two different things are operative; what is more, these two things are situated at the extreme and polar positions of a

continuum. The “valid self-contradiction” causes much dissonance in observers’ cognition. Surprise is a natural reaction in the process of regaining cognitive equilibrium. In addition, masterpieces are stimulating though they are balanced and well-controlled. This stimulation arises partly from the effects of conflict. Opposition is the primary component in all types of conflict (Rothenberg, 1978). Opposite elements often whet the interest of the audience. They “appeal to a special part of our mental apparatus, a part that enjoys thinking about some of life’s most intriguing contradictions and paradoxes” (Grothe, 2004, p. 18).

Clinical and Experimental Evidence for Janusian Thinking

There has been a paucity of empirical research on creative thinking processes due to their inherent instability, changeability, and defiance to clear description and precise definition. Janusian thinking is one of a limited number of theories regarding creative thinking processes that is supported by clinical and experimental evidence. Rothenberg’s studies on creativity involved intensive interviews with creative writers. On a regular weekly or biweekly basis, these interviews were conducted over a period of several months to years. These clinical interviews focused directly upon the participants’ writing process, rather than on personal history or other topics related to mental health. Similar interviews with noncreative writers matched in gender, age, education and social status to the creative group were also conducted. Instances of Janusian thinking were found in the writing process of creative writers but not in that of the noncreative control group (Rothenberg, 1971). In addition to the research interviews, Rothenberg also conducted experiments to test the hypothesis that “subjects who were more creative would manifest a greater tendency toward rapid opposite response than less creative ones” (Rothenberg, 1990, p. 1999). A word association testing procedure was used in one of the experiments. Before Rothenberg’s experiments, Carroll, Kjeldegaard and Carton (1962) carried out word association

studies and found that certain experimental participants were inclined to respond to the test word stimuli with opposite words. However, no conclusions had been drawn concerning the psychological basis of this distinctive opposite responding tendency because it was treated just as a confounding variable. The opposite responses to word stimuli often took the form of common words, so the opposite responding tendency was very likely to cause the inconsistent results of creativity tests built on the criteria of uncommon word responses (Rothenberg, 1973). It was this special tendency that attracted Rothenberg's attention, and he decided to replicate the experiment with the addition of a questionnaire designed to evaluate participants' creativity. He thought that free response to word stimuli reflected not only participants' linguistic habits but also their associational pattern of thought, and that the psychological basis of this thinking pattern deserved further study (Rothenberg, 1990).

Approximately 114 Yale undergraduates were recruited as Rothenberg's experimental participants. The high- and low-creative participants were not significantly different in their scholastic aptitude and ability. The purpose of the study was deliberately kept from participants so as not to influence their responses. Had they known the researcher's interest in creativity, they might have tried to give unusual responses. During the experiment, participants were instructed to respond to the test word stimuli (based on the standard Kent-Rosanoff word association list) with the words that first occurred to them. The test word stimuli were given orally to all participants and their response time for each word stimulus was measured carefully. The results demonstrated that "the high [creative] group gave a significantly greater proportion of opposite and contrast responses in a significantly shorter period of time (latency of response) than the low [creative] group" (Rothenberg, 1971, p. 323). Moreover, the high-creative participants' average time of response was so short (1.24 seconds) that it was hypothesized that the opposite words

came into their minds upon exposure to the test word stimuli (Rothenberg, 1973). Similar experiments later conducted with businessmen and creative writers in Rothenberg's clinical interviews yielded the same results. High creative participants' rapid opposite response indicated "the possibility of simultaneous conception of opposites in thought" (Rothenberg, 1971, p.323).

Janusian Thinking and Yin-Yang in the T'ai-Chi Tu

Janusian formulation also appears repetitively in the basic tenets and principles of major religions. In Christianity, there are the opposing forces of God and the Devil. Zoroastrianism, the religion of the expansive Persian Empire, held the fundamental doctrine of a perpetual and simultaneous existence of antithetical twin gods, Ahura Mazda (Ormuzd) and Angra Mainyu (Ahriman). Ormuzd represents light and goodness, whereas Ahriman signifies darkness and evil. They have been against each other from the inception of the cosmos (Rothenberg, 1978). In Buddhism, "Nirvana, the end of the cycle of rebirth, is opposed to the principle of Samsara, the endless series of incarnations and reincarnation to which living things are subject" (Rothenberg, 1990, p. 141). The conception of yin and yang in Taoism shares a strong likeness with Janusian thinking. In actuality, the interaction between yin and yang best embodies the essence of Janusian formulation. According to Rothenberg (1990),

> Conveyed most meaningful by a visual symbol called t'ai-chi tu rather than words, …yin and yang represent universal opposite forces or principles, loosely stipulated as female and male principles, respectively, functioning together as a single larger principle…. The two forces of yin and yang are encompassed within the single circle—the circle denoting all of reality or all of the universe—and they are identical but opposed. As implied by their placement and interlocking or flowing form within the circle, they operate together and in dynamic accord. The single larger principle emerging from the interaction and

> simultaneous operation of yin and yang is, according to Taoism, responsible for all change in the universe. Yin and yang are the regulators of the four seasons and, by extension, all moral effects. In short, they are the major factors underlying everything. The initial Janusian notion of simultaneous opposition or antithesis has been further elaborated into a religious creation, a highly complex and detailed theology extending beyond the core concept. (p. 141)

One of the fundamental principles of traditional Chinese medicine is based on yin-yang philosophy. The harmonious balance of these two opposing forces in the human body contributes to good mental and physical health. Moreover, Oriental paintings, influenced by Taoism, also convey the yin-yang notion: the side-by-side functioning of the opposite effects. Taoist artists place emphasis on the painting effects like *hsu* versus *shih*, vacancy versus solidity; *ming* versus *an*, brightness versus darkness; *kan* versus *shih*, dryness versus wetness (Rothenberg, 1990).

Janusian Thinking as a Special Type of Secondary Process Cognition

In psychoanalysis, primary-process thought is a form of thought, which is irrational, unrealistic, impulsive, driven by instincts and unacceptable to consciousness. The id, the personality structure serving as the unconscious, functions through primary-process thought. On the contrary, secondary-process thought is a form of thought which is based upon reality and rationality. The ego depends on secondary-process thought, which helps thinkers “make sense of the world and act sensibly” (Sternberg, 2004. p. 538). Rothenberg (1990) did not think that primary-process thought is the well-head of creativity. Instead, he regarded Janusian thinking as a special type of secondary-process cognition. As he stated, “the Janusian process is primarily conscious as well as fully purposive and intentional” (Rothenberg, 1996, p. 208)

Because spontaneity has been viewed as an admirable property in artistic and literary creations, its importance is frequently exaggerated by the public, critics, or even creators themselves. As a matter of fact, to achieve the effects of spontaneity, it takes a large amount of effort and time to shape, modify, and revise ideas or images (Rothenberg, 1978). Rothenberg (1978) argued that creative processes had long been romanticized and mystified, from Plato to the modern psychoanalysts. Plato held that creativity and originality were evoked by divine madness, a kind of spiritual possession providing magic power for creators. The normal state of mind was incapable of exceptional creative achievements.

Closely related to the term divine madness is the notion of inspirations which suddenly strike creators. It seems to be a deeply-rooted tradition to consider inspirations an indispensable factor in creative processes. Although sudden inspiratory experiences are precious and exhilarating for writers, artists and scientists, they are limited. As Rothenberg (1978) stated, "there is no positive correlation between sudden appearing ideas and the resulting quality of the product" (p. 173). Many fleeting, whimsical thoughts are not useful at all. Creative persons often abandon many of them. Non-creative persons have even more sudden ideas, which never result in new and valuable products.

Some modern philosophers and psychologists emphasize the critical role that unconsciousness plays in creativity due to the traditional obsession with the inspiratory experiences. For example, Wallas (1926) incorporated the concept of unconsciousness into his four-step creative process. As mentioned in Chapter 1, creators do not consciously or voluntarily think about problems at the second step, incubation. Conversely, unconscious and involuntary mental exploration occurs during this period. Psychoanalysts (e.g. Freud, Jung, and Kris)

regarded primary-process thought as the agent for creativity. Plato's idea of divine madness has evolved into the theory of psychological source from the unconscious realm (Rothenberg, 1978).

Creative processes start with an awareness of the outer environment (Rothenberg, 1990). As Torrance (1988) mentioned, creativity results from a strong human need to resolve the tension aroused when something in the surroundings is perceived as deficient, incomplete, or disharmonious. Creators initiate their projects with clear intentions in mind, regardless of the fields they work in. On the way to the completion of creative products, there are many factors that can thwart progress. These factors may be related to resources, health, family, society, culture and so forth. Only with definite intention and intense concentration are creators able to conquer the difficulties and hardships to reach the destination. Thus, unintentional and effortless creations are impossible though it may sometimes appear that way (Rothenberg, 1990). Louis Pasteur said, "Chance favors the prepared mind." Creative thinking is necessarily a deliberate process.

During the creative process, the sense of consciousness is elevated. "All the creator's conscious faculties are operating optimally and intensely, and there is the capacity to translate observations and thoughts immediately into action and tangible production" (Rothenberg, 1990, p. 132). Performed with complete awareness and consciousness, Janusian thinking is different from primary process thinking and other processes of regression. There exists full rationality when Janusian thinking is carried out during creative activities. Integrating meaningful and conspicuous oppositions, this type of secondary process thinking is actively and purposefully initiated and sustained.

Janusian Thinking and Other Theories of Creativity

The following are two theories of creativity closely related to Janusian thinking. Barron (1968) proposed that paradox and contradiction are the major elements of all creative processes. As he mentioned, “above all, creators remain drawn to the age-old paradoxes that philosophy grapples with and that are occasionally resolved—the problem of the one with the many; unity and variety; determinism and freedom; mechanism and vitalism; good and evil—the basic problems of human existence” (p. 168). Creators continuously cope with opposites, antitheses, and polarities. They are fond of chaos, disorder, imbalance, and contradiction, and try to make sense of them.

Koestler used the name of the Roman god Janus as the title of his book, a summary of his lifelong research on creativity. In his book, he proposed the term bisociation—“perceiving a situation or event in two mutually exclusive associative contexts” (Koestler, 1978, p. 130). This term was coined to distinguish the inflexible thinking fixed on a single plane from the creative thinking operating on more than one plane. The highest level of creative achievement is represented by “the endeavor to bridge the gap between the two planes” (p. 146). As a crucial creative thinking process, bisociative thinking leads to novel and valuable synthesis. Although bisociation and Janusian thinking appear to be similar, they differ from each other in three aspects. First, bisociative thinking is active in the unconscious realm, whereas Janusian thinking is a type of secondary process thinking, which is rational, logical, and reality-oriented (Rothenberg, 1978; Blasko & Mokwa, 1986; Cropley, 2001). Second, bisociation connects two irrelevant or incompatible ideas instead of opposite ones, which are the marrow of Janusian thinking. Third, Koestler regarded bisociation as “combining previously unrelated mental structures in such a way that you get more out of the emergent whole than you have put in”

(Koestler, 1978, p. 131). Rothenberg (1978) argued that Janusian thinking does not involve the combination, synthesis, resolution, or compromise of opposites. Rather, it requires integration of opposites. Rothenberg (1990) distinguished integration from combination and accentuated their difference that the properties of the original components are retained and manifest in integration, but lost in combination.

Creativity in the Classroom

In addition to understanding the mechanism of Janusian thinking, it is critical to address the application of this ubiquitous but neglected creative process in educational settings. One major goal of our education should be incorporating creative thinking processes into all content areas at all grade levels (Cropley, 2001).

In this capricious modern world, the knowledge and skills needed in the future are very likely to be unavailable or even unknown at the time a person studies at school. Consequently, educational institutions cannot limit themselves to offering prescribed information and concepts because they may be obsolete rather soon. Schools must help students adjust to the change that is rapid and sweeping, not only for students' own well-being but also for the progress of human society (Cropley, 2001). In other words, our education needs to foster students' flexibility, openness to new experiences, tolerance for ambiguity, adaptability to the unexpected, and the ability to produce novelty (Cropley, 2001; Starko, 1995). However, it is a pity that our schools have placed inadequate emphasis on these properties but too much emphasis on obedience, memorization, speed and accuracy. As Cropley (2001) pointed out, the instructional methods that facilitate discovery, independent thinking, problem solving and learning in playful situations positively affect students' motivation and attitude toward schooling. In addition, these methods

also proved to be more effective than lecturing, rote learning and other traditional pedagogical practices (Cropley, 2001).

Isolated from regular classroom activities, special provisions for promoting creative thinking oftentimes fail to bring about satisfactory results. Original ideas cannot be expressed in a vacuum. A person has to apply creative thinking in one or more domains: writing, architecture, painting, composing, mathematics, biology and so forth (Starko, 1995). Amabile (1989) identified domain knowledge and skills as required components of the creative process. To facilitate creative thinking, content should be taught in a way that supports, rather than hampers, originality. Moreover, it is very beneficial to incorporate creative processes into diverse content areas because this practice "provides important reinforcement and opportunities for transfer" (Starko, 1995, p. 138).

Creativity, Language and Vocabulary Instruction

From the perspective of linguistic creativity, language is actually the primary human creative activity. Human beings are able to comprehend and create an infinite number of grammatically reasonable utterances. New meaning can be added to existent words and new words can be coined if necessary (Katz, 1999). As Richards (1999) argued, "without the flexible adaptiveness and daily improvisations we could not even shape a new sentence" (p. 734). Besides, language is a main medium to stimulate imagination and express creative thinking (Baker, 2001). Language and creativity are inherently combined; they are inseparable (Katz, 1999). It is very natural and helpful to incorporate creative thinking into the content areas of language arts.

Oxymoron

In actuality, oxymoron is one of the quintessential examples of Janusian thinking in language arts. Oxymoron is a rhetorical figure in which opposite and inconsonant terms are combined, for example, noisy silence, sweet burdens, jumbo shrimp, passive aggression, idiot savant, little giant, flawless imperfection, virtual reality, extensive briefing, least favorite, mournful optimist, wise folly, and so forth. With an intriguing etymology, the word oxymoron first showed up in English around the 17th century. In ancient Greek, *oxus* means "pointed, keen or sharp," whereas *moron* means "foolish or dull." Interestingly, the word oxymoron is itself an exemplar of oxymoron because it literally means "pointedly foolish or sharply dull." On the surface, oxymoron may appear irrational, illogical, self-contradictory or even preposterous. However, at a deeper layer it often makes sense, is sometimes well-founded and profoundly true. An epigrammatic effect is thus generated by the conjunction of conflicting elements. Oxymoronic observations stretch our minds, alter our perception and broaden our thinking (Grothe, 2004).

Paradoxical Proverbs, Aphorisms, and Maxims

Janusian thinking processes can be encapsulated in the minute gem of oxymoron, which is also called abbreviated or compressed paradox. They can also be embodied in longer structures, such as proverbs, aphorisms, and maxims. Grothe (2004) looked at paradoxical statements from an opposite direction and called them extended oxymoron. Paradoxical statements are an effective device to capture truth since they dexterously reveal the conflicts and contradictions at the very heart of human experiences. A juxtaposition of opposites in statements compels our attention, expands our views, deepens our understanding, unleashes our

imagination, and even revolutionizes our conventional thinking. More than just wordplay, figurative employment or verbal virtuosity, paradoxical statements are actually facts of life. In the East, Lao-Tzu, originator of the yin-yang philosophy, reiterated the inextricable link between paradox and truth. In the West, an anonymous adage indicates that "A paradox is truth standing on its head to attract our attention." Besides, when people appropriately use paradoxical observations, they avoid otiose details, which are very likely to weaken their statements. Clear, succinct statements with paradoxical touch are one excellent medium to convey concepts (Grothe, 2004).

As Grothe (2004) mentioned, exceptionally creative people have a strong interest in paradoxical phrasing. Our best humorists are fond of the paradoxical game, writing things that appear absurd at first but truthful upon reflection. When contradictory ideas come across our minds, mental tension is generated. For a brilliant intellect, this tension is not as much a source of irritation as a superb chance to forge a novel witty connection. This tension is also the fountain of motivation, pleasure and enthusiasm. Kierkegaard, a well-know Danish philosopher, once mentioned that the paradox is the source of the thinker's passion, and the thinker without paradox is like a lover without feeling: a paltry mediocrity (Grothe, 2004).

Janusian, or paradoxical, expressions are omnipresent but not many people pay attention to their beauty, truthfulness, and profundity. Popular proverbs integrated with paradox include "More haste, less speed," "In a hurry, always behind," "More is less," "Failure is the foundation of success," and "Everybody's business is nobody's business" and so on. Philosophers, writers, musicians, artists, scientists, politicians, and celebrities all over the world have created a great number of insightful Janusian aphorisms and maxims. They are the treasury of human wisdom. The following are only a small portion of them, categorized by different fields.

Wit and Humor.

Always remember that you are absolutely unique. Just like everyone else. (Margaret Mead).

People would have more leisure time if it weren't for all the leisure-time activities that use it up (Peg Bracken).

The search for happiness is one of the chief sources of unhappiness (Eric Hoffer).

Instant gratification takes too long (Carrie Fisher).

Human History and Condition.

We learn from experience that men never learn anything from experience (George Bernard Shaw).

A life of ease is a difficult pursuit (William Cowper).

A thing long expected takes the form of the unexpected when at last it comes (Mark Twain).

There is no exception to the rule that every rule has an exception (James Thurber).

Love and Romance.

The greatest hate springs from the greatest love (Thomas Fuller).

Love involves a peculiar unfathomable combination of understanding and misunderstanding (Diane Arbus).

The love we give away is the only love we keep (Elbert Hubbard).

Parting is such sweet sorrow (William Shakespeare).

Family Life.

The average child is an almost non-existent myth. To be normal one must be peculiar in some way or another (Heywood Broun).

The young always have the same problem—how to rebel and conform at the same time. They have now solved this by defying their parents and copying one another (Quentin Crisp).

A baby is an inestimable blessing and bother (Mark Twain).

City Life. Millions of people being lonesome together (Henry David Thoreau).

Ancient Insights.

When you add to the truth, you subtract from it (Talmud).

Please all, and you will please none (Aesop).

Nothing is permanent but change (Heraclitus).

Agreement is made more precious by disagreement (Publilius Syrus).

Politics.

We are going to have peace even if we have to fight for it (Dwight D. Eisenhower).

Liberty is being free from the things we don't like in order to be slaves of the things we do like (Ernest Benn).

War is fear cloaked in courage (William C. Westmoreland).

Civilization is a limitless multiplication of unnecessary necessaries (Mark Twain).

Stage and screen.

In the theater the audience want to be surprised—but by things they expect (Tristan Bernard).

What acting really is, is pretending—while you're pretending you're not pretending (Ted Danson).

Comedy is simply a funny way of being serious (Peter Ustinov).

A celebrity is a person who works hard all his life to become well known, then wears dark glasses to avoid being recognized (Fred Allen).

Art.

Every act of creation is first of all an act of destruction (Pablo Picasso).

To study music, we must learn the rules. To create music, we must forget them (Nadia Boulanger).

An artist is forced by others to paint out of his own free will (Willem de Kooning).

To imagine the unimaginable is the highest use of the imagination (Cynthia Ozick).

Compliments and Insults.

He's the kind of guy who can brighten a room by leaving it (Milton Berle).

Handel is so great and simple that no one but a professional musician is unable to understand him (Samuel Butler).

A portrait endowed with every merit excepting that of likeness to the original (Edward Gibbon).

Leonard Bernstein has been disclosing musical secrets that have been well known for over 400 years (Oscar Levant).

Advice.

From a worldly point of view, there is no mistake so great as that of always being right (Samuel Butler).

Giving is true having (Charles Haddon Spurgeon).

To be an ideal guest, stay at home (Edgar Watson Howe).

The only way for a rich man to be healthy is, by exercise and abstinence, to live as if he were poor (Paul Dudley White).

The Literary Life.

Writing came easy—it would only get hard when I got better at it (Gary Wills).

To write a quality cliché you have to come up with something new (Jenny Holzer).

It takes a heap of sense to write good nonsense (Mark Twain).

Originality is nothing but judicious imitation (Voltaire).

Janusian Thinking and Antonyms

Rothenberg (1990) pointed out that "verbal opposition tends to be clearer and more specific than opposition in any other mode. Opposition between or among words is easier to define and to assess than other types of oppositional relationship" (p. 197). Therefore, it is worthwhile to examine the effects of Janusian thinking on antonym learning. In fact, several effective vocabulary teaching methods (e.g. keyword method, pantomime, imagery method, semantic mapping, etc.) are related to creative processes because active elaboration of word meaning and creative thinking coexist from time to time. As Nagy (2005) stated, the effective vocabulary instruction gives students chances to apply new words in the "ways that require creativity and connections with their existing knowledge" (p.28). Of course creativity is not as trainable as vocabulary, but it can be nurtured. Therefore, applying Janusian thinking in vocabulary instruction may not only improve students' vocabulary learning, but also cultivate their creative thinking.

The Importance of Vocabulary Learning

The English language is the language that possesses the largest vocabulary in the world. The English vocabulary is characterized by its richness, immensity, and complexity. Too many to count precisely, the total number of English words is very likely to be over 2 million, with more than 54,000 word families (groups including a base word and its inflection and derivatives) (Schmitt, 2000). The number of words and word families is still continuing to grow at a relatively fast rate because as a universal language English is always ready to absorb new words from other languages and create new terms to represent new ideas. As Stahl (2005) stated, "English is promiscuous in the way that it adds words and takes words from sources such as other languages, slang, and compounding" (p. 97). It is impossible for both native speakers and

English language learners to master the entire lexicon of English, or even most of it. However, the English vocabulary students have to learn is still prodigious, as compared to learning other languages. Contingent upon learners' different purposes, the number of to-be-learned words varies. The vocabulary size also differs in a wide range from person to person. As mentioned by Baumann, Kame'enui, and Ash (2003), "The average adult vocabulary appears to contain approximately 17,000 base words" (p. 774). Schmitt (2000) pointed out that "English native-speaking university graduates will have a vocabulary size of about 20,000 word families" (p. 3).

In addition to the extremely large quantity of English vocabulary that may intimidate learners, there also exists the issue of "quality" that learners must cope with. English vocabulary is rich in shades and fine distinction (Schmitt, 2000). A great number of words can share a general meaning but carry peculiar nuances. For example, words related to "walk" can include "stride," "pace," "creep," "tiptoe," "slink," "stalk," "prowl," "limp," "shuffle," "toil," "trudge," "wade," "waddle," "stagger," "totter," "toddle," "strut," "sashay," "stroll," "saunter," "amble," "ramble" and so forth. This long-winded list is far from complete and can be continued on and on. Verbal subtlety is just like a two-edged sword, which definitely arms some experts and wordsmiths with a sophisticated tool to express exact meaning and convey intended connotation meanwhile baffling so many English learners. Misuse of words is likely to be an unfortunate consequence to the richness and complexity of English vocabulary.

Learning language can be regarded as the most cognitively demanding task human beings may encounter. Most of the grammar of a language is basically acquired by children by the age of ten. Nonetheless, people continue learning new words all their life (Schmitt, 2000). Nagy (2005) argued that "the expansion and elaboration of vocabularies is something that extends across a lifetime" (p.2). No matter how much grammatical or other type of linguistic knowledge

is provided, no successful communication can be completed without the mediation of vocabulary. Conversely, vocabulary can sustain quite a large amount of fundamental communication with little support from other linguistic dimensions (Schmitt, 2000). The analysis of vast corpora of errors has demonstrated that vocabulary errors are those language learners most frequently make. Grammatical mistakes are far outnumbered by lexical mistakes by a one-to-three ratio. Lexical mistakes are also found more disruptive than grammatical mistakes because the latter generally arise in structures that can be understood but the former may interfere with appropriate expression (Gass & Selinker, 1994). Vocabulary constitutes the largest portion of the meaning of any language and is also the most difficult problem for learners (Fan, 2003). Vocabulary is the hub of the four language skills, speaking, listening, reading, and writing; thus, poorly-developed vocabularies can be detrimental to communication. As Decarrico (2001) stated, one of the significant components of communicative competence is lexical competence.

Vocabulary knowledge also has a significant influence on comprehension. Their relationship is manifest and empirically validated. Students' vocabulary knowledge in preschool is correlated with their reading comprehension in upper elementary school (Stahl, 2005). First graders' word knowledge can predict more than 30% of the variance in their reading comprehension when they are in the eleventh grade (Calderon et al., 2005; Cunningham & Stanovich, 1997). Readers with a stronger vocabulary ability can learn unfamiliar concepts better than can those with a weaker vocabulary ability (Baumann, Kame'Enui, & Ash, 2003). Likewise, Biemiller (2003) argued that "vocabulary has been recognized as a strong determinant of reading success" (p. 323). Because of the strong connection between vocabulary and comprehension, students who have a rich vocabulary perform better at school than those who possess a meager

vocabulary. Unfamiliarity with a large percentage of the words in texts results in failure to do productive contextual analysis (Carlo, August & Snow, 2005). Becker (1977) stated that lack of vocabulary knowledge is the main culprit for the low academic achievement of disadvantaged students. Consequently, to master English and succeed in learning within English environments, students have no choice but to conquer a significant portion of its large vocabulary.

The Importance of Vocabulary Teaching

Incidental word learning takes place while students of different ages and abilities are reading in-school or out-of-school materials. When encountering unfamiliar words, readers can seek help from the immediate context of these words. Regular reading, without doubt, is one of the major ways to enhance vocabulary knowledge. Nonetheless, it has been wrongly assumed that the meanings of unfamiliar words can be "readily derived from all contexts" (McKeown & Beck, 2004, p. 22). Natural contexts all too often fail to provide adequate and reliable information for readers to derive the word meanings. Some natural contexts are *nondirective* or *uninformative* in that they do not direct readers toward any meaning of unknown words. Others are even *misdirective or misleading* in that they simply lead readers to wrong conceptions of words. Besides, it is impossible to learn the words incidentally from contexts when they represent new or complicated concepts, rather than known or easy ones. As a result, complete reliance on contexts to learn new words is not advisable (Baumann, Kame'enui & Ash, 2003; Cunningham, 2005).

Nist and Olejnik (1995) argued that the cumulative results of the context studies had limited generalizability because researchers often contrived unnatural text in their studies. In actuality, readers seldom encounter natural text that offers strong context similar to that of the materials created for experiments. In their experiment regarding the role of context on varying

levels of word knowledge, Nist and Olejnik (1995) tried to make the context conditions realistic enough to simulate the authentic reading materials for college students. Their experimental results even indicated that "context had only minor impact on subjects' performance on vocabulary measures requiring varying levels of word understanding" (p. 187). The functions of context in helping readers acquire the meaning of words are still controversial.

It seems to be a clear but forgotten fact that some form of vocabulary instruction proves to be better than no instruction (Baumann, Kame'enui, & Ash, 2003). This is even true of the traditional teaching approaches, such as the rote method and those that only involve definitional training. However, vocabulary teaching has long been neglected and thrown into disfavor, as compared with other aspects of language instruction. It has long been assumed that "vocabulary could simply be left to take care of itself" (Decarrico, 2001, p. 285) and that vocabulary learning hardly requires formal instruction (Hockett, 1958). Most teachers do not spend sufficient time and effort teaching new words; nor do they employ effective methods when teaching vocabulary. More often than not, teachers just introduce vocabulary and give related assignments. They seldom design elaborate and multifaceted activities to help students learn new words (Baumann, Kame'enui, & Ash, 2003).

Direct and explicit vocabulary instruction has its irreplaceable functions. Incidental learning of new words cannot be a substitute for direct vocabulary instruction (Nagy, 2005). Kamil and Hiebert (2005) pointed out that "direct vocabulary instruction was effective in improving comprehension" (p.8). Baumann, Kame'enui and Ash (2003) also averred that vocabulary instruction implemented in a systematic and rich way can positively influence both students' vocabulary learning and their comprehension on the readings containing taught words (Baumann, Kame'enui & Ash, 2003). Besides, vocabulary instruction can also affect writing as

well as reading comprehension. Duin and Graves (1988) indicated that pre-teaching students key words before writing enhanced the quality of the essays they composed. In addition, learning vocabulary exclusively from natural contexts is sometimes not as efficient as learning vocabulary from direct teaching, especially when the meanings of specific words have to be learned during a limited period of time. Cunningham (2005) contended that waiting for students to encounter new words during normal reading and then incidentally learning one word out of twenty is inefficient. Consequently, direct, word-by-word vocabulary instruction should be implemented in classrooms even though learning words from contexts during normal reading has an influence on vocabulary learning. Explicit instruction and incidental learning of new words are complementary to each other, not competing with each other. Decarrico (2001) argued that "a well-structured vocabulary program needs a balanced approach that includes explicit teaching together with activities providing appropriate contexts for incidental learning" (p. 286). It is our goal as educators to pursue a balance between both types of vocabulary learning.

Deciding Factors in the Effectiveness of Vocabulary Teaching Methods

According to their classic meta-analysis of many studies on vocabulary instruction, Stahl and Fairbanks (1986) found three key factors that can impact a method's effectiveness. These three factors can be used as principles to assess the existing instructional methods or to design new methods (Stahl, 1986).

The first factor is whether a method provides students with both definitions and context. McKeown and Beck (2004) pointed out that rich vocabulary instruction should include a breadth of information and that, in addition to definition, contexts and examples should also be presented. To obtain a clearer understanding of effective vocabulary instruction, it is helpful to make a comparison between definitional information and contextual information. Definitional

information refers to the logical relationship between a word and other known words as in a dictionary definition or in a network model of semantic memory. Students' definitional knowledge regarding a word is represented by "a network of concept nodes and links between the nodes. A word is understood by activation spreading along the links of the network first to closely related concepts and later to more distant concepts" (Stahl & Fairbanks, 1986, p.74). That is, a definition puts an unknown word within a semantic network of known words and helps learners acquire useful knowledge of the unknown word quickly (Bruning, Schraw & Ronning, 1999). Contextual information refers to "knowledge of a core concept and how that knowledge is realized in different contexts" (Stahl & Fairbanks, 1986, p. 74). Oftentimes, what words mean varies in different contexts and relies on how they are combined with other words, especially those surrounding them. From the contextual perspective, vocabulary knowledge can be regarded as organized in a schemalike structure including grammatical, spatial, and temporal cues, as well as the definition of the target word (Bruning, Schraw & Ronning, 1999). The vocabulary teaching methods that give a balanced mixture of definitional and contextual information bring about significantly better vocabulary achievement than the methods offering merely one kind of information. "The power of a combination of definitional and contextual information appears to be robust across instructional modalities" (Baumann, Kame'enui & Ash, 2003, p. 765). Stahl and Fairbanks (1986) stated that the methods involving both definitional and contextual information about target words produced the highest effects on comprehension. Similarly, Blachowicz and Fisher (2000) stated that combining definitional information with meaningful activities, such as reading and writing, is more effective than merely providing definitions.

The second factor is the degree to which teaching activities involve the depth of processing. "Depth" here can be regarded as the amount of cognitive and affective resources

invested in the learning process (Nunan, 1991). Students should learn to engage in vocabulary learning deeply, for example, connecting new words to already known information or prior experiences (Stahl, 2005). Researchers have pointed out the marked difference in students' performances resulting from the teaching strategies that engage students more deeply (deep processing) and those that do not (surface or shallow processing) (Fan, 2003). Schmitt (2000) indicated that the deeper the processing of a word, the more likely the word will be remembered later. Lawson and Hogben (1996) mentioned that the more effectively the to-be-learned words are elaborated, the more easily they will be recalled. Stahl and Fairbanks (1986) contended that learners who process the lexical information more deeply retain it better and longer than those who just engage in shallow processing. As Ellis (1995) stated, "Shallow processing like oral rehearsal does not lead to long-term retention of words but deep processing, whereby semantic associations are accessed and elaborated, does" (p. 12). Deep processing transfers information about to-be-learned words to long-term memory from short-term memory, which is limited with respect to storage capacity and duration (Decarrico, 2001). However, studies have demonstrated that learners prefer relatively shallow strategies to deeper ones and favor mechanical strategies over complex ones that demand active manipulation of information (Schmitt, 2000). Repetition and memorization were the most frequently reported vocabulary learning strategies by learners whereas the more involved manipulation of information (e.g. inferencing, imagery, semantic mapping, Keyword Method, etc.) was reported with much less frequency. As Lawson and Hogben (1996) suggested, if students do not realize the advantages of elaborative procedures, it is necessary to directly teach students elaborative strategies during language instruction.

The third factor is the number or kind of exposure to meaningful information about new words. Researchers reiterated the importance of frequent vocabulary practice. Multiple exposures

to the target word enhance the learner's understanding of it (Scott, 2005). A word is more likely to enter a learner's active vocabulary through repeated exposures (Summers, 1988). However, multiple exposures to new words do not mean mere repetition or drills of the words and their meanings, but rather learning them in various contexts and situations (Stahl, 2005). According to Graves and Prenn (1986), it takes many exposures in diverse contexts to learn a word thoroughly. Likewise, Holden (1999) stated that multiple exposures to new vocabulary through various means are the most reliable predictor of retention. Teachers should help their students acquire unfamiliar words through listening, speaking, reading, and writing. The use of verbal, visual, tactile, sonic, and bodily/kinesthetic memory aids can also be introduced to students not only as a viable means of promoting their capacity to recall words but also as types of differentiated instruction that can accommodate their diverse learning styles and preferences.

Other researchers also tried to discover key factors in the effectiveness of vocabulary teaching methods. The principles for effective vocabulary instruction that Scott and Nagy (2004) identified are: "(1) Create multidimensional word schemas with students, (2) Help students build connective links in the associative network surrounding the words, (3) Create multiple opportunities to see and use concepts, and (4) Help students develop subtle distinctions between related words that occur in the same semantic field" (p. 85). According to their research on interesting and effective ways to build students' vocabulary, Foil and Alber (2002) inferred three crucial factors in effective instructional activities. To help students develop a strong command of words, the activities have to "(a) facilitate linking new words to previous learning and background knowledge, (b) provide a personally meaningful context for using new words, and (c) present frequent practice opportunities" (p. 138). These two sets of principles are similar to those of Stahl and Fairbanks (1986). Different words are used to embody the same concepts.

In addition, Graves (2000) suggested instruction in word-learning strategies to help students learn new vocabulary independently. Carr and Wixson (1986) concluded that it is critical for students to learn how to discover the meanings of unfamiliar words by themselves because mature readers have to understand a great number of words. Word-learning strategies, making up a major portion of generative word knowledge, are steps taken in order to discover or understand the meaning of unfamiliar words, to store them in long-term memory, or to employ them flexibly and at will (Maria & Catalan, 2003). In contrast to individual word knowledge, generative word knowledge is defined as "vocabulary knowledge that can transfer to the learning of new words" (Nagy, 2005, p. 29). Another important part of generative word knowledge is word consciousness. Three kinds of metalinguistic awareness comprise word consciousness. They are morphological awareness, syntactic awareness, and metasemantic awareness. Morphological awareness is the ability to discern morphemes and figure out how they cooperate to form the meaning of a word. Syntactic awareness is the ability to reflect on how words are combined and arranged in sentences. Metasemantic awareness means being able to reflect on the meanings and nuances of words. Knowledge of synonyms, antonyms and figurative language is a component of metasemantic awareness (Scott & Nagy, 2004).

Moreover, Ruddell (1986) stated that motivation and desire to learn new words is a factor contributing to effective vocabulary learning. In addition to interesting activities, clear learning objectives, and well-organized instructional plans, learners' understanding of the academic and personal value of vocabulary knowledge can foster this motivation. Just as Ruddell (1986) addressed the affective aspect, motivation, in developing students' vocabulary, Baumann, Kame'enui and Ash (2003) also emphasized the affective aspect of vocabulary instruction. They

suggested that teachers help students enjoy learning vocabulary and appreciate the beauty of words.

When integrated with Janusian thinking, a vocabulary teaching activity can be developed which involves deep processing, encourages active learning, links new words to background knowledge, gives both definitional and contextual information, provides a useful vocabulary-learning strategy, and also enhances students' interest and motivation to learn new words. The above statement leads to the central research question of this study: To what extent can the Janusian thinking process enhance vocabulary learning, as compared with other vocabulary teaching methods? A detailed description of the four vocabulary teaching methods will be presented in the following chapter.

CHAPTER 3

METHODS

Participants

The participants in this research study were 36 high school students from two classes in two schools located in northeastern Georgia. The two classes participated in the experimental activity in different weeks in April, 2006. One of the two high schools was the one where my classmate used to teach English. With her help, I recruited a portion of the participants in my study from this school. The rest of the participants was recruited from the other high school because one of the English teachers at that school was very interested in my presentation on Janusian thinking in an academic conference and invited me to conducted research in his class.

The first class was a senior English AP class, made up of 25 students. Because 7 students went on a field trip on the day of experiment, only 18 students participated in the experiment. Of the 18 students, 7 were male and 11 were female. Their ages ranged from 16 to 18 years old (M = 17.67, SD = 0.594). The second class was a junior English honors class, comprising 21 students. Because 3 students left for a field trip on the day of experiement, only 18 students took part in the experiment. Of the 18 students, 5 were male and 13 were female. Their ages ranged from 16 to 17 years old (M = 16.83, SD = 0.383). The participants of both classes were predominantly White.

Design

The experimental design for this study was a 2*2 factorial structure for repeated measures (the within-subject design). Because the experimental design is repeated measures, the

participants did not have to be randomly assigned to treatments or meet any special criteria. Intact classes or naturally occurring groups would work. With the repeated-measures design, the problem of initial inequivalency can be solved because each participant is measured under all of the conditions and thus serves as his/her own control (Huberty & Olejnik, 2005). Although the participants were not randomly assigned, assignment of treatment conditions were random, as explained later in this chapter.

The heart of this experimental design was the incomplete stem:

(Person/something) is both A and B because _____.

Students have to complete the blank (the clause). A is the new word to be learned and B is its antonym.

EXAMPLE: Facile: Bad habits are both facile and difficult because they are easy to get but hard to give up. *Facile* is the new word to be learned and *difficult* is its antonym.

EXAMPLE: Flippant: Comedies are both flippant and serious because jokes are used to give lessons. *Flippant* is the new word to be learned and *serious* is its antonym.

EXAMPLE: Banal: Inventions are both banal and original because they are often new combinations of old things. *Banal* is the new word to be learned and *original* is its antonym.

There are no correct answers for the blanks. The answers exhibited here are just for reference. All the participants had to do was make sentences complete and meaningful.

I invented the Janusian thinking method, which was applied along with the other three teaching methods in the experiment. For the Janusian thinking method, the participants were shown the target word, its definition, its antonym and one example, and asked to fill in the blank of the incomplete stem as aforementioned. The other three methods were the traditional method, the traditional method plus sentence completion, and the traditional method plus display of

antonyms. For the traditional method, participants were shown the target word, its definition, and four examples. For the traditional method plus sentence completion, participants were shown the target word, its definition and one example, and asked to do the activity of sentence completion. For the traditional method plus display of antonyms, participants were shown the target word, its definition, its antonym, and three examples. These methods are illustrated with the words taught in Appendix A.

The independent variable was the teaching method and the dependent variable was the score on the posttest, containing exactly the same words taught in the experiment. In the posttest, participants had to write down the definition of the words. The answers were evaluated on a scale of 0, 1 and 2 points (0: not expressing the meaning of the word at all; 1: expressing the meaning of the word incompletely or improperly; 2: expressing the meaning of the word completely and properly). This grading system was borrowed from the expressive measure of story word definitions, proposed by Coyne, McCoach, and Kapp (2006). Because of the intention to eliminate the chance of guessing, the multiple-choice format was not used. The two factors in this design were sentence completion and display of antonyms. The diagram of the experimental design is exhibited in Figure 3.1.

Research Questions

For examining the following research questions, the level of significance was set at 0.05.

Q 1: Is there interaction between factor A (whether the antonyms are provided or not) and factor B (whether participants are asked to complete sentences or not)? This question was examined by an interaction effect test. If the result for this test was significant, the subsequent questions would be examined.

Q 2: Are the participants' scores on the test section including words taught by the traditional method plus sentence completion higher than those on the test section including words taught by the traditional method? This question would be examined by a focused test.

Q 3: Are the participants' scores on the test section including words taught by the traditional method plus display of antonyms higher than those on the test section including words taught by the traditional method? This question would be examined by a focused test.

Q 4: Are the participants' scores on the test section including words taught by the Janusian thinking method higher than those on the test section including words taught by the traditional method plus sentence completion? This question would be examined by a focused test.

Q 5: Are the participants' scores on the test section including words taught by the Janusian thinking method higher than those on the test sections including words taught by the traditional method plus display of antonyms? This question would be examined by a focused test.

Display of Antonyms	Sentence Completion: No	Sentence Completion: Yes
No	Traditional Method 1. Give the definition of new words. 2. Give examples.	Traditional Method + Sentence Completion (No antonyms are given.)
Yes	Traditional Method + Display of Antonyms (Students do not actively create sentences.)	Janusian Thinking Method (Traditional Method + Display of Antonyms + Sentence Completion)

Figure 3.1 2*2 Repeated-measures Design for this Study

Two Important Preparatory Stages

I went through two preparatory stages in order to control as many confounding variables as possible.

Controlling Contextual Richness of Sentences

All examples used for the target words in the experiment took the form of sentences. The blanks in incomplete sentences that participants had to fill in were all adverbial clauses initiated by the conjunction "because." According to Scott (2005), sentences providing more useful contextual information appeared to significantly affect vocabulary learning. As Baumann, Kame'enui and Ash (2003) stated, when the target word is surrounded by a rich and supportive context, learners may acquire its meaning more easily than they do when the same word is embedded in poor and meager context. Therefore, contextual richness of the sentences used as examples could be a confounding variable and needed to be controlled. Pearson and Studt (1975) developed three levels of sentence context.

1. Rich sentence context: highly definitive and specific.
2. Moderate sentence context: definitive.
3. Poor sentence context: nondefinitive; in other words, a great number of words can fit into the context.

Because few vocabulary-related studies conducted adjective-only experiments, this study used adjectives, rather than nouns, which Pearson and Studt (1975) used in their study. Consequently, the three levels of sentence context shown above were slightly modified. The modified levels of sentence context are exhibited as follows.

1. High level (highly definitive and specific): containing the clear and specific definition of the target word. For Example: tendentious: His tendentious opinions are strong, one-sided, and intended to influence others.
2. Medium level: implying or showing some cues for the meaning of the target word through proper usage of it. For example: indigent: They are so indigent that they cannot even buy food for their children.
3. Low level: not showing cues for the meaning of the target word. For example: Squalid: There was a squalid hotel in this area.

All the sentences used as examples belonged to the medium level, which was confirmed by two English-native-speaking doctoral students, one of whom was a certified high school English teacher and the other of whom was an assistant editor of a scholarly journal. These students also helped review the correctness and appropriateness of definitions and examples. The original resources for these definitions and examples included Oxford Advanced Learner's English-Chinese Dictionary (4th ed.), Longman Dictionary of Contemporary English (3rd ed.), The Oxford American Writer's Thesaurus, and Webster's New Explorer Dictionary and Thesaurus.

Controlling Forty Words' Difficulty Level

There were a total of 40 words in the experiment, with 10 in each method. All the words were adjectives. The lexical category (or part of speech) of these words was controlled because words of different lexical categories might result in a different learning effect. For instance, nouns might be easier to learn than verbs and adjectives (Elley, 1989) or vice versa (Robbins & Ehri, 1994). Although studies demonstrated mixed results, the lexical category was very likely to be a confounding variable if words of different lexical categories were used.

Besides, these forty words met three criteria: 1. These words have antonyms; 2. These words are low-frequency words, with the frequency of less than one occurrence per one million words; 3. These words cannot contain any one of the following prefixes, *un, re, in (im, il, ir), dis, en (em), non, in (im), over, mis, sub* and *pre*. These popular prefixes give a powerful cue to the meaning of words and account for 81% of all prefixed words (Stahl, 2005).

Two steps were taken to make sure that the words in the four treatments had a similar difficulty level. The first step was explicit control. Twelve graduate students were asked to complete a checklist containing 45 words, which were selected from GRE preparation kits. In the checklist, each word was accompanied by three choices, "never heard of it," "heard of it," and "know it." If participants chose "know it," they also needed to write down a brief definition of the word. The checklist of the three-choice format was built on Dale and O'Rourke's suggestion (1971) of assessing learners' knowledge of words at three levels, "totally unknown," "partially known," and "totally known." The choices of "never heard of it," "heard of it," and "know it" corresponded to "totally unknown," "partially known," and "totally known" respectively. The five words that most people knew and answered correctly were discarded. Then, the 40 words left were listed from the most difficult to the easiest (from top to bottom), based on the12 graduate students' answers. The second step was related to randomization. Four cards were marked 1, 2, 3, and 4, corresponding to the traditional method, the traditional method plus sentence completion, the traditional method plus antonyms, and the Janusian thinking method respectively. They were put into a box, and then I drew one card for each word on the aforementioned list. If the number of the card I first drew was 2, the first word would be assigned to the group of the traditional method plus sentence completion, and the card numbered 2 would be placed to the side. Then, I randomly drew another one from the rest of the three cards for the

second word on the list. Then, I randomly drew another one from the remaining two cards for the third word on the list. The last card left in the box naturally went to the fourth word on the list. After the first four words were randomly assigned to the four methods, all four cards were put into the box again, and the previous procedures were repeated until all the words on the list were assigned. With the combination of explicit control and randomization, the difficulty level of the words of the four groups should be very similar.

Procedures

The experiment lasted for 60 minutes. Before the experiment, I gave the participants a 20-minute presentation regarding creativity, Janusian thinking, and the procedures of this experiment. Each teaching method represented a treatment, so there were four treatments in this experiment. Each participant received all four treatments. The presentation and the experiment were completed in a 90-minute session. The next day, the participants took the posttest with a brief survey attached. The survey was composed of questions about the participants' background information and reflection on the instruction. The posttest along with the brief survey is exhibited in Appendix B. After the posttest and survey, a short debriefing was given to the participants.

Participants’ exposure to each word of the four treatment conditions was 90 seconds. The 90-second exposure time was decided upon by piloting the procedures. The word learning activities in the four treatments were exhibited on Powerpoint slides. The timing and transition of these slides was automatically controlled by the computer system. The order of exhibiting the 40 words was rotated. The traditional method, the traditional method plus sentence completion, the traditional method plus display of antonyms and and the Janusian thinking method are represented by T, T+S, T+A and J respectively. The order of exhibiting the 40 words was (T,

T+S, T+A, J), (T+S, T+A, J, T), (T+A, J, T, T+S), (J, T, T+S, T+A), (T, T+S, T+A, J), (T+S, T+A, J, T), (T+A, J, T, T+S), (J, T, T+S, T+A), (T, T+S, T+A, J), and (T+S, T+A, J, T). The reason for exhibition in this way was to prevent the 10 words of any treatment from being the closest to the posttest temporally, thereby resulting in the best performance. The slides of these forty words are exhibited in Appendix A. The title of the method on each slide was hidden during the experiment.

Moreover, every participant was given a worksheet. The worksheet first showed two examples for each method (8 examples totally). I guided the participants through these examples. After the section of examples, the words for the experiment were listed in exactly the same order as that of the words exhibited on the slides. Instructions also went with these words. For the words taught with the traditional method, the instruction was “Please write down its definition.” For the words taught with the traditional method plus sentence completion, the instruction was “Please complete the following sentence.” For the words taught with the traditional method plus display of antonyms, the instruction was “Please write down its antonym.” For the words taught with the Janusian thinking method, the instruction was “Please complete the following sentence.” The worksheet helped the participants engage in the experimental activities. The instructions above also gave the participants equal opportunities of engagement in the four methods. The worksheet is exhibited in Appendix C. After the experimental activity, participants’ worksheets were collected, so they could not study the words at home for the posttest on the next day.

Correlation between two Raters’ Grading

I asked two English-native-speaking doctoral classmates to grade the posttests of the experiment. They graded the posttests independently. Because the correlation between their grading was high ($r = 0.958$), no discussion was held to resolve the inconsistency of their

grading. The average of their grading scores of each participant's each section were used for analysis.

The Internal Reliability of the Posttest

For the internal reliability of the posttest, the Cronbach's alpha of the sections of the traditional method, the traditional method plus sentence completion, the traditional method plus display of antonyms, and the Janusian thinking method are 0.679, 0.551, 0.543, and 0.250 respectively.

CHAPTER 4

RESULTS

Analysis

Descriptive Statistics

According to Table 4.1, the average scores on the sections of the traditional method, the traditional method plus sentence completion, the traditional method plus display of antonyms, and the Janusian thinking method were 1.806, 0.875, 2.333, and 2.375 respectively. The standard deviations of the scores on these four sections were 2.247, 1.441, 2.277, and 2.008 respectively.

Table 4.1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Traditioanal Method	36	.00	8.00	1.806	2.247
Traditional Method + Sentence Completion	36	.00	6.50	.875	1.441
Traditional Method + Display of Antonyms	36	.00	11.00	2.333	2.277
Janusian Method	36	.00	8.00	2.375	2.008
Valid N (listwise)	36				

Interaction Hypothesis Test

The analysis of data from repeated measures (or the within-subject design) can be done by either a univariate or a multivariate approach. Since the design was a 2*2 factorial structure for repeated measures, the univariate and multivariate results of the interaction hypothesis test were the same. There was also no need to address the issue of sphericity. In addition, because

"school" was considered the between-groups variable, the mixed model design was actually applied here. The results of the interaction hypothesis test is shown in Table 4.2.

In order to test the research question whether there is interaction between factor A (whether the antonyms are provided or not) and factor B (whether participants are asked to complete sentences or not), interaction hypothesis test was conducted. According to Table 4.2, the interaction between sentence and school is significant ($F(1, 34) = 11.995$, $p = 0.001$, partial eta squared = 0.261, generalized eta squared = 0.039), the interaction between antonym and school is significant ($F(1, 34) = 4.935$, $p = 0.033$, partial eta squared = 0.127, generalized eta squared = 0.018), and the main effect of antonym is significant ($F(1, 34) = 18.211$, $p = 0.000$, partial eta squared = 0.349, generalized eta squared = 0.061). Olejnik and Algina (2003) proposed generalized eta squared, which was an adjustment of eta squared. There is no significant three-way interaction between sentence, antonym and school ($F(1, 34) = 3.090$, $p = 0.088$) or interaction between sentence and antonym ($F(1, 34) = 3.274$, $p = 0.079$).

Table 4.2 The Results of the Interaction Hypothesis

SOURCE	SS	df	MS	F	Sig.	Partial Eta Squared
SENTENCE	7.111	1	7.111	3.781	.060	.100
SENTENCE * SCHOOL	22.563	1	22.563	11.995	.001	.261
Error (SENTENCE)	63.951	34	1.881			
ANTONYM	37.007	1	37.007	18.211	.000	.349
ANTONYM * SCHOOL	10.028	1	10.028	4.935	.033	.127
Error (ANTONYM)	69.090	34	2.032			
SENTENCE * ANTONYM	8.507	1	8.507	3.274	.079	.088
SENT * ANT * SCHOOL	8.028	1	8.028	3.090	.088	.083
Error (SENT*ANT)	88.340	34	2.598			

Since there is significant interaction between the variables Sentence and School, it is worthwhile to examine differences between levels of Sentence (Yes/No) for each level of School. Likewise, because there is significant interaction between the variables Antonym and School, it is worthwhile to examine differences between levels of Antonym (Yes/No) for each level of School.

Interaction between Sentence and School

The relationship between Sentence and School is shown in Figure 4.1. With sentence completion, the average score of the participants in School 1 on the vocabulary posttest increased from 1.32 to 1.67. However, with sentence completion, the average score of the participants in School 2 decreased from 2.82 to 1.58. This type of relationship is a disordinal interaction.

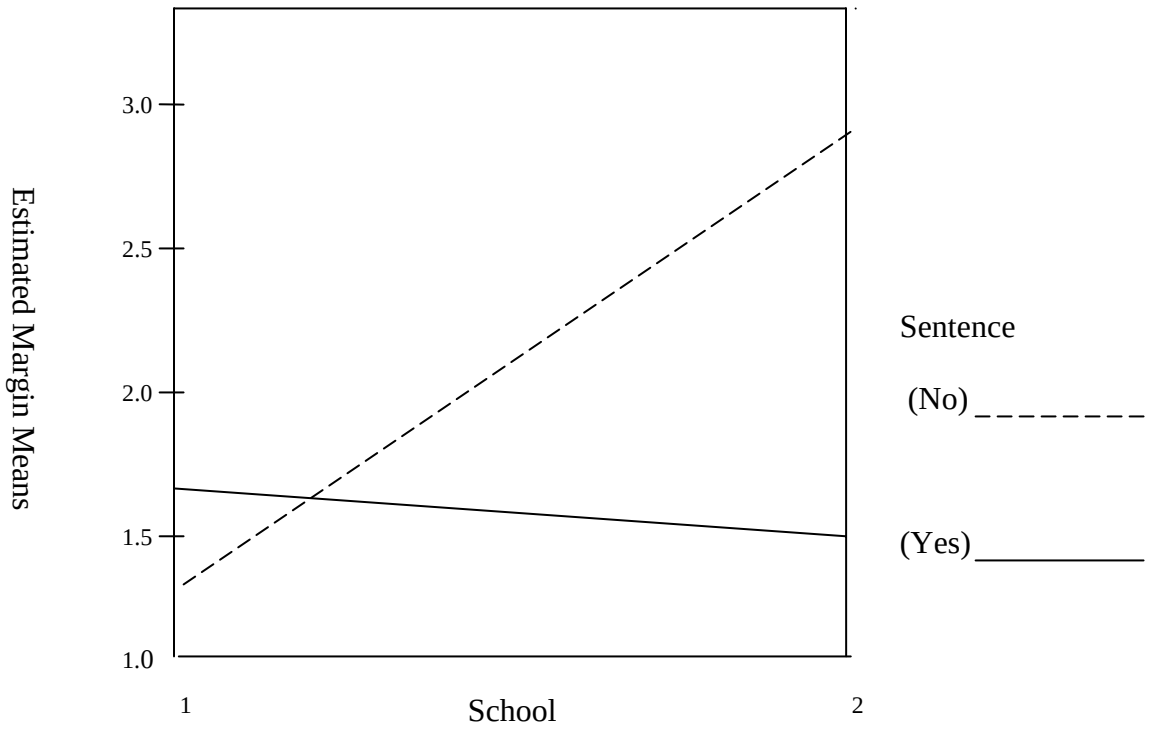

Figure 4.1 Interaction between Sentence and School

Contrast between Levels of Sentence for School 1

The results of simple-effect analysis for contrast between levels of Sentence for School 1 is shown in Table 4.3. There is insufficient evidence to indicate that two levels of Sentence (Yes/No) for School 1 are different significantly in the posttest scores, $F(1, 17) = 1.432$, and $p = 0.248$.

Table 4.3 Tests of Within-Subjects Effects (Sentence) for School 1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Sentence	Sphericity Assumed	1.085	1	1.085	1.432	.248	.078
	Greenhouse-Geisser	1.085	1.000	1.085	1.432	.248	.078
	Huynh-Feldt	1.085	1.000	1.085	1.432	.248	.078
	Lower-bound	1.085	1.000	1.085	1.432	.248	.078
Error (Sentence)	Sphericity Assumed	12.884	17	.758			
	Greenhouse-Geisser	12.884	17.000	.758			
	Huynh-Feldt	12.884	17.000	.758			
	Lower-bound	12.884	17.000	.758			

Contrast between Levels of Sentence for School 2

The results of simple-effect analysis for contrast between levels of Sentence for School 2 is shown in Table 4.4. There is sufficient evidence to indicate that two levels of Sentence (Yes/No) for School 2 are different significantly in the posttest scores, $F(1, 17) = 12.245$, and $p = 0.003$. With sentence completion, the average score of the participants in School 2 decreased by 1.24 (= 2.82 – 1.58).

Table 4.4 Tests of Within-Subjects Effects (Sentence) for School 2

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Sentence	Sphericity Assumed	13.752	1	13.752	12.245	.003	.419
	Greenhouse-Geisser	13.752	1.000	13.752	12.245	.003	.419
	Huynh-Feldt	13.752	1.000	13.752	12.245	.003	.419
	Lower-bound	13.752	1.000	13.752	12.245	.003	.419
Error (Sentence)	Sphericity Assumed	19.092	17	1.123			
	Greenhouse-Geisser	19.092	17.000	1.123			
	Huynh-Feldt	19.092	17.000	1.123			
	Lower-bound	19.092	17.000	1.123			

Ineraction between Antonym and School

The relationship between Antonym and School is shown in Figure 4.2. With display of antonyms, the average score of the participants in School 1 increased from 0.72 to 2.26. Likewise, with display of antonyms, the average score of the participants in School 2 increased from 1.96 to 2.44. This type of relationship is an ordinal interaction, which can lead to the further examination of the main effect of antonym.

Contrast between Levels of Antonym for School 1

The results of simple-effect analysis for contrast between levels of Antonym for School 1 is shown in Table 4.5. There is sufficient evidence to indicate that two levels of Antonym (Yes/No) for School 1 are different significantly in the posttest scores, $F(1, 17) = 25.160$, and $p = 0.000$. With display of antonyms, the average score of the participants in School 1 increased by 1.54 (= 2.26 - 0.72).

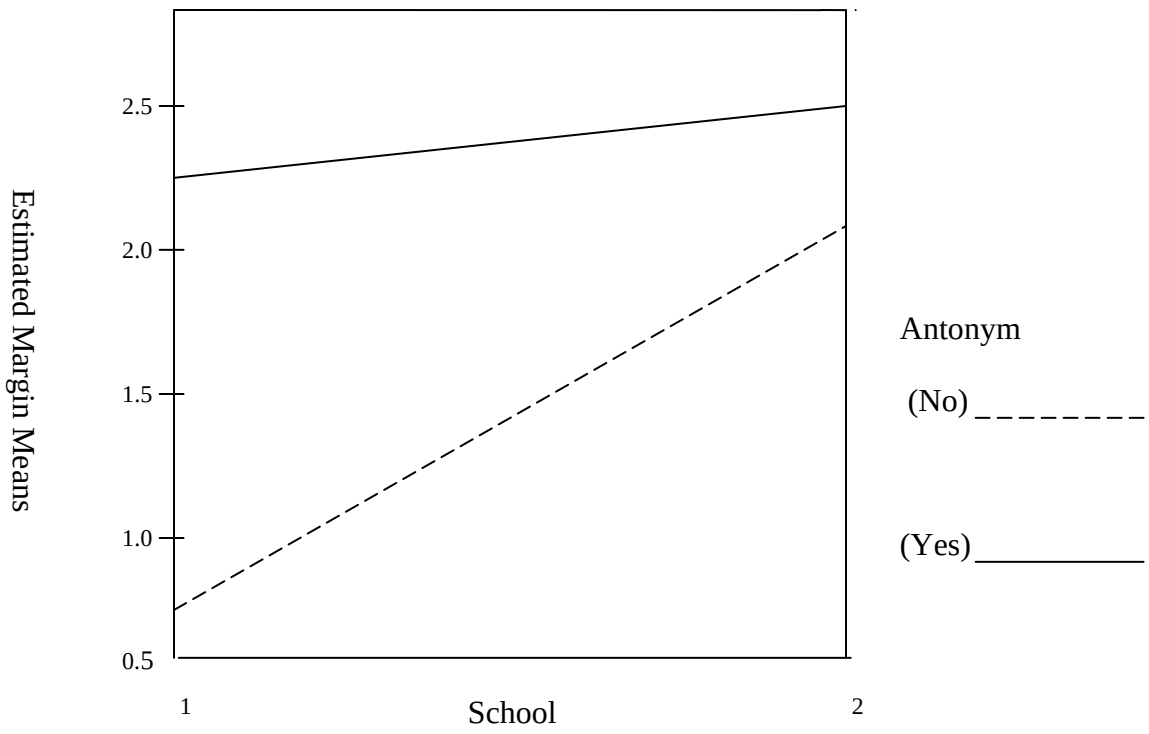

Figure 4.2 Interaction between Antonym and School

Table 4.5 Tests of Within-Subjects Effects (Antonym) for School 1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Antonym	Sphericity Assumed	21.391	1	21.391	25.160	.000	.597
	Greenhouse-Geisser	21.391	1.000	21.391	25.160	.000	.597
	Huynh-Feldt	21.391	1.000	21.391	25.160	.000	.597
	Lower-bound	21.391	1.000	21.391	25.160	.000	.597
Error (Antonym)	Sphericity Assumed	14.453	17	.850			
	Greenhouse-Geisser	14.453	17.000	.850			
	Huynh-Feldt	14.453	17.000	.850			
	Lower-bound	14.453	17.000	.850			

Contrast between Levels of Antonym for School 2

The results of simple-effect analysis for contrast between levels of Antonym for School 2 is shown in Table 4.6. There is insufficient evidence to indicate that two levels of Antonym (Yes/No) for School 2 are different significantly in the posttest scores, $F(1, 17) = 1.799$, and $p = 0.197$.

Table 4.6 Tests of Within-Subjects Effects (Antonym) for School 2

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Antonym	Sphericity Assumed	2.127	1	2.127	1.799	.197	.096
	Greenhouse-Geisser	2.127	1.000	2.127	1.799	.197	.096
	Huynh-Feldt	2.127	1.000	2.127	1.799	.197	.096
	Lower-bound	2.127	1.000	2.127	1.799	.197	.096
Error (Antonym)	Sphericity Assumed	20.092	17	1.182			
	Greenhouse-Geisser	20.092	17.000	1.182			
	Huynh-Feldt	20.092	17.000	1.182			
	Lower-bound	20.092	17.000	1.182			

Results of Brief Survey

As can be seen in Table 4.7, the percentage of the participants in School 1 who considered the Janusian thinking method most effective was 44.4%, whereas that of the participants in School 2 was 22.2%. As can be seen in Table 4.8, most of the participants in both schools (88.9%) found the Janusian thinking method most interesting. Overall, the Janusian thinking method received the highest evaluation from the participants of these four methods.

Table 4. 7 Frequency Table for the Most Effective Method

	School 1		School 2	
	Frequency	Percent	Frequency	Percent
Traditional Method	4	22.2	2	11.1
Traditional Method + Antonym	2	11.1	8	44.4
Traditional Method + Sentence	4	22.2	4	22.2
Janusian Thinking Method	8	44.4	4	22.2
Total	18	100.0	18	100.0

Table 4. 8 Frequency Table for the Most Interesting Method

	School 1		School 2	
	Frequency	Percent	Frequency	Percent
Traditional Method	0	0.0	1	5.6
Traditional Method + Antonym	2	11.1	1	5.6
Traditional Method + Sentence	0	0.0	0	0.0
Janusian Thinking Method	16	88.9	16	88.9
Total	18	100.0	18	100.0

If 5, 4, 3, 2, and 1 points are assigned to the choices of “strongly agree,” “somewhat agree,” “neither agree nor disagree,” “somewhat disagree,” and “strongly disagree” respectively, the average point that the participants in School 1 gave for the item “I think the Janusian thinking method is an effective method of learning antonyms” was 4.22, and that of the participants in School 2 was 3.67. The average point that the participants in School 1 gave for the item “I think the Janusian thinking method is an interesting method of learning antonyms” was 4.18, and that of the participants in School 2 was 3.89. The average point that the participants in School 1 gave for the item “I think the Janusian thinking method enhances motivation to learn vocabulary” was 3.47, and that of the participants in School 2 was 3.28. The average point that the participants in School 1 gave for the item “I think the Janusian thinking method is creative” was 4.65, and that of the participants in School 2 was 4.27. Again, the participants had a very positive attitude toward Janusian thinking according to the above results, extracted from Table 4.9.

Table 4. 9 Descriptive Statistics for Janusian Thinking Method

	School 1		School 2	
	Mean	SD	Mean	SD
Janusian_Effective	4.22	1.003	3.67	1.188
Janusian_Interesting	4.18	1.074	3.89	1.183
Janusian_Motivation	3.47	0.874	3.28	0.958
Janusian_Creative	4.65	0.493	4.27	0.752

Some Answers to the Incomplete Sentences of the Janusian Thinking Method

Some participants gave impressive answers to the incomplete stems of the Janusian thinking method. The following are some of them. “Problems are both propitious and unfavorable because they teach lessons after frustration,” “Sayings are both abstruse and obvious because words are few but meaning is deep,” “Acting is both mendacious and truthful because factitious characters are often conjured from true lives,” “Today’s world is both mercurial and constant because everything is changing but true love remains the same,” “Knowledge is both munificent and stingy because people are generous when showing off knowledge but stingy when sharing it,” “Big cities are both pulchritudinous and ugly because the buildings are beautiful but not always the people,” “Books are both baneful and beneficial because knowledge is power but corrupts naivety,” “Teenagers are both contumacious and obedient because they resist their parents but are loyal to their friends,” and “Swans are both maladroit and skillful because they look lazy but pleasing.” Through Janusian thinking, they created their own proverbs or maxims.

CHAPTER 5

DISCUSSION

Non-significant Interaction between Sentence and Antonym

The participants in this study had the highest average score on the section of the test that measured the words learned by the Janusian thinking method (2.375), compared with that of the traditional method plus display of antonyms (2.333), that of the traditional method (1.806) and that of the traditional method plus sentence completion (0.875). However, the interaction between the variables Antonym and Sentence was not statistically significant ($F(1, 34) = 3.274$, $p = 0.079$). That is, the effectiveness of the Janusian thinking method was not ostensibly demonstrated in the experiment. There were two possible reasons for this result.

First, the time assigned for the experimental activity was too short. To cater to the busy schedule of these high schools, the experiment was shortened. With time pressure, some participants failed to grasp Janusian thinking and apply it effectively in sentence completion. On the survey, they commented that it was very difficult to make sentences complete and meaningful with Janusian thinking and that they would have learned more words if the activity had lasted more than one day.

Second, some participants had formed their vocabulary learning habit, which was not easy to change. Learners who had studied English as a foreign language, even for only about a month, may have developed conscious or unconscious strategies to cope with the to-be-learned material, let alone English-native-speaking high school students who have studied English for so many years (Willerman & Melvin, 1979). It was very likely that some participants already

developed their own strategies for vocabulary learning, which were quite deeply rooted in their minds. It was difficult for these ingrained strategies to be suspended for a given period of time (Fuentes, 1976). Consequently, we can infer that at least some of the participants did not faithfully follow the instructions for the Janusian thinking method or the traditional method plus sentence completion. Analysis of the collected worksheets could also attest to this inference because some of the participants did not fill out the blanks of incomplete sentences belonging to the Janusian thinking method and the traditional method plus sentence completion.

Nonetheless, Janusian thinking method can be considered a promising classroom activity based on participants' favorable response and written comments. Their positive written comments included "The Janusian thinking method is a good idea," "I find the Janusian thinking method very interesting," "This project has a good concept," "The method was intriguing," "I'm sure many people will find the Janusian method very helpful," and "I really liked the Janusian method, even though I did not do well on the vocab test. I believe the Janusian method was the most effective." The Janusian thinking method especially obtained high appraisal on the items of "being creative" and "being an interesting method" (as shown in Table 4.8 and 4.9). Studies have demonstrated that teaching activities involving creativity have a positive influence on students' motivation and learning attitude (Cropley, 2001). As Downing (1997) stated, creativity, to a degree, is a natural part of everybody's thinking process and there is an inherent joy in it. "Motivation may be construed as a state of cognitive and emotional arousal, which leads to a conscious decision to act and which gives rise to a period of sustained intellectual and/or physical effort in order to attain a previously set goal" (Williams & Burden, 1997, p. 120). Dornyei (1998) contended that interest offers the main impetus to initiate language learning and the later force to sustain the long and arduous learning process.

Main Effect of Antonyms

As aforementioned, the relationship between the variables Antonym and School is an ordinal interaction, which can also vindicate the significant main effect of antonym. The main effect of antonym is rather strong ($F(1, 34) = 18.211$, $p = 0.000$, partial eta squared = 0.349, generalized eta squared = 0.061). The display of antonyms had a significantly positive influence on participants' vocabulary learning. This finding is critical, though the interaction between antonym and sentence is not significant.

Simply stated, an antonym is a word whose meaning is opposite to that of another word. Jones (2002) carefully defined antonyms as "pairs of words which contrast along a given semantic scale and frequently function in a coordinated and ancillary fashion such that they become lexically enshrined as opposites" (p. 179). This sophisticated definition incorporates both semantic and lexical factors. Compared to synonyms, antonyms are undoubtedly fewer. However, their status is by no means inferior, and their significance should never be discounted. It is a pity and surprise that antonymy is an inadequately-studied psycholinguistic phenomenon.

Knowing the exact antonym of a word highly enhances our understanding of the word and also the antonym itself (Jones, 2002). As Powell (1986) argued, "antonyms have the advantage of definition by contrast" (p. 619). The meaning of a word is clarified through illustration of what it does not mean as well as what it does mean. Antonyms lay down parameters of word meaning and vigorously circumscribe sense relations. Polarity fortifies the expression of meaning by making it precise and well-regulated. Opposition gives learners a firmer grasp of broader and deeper meanings that words convey. Thinking of word meaning from the opposite angle facilitates vocabulary development. Antonyms are picked up quickly and forgotten slowly. Learners also feel more confident in their mastery of certain words if the

corresponding antonyms are learned (Jones, 2002). Nonetheless, teachers seldom take advantage of antonyms to enlarge their students' vocabulary.

In the human mind, opposition (or polarity) holds a position that other sense relations fail to supplant. The existence of antonyms reflects a general human propensity to dichotomize or polarize experiences—one fundamental way to organize experiences. Every day we are surrounded by antonyms (e.g. up and down, left and right, good and bad, yes and no, long and short, big and small, push and pull, easy and difficult, win and lose, quick and slow, etc.), which serve as an indispensable component of our communication system in addition to a thinking organizer. As a matter of fact, human beings acquire the concept of opposition at a very early age. Detecting and employing opposition is also one of the mechanisms of language acquisition (Jones, 2002). Moreover, opposition can be a powerful generator of creativity. As Powell (1986) argued, "opposition itself becomes one of the explanatory principles of a vocabulary. Through the dialectical nature of language, the fundamental creative force is released" (p. 619).

Interestingly, a pair of antonyms also embody the Janusian notion because they are simultaneously close to and distant from each other in terms of semantics. The phrase "the minimum contrast," coined by Clark (1970) manifested an arresting characteristic shared by antonyms. This rule obviously runs counter to the general idea that antonyms have maximum contrast. However, the counter-intuitive concept of minimum contrast is surprisingly revealing. For example, "man" and "woman" are both human, both adult and both used as nouns. They are only different in the scale of gender. Along the dimension of difference, the pair of antonyms are situated in the two extremes. In all the other aspects, they are the same. Therefore, the paradox of simultaneous disparity and similarity characterize the unique relationships between antonyms (Jones, 2002).

Simple Effect of Sentence for School 2

We can also infer that some participants were much more used to the passive learning style because they did not fill in the blanks in incomplete sentences of the Janusian thinking method and the traditional method plus sentence completion. Hogben and Lawson (1993) found that most of the strategies reported by their subjects were some simple form of repetition of target words and definitions and that only a few subjects used strategies that required elaboration of word meaning. In their later research, Lawson and Hogben (1996) again found that college students viewed repetition as the most important procedure to learn vocabulary. Some participants in this study also mentioned, “The traditional method helped me the most,” “I personally learn vocabulary through repetition because that’s how I always have learned,” and “The traditional learning method helps me to remember the meaning of the words most effectively.” When asked “Of the four vocabulary teaching methods, which you think is the least interesting,” 6 of the participants in School 2 chose the traditional method plus sentence completion, and only 3 chose the traditional method. All the above may explain why, with sentence completion, the average score of the participants in School 2 decreased rather than increased. This result also provides a warning to educational practitioners that at least some of our students prefer a repetitive and passive vocabulary learning method and that the students should involve themselves in vocabulary learning more deeply and actively.

Limitations

In the posttest, participants were asked to write down the definition of words. As aforementioned, the written definition was evaluated by a scale of 0, 1 and 2 points and the sub-total score of the four sections represented the participant’s learning outcomes of the four different methods. As Scott (2005) stated, the complexity and difficulty of studying word

knowledge lie in “the understanding of what it means to know a word” (p. 70). What a word really communicates is more than a definition. The definition does not “capture everything about word usage” (Gass & Selinker, p. 276). There are still many other aspects of knowledge that the definition of words fails to address. Schimitt modified what Nation (1990) mentioned about knowing a word and proposed eight elements of complete word knowledge: “the meaning(s) of the word, the written form of the word, the spoken form of the word, the grammatical behavior of the word, the collocations of the word, the register of the word, the associations of the word and the frequency of the word” (Schmitt, 2000, p. 5). Based on this quote, the definition (the meaning of words) is only one portion of word knowledge. Students may know the definition of a word but not know how to use it. Elshout-Mohr and van Daalen-Kapteijins (1987) classified vocabulary tests into three types: reproduction, skill-in-action, and process tasks. Provding a definition is categorized as a reproduction task, which does not tap into the deeper layer of word knowledge, as compared to the skill-in-action task (e.g. sentence generation). The reason that sentence generation was not used in the posttest was that a sentence completion activity was required only in the Janusian thinking method and the traditional method plus sentence completion but not in the traditional method and the traditional method plus display of antonyms. Thus, using sentence generation in the posttest would have brought about a response bias against the latter two conditions.

Truly, knowing a word is an incremental process that takes place as learners encounter the word several times in various contexts. However, learners “can and do gain substantial, if partial, knowledge of a word’s meaning from a single encounter in context” (Nagy, Herman & Anderson, 1985, p. 236). Thus, students could obtain substantial knowledge of some words from this experimental activity even though the instruction just lasted for 60 minutes. Given the short-

term treatment, writing down the definition of words is a reasonable, though not perfect, way to measure participants' achievement.

Another limitation is that fake words were not used to control the difficulty level of vocabulary. Using fake or nonsense words can generate four groups of words with exactly the same difficulty level because no one has known or even heard of these words. No matter how hard I tried to control the difficulty level with well-calculated measures, the four groups of words could never be of the same difficulty level. What is worse, participants may have happened to learn some of the words in certain groups, which could negatively influence the experimental results. There were two reasons for my decision not to use fake words. First, the teachers of the schools where I conducted the experiments wanted me to use real words, selected from SAT or GRE preparation kits. Students could thus benefit from learning some good words during the experimental activity. Second, fake words do not carry with them some aspects of knowledge that real words do, such as grammatical behavior (e.g. In what patterns does the word occur?), collocations (What words can be expected before or after the word) and associations (What other words does the word make us think of?) (Nation, 1990). These two reasons can be regarded as advantages of using real words. For the experimental design, there is always a trade-off between advantages and disadvantages.

Still another limitation is, paradoxically, required by the experimental process. During the experiment, participants had to follow the instructions on the worksheet and did their work independently, with almost no discussion or interaction with their classmates. This parctice satisfies the requirement of good experimental control but is rather different from the situation of natural classroom activities. Some participants felt that the experimental process was mechanical

and articficial. As one participant commented, “The Janusian method is a good idea, but your delivery [during the experiment] made us want to fall asleep. I am not being mean, just honest.”

Possible Future Studies

As aforementioned, this experiment was made as short and as condensed as possible to fit into the busy schedule of high schools. To investigate more thoroughly the effect of the newly-invented Janusian method on vocabulary learning, experiments that include more words, involve distributed practice, and last for a longer period are definitely needed. In addition to vocabulary learning, the effect of this method on participants’ creativity can also be examined. Because vocabulary learning and reading comprehesion are closely related, it is also worthwhile to find out if the Janusian thinking method can enhance participants’ reading comprehension. Moreover, there has existed some argument that the Janusian thinking method is too difficult for elementary school students. However, some elementary school teachers who attended my presentations on Janusian thinking contended that gifted elementary school students could definitely fill in the incomplete stem of this method with meaningful and interesting answer. One student gave his comments that “the results would be better if the Janusian thinking method was introduced at a younger age.” Thus, more experiments that recruit younger participants are needed to resolve this argument. In addition, since the display of antonyms demonstrated a powerful effect here, future studies could make comparison between the three treatments: the traditional method, the traditional method plus synonyms, and the traditional method plus antonyms. In this way, the difference between the display of synonyms and antonyms could be examined. Furthermore, the effect of the method on English language learners could be tested.

Conclusion

Whereas the effect of the Janusian thinking method on vocabulary learning in this study was not significant, this method did show much potential based on the approving responses from the participants. This study is just the first step of the research on Janusian thinking, rather than the end of the research. Several teachers who attended my presentations on Janusian thinking are very willing to try this method in their classes. More and more feedback will be collected to improve this newly-invented learning method and experimental process.

Research has suggested rich, multifaceted, and encompassing vocabulary instruction in our schooling. Mere reliance on a single vocabulary teaching activity cannot lead to optimal learning results (Kamil & Hiebert, 2005). Besides, effective vocabulary instruction has to be long-term and integrated with diverse content areas and thinking skills. The Janusian Method in this study can serve as one of the meaningful activities in a sustained, comprehensive vocabulary program. Just like individual persons, every word has unique characteristics. Different words need to be taught by different instructional activities (Scott, 2005). The Janusian thinking method can facilitate antonym learning. Learners make a new word their own "by interacting with it, by creating a novel synthesis of the new word and known information" (Stahl, 1986, p. 665). The Janusian thinking method gives students opportunities to integrate opposite concepts of target words and their antonyms and then make a complete, meaningful and innovative sentence. Hence, students can secure the new words in their minds if the Janusian thinking method is used properly. Students can also use the Janusian thinking method as a vocabulary learning strategy to foster their independent vocabulary acquisition. In addition to enhancing students' vocabulary development, the Janusian thinking method can cultivate their creativity. Vocabulary and

creative thinking processes should be part of the fabric of curricula—an integral part of all classroom activities.

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APPENDIX A

POWERPOINT SLIDES FOR THE EXPERIMENT

The Traditional Method

CAPTIOUS

Fond of criticizing or raising objections about unimportant matters

- The captious coach kept nagging the young athlete.
- No one can get along with that captious old lady, who is never satisfied with anything.
- His comments were often captious and trivial, providing no constructive suggestions.
- The captious writers are arguing about the use of commas.

1

The Traditional Method + Sentence Completion

OBSEQUIOUS

Very eager to serve people and agree with them

- The old rich lady was surrounded by obsequious heirs.
- Tom has been obsequious to his boss lately because _____.

2

The Traditional Method + Display of Antonym

PHLEGMATIC

Not easily excited or disturbed

Antonym: excitable

- The phlegmatic umpire was not influenced by the shouting of audience.
- Commuting in the rush-hour requires a phlegmatic temperament.
- Even the most phlegmatic individual would become stressed under such pressure.

3

The Janusian Thinking Method

PROPITIOUS

Giving or indicating a good chance of favorable results

Antonym: unfavorable

- Today's nice weather is propitious for skiing.
- Problems are both propitious and unfavorable because _____.

4

The Traditional Method + Sentence Completion

OTIOSE

(of language, ideas, etc.) serving no useful purpose

- This is a concise passage without otiose words.
- The ideas he offered were otiose because _____.

5

The Traditional Method + Display of Antonym

PROVIDENT

Having or showing wisdom for future needs

Antonym: wasteful

- He was constantly being warned to be provident because he never saved money for a rainy day.
- Tom is provident enough to buy his first house at age 25.
- The couples were provident in saving to pay for college tuition for their four children in the near future.

6

The Janusian Thinking Method

ABSTRUSE

Very difficult to understand

Antonym: obvious

- He used many abstruse technical terms in his article.
- Sayings are both abstruse and obvious because _____.

7

The Traditional Method

GARRULOUS

Talking too much, especially about unimportant things

- The garrulous girl bothered her father with many questions when he was painting the wall.
- The usually quiet sailor became garrulous after a few glasses of beer.
- The old man was so garrulous that no one could get a word in once he started talking.
- Jane is very garrulous and can speak on the phone for hours.

8

The Traditional Method + Display of Antonym

NEBULOUS

Difficult to understand because someone does not give enough details or say exactly what he or she means

Antonym: definite

- The reason why he did not go to the important meeting on time was still nebulous.
- The principal's plan to enhance students' writing skills was nebulous because the description of objectives and processes in it was unclear.
- His co-workers were confused by his nebulous idea concerning product promotion.

9

The Janusian Thinking Method

MENDACIOUS

Not giving the facts honestly

Antonym: truthful

- The dishonest trader had presented a mendacious claim to an insurance company.
- Acting is both mendacious and truthful because _____.

10

The Traditional Method

LUGUBRIOUS

Very sad and serious

- The victim's parent spoke to the public in a lugubrious voice.
- The widow sitting beside the window had a lugubrious look.
- The lugubrious howling of the wild dogs added to our sadness.
- We were all moved by the lugubrious story she told us.

11

The Traditional Method + Sentence Completion

NUGATORY

Producing no result

- The government may waste a great amount of money because of this nugatory proposal.
- Their attempt to save these precious paintings from flames was nugatory because _____.

12

The Janusian Thinking Method

MALADROIT

Lacking skills

Antonym: skillful

- The shy boy talked to his teacher in a maladroit way.
- Swans are both maladroit and skillful because _____.

13

The Traditional Method

MORDANT

(of the way of expressing thoughts) cruel and cutting

- Mordant criticism of her singing has shaken her confidence.
- We have had enough of her mordant comments.
- His sarcastic writing style is characterized by mordant humor.
- The senator was famous for his mordant wit, so his political opponents did not like to debate with him.

14

The Traditional Method + Sentence Completion

PUNCTILIOUS

Being very careful to behave correctly and keep exactly to rules

- She paid punctilious attention to every detail in this writing assignment because it was a term paper worth 50% of the total score.
- The technicians performed a punctilious examination of every machine because _____.

15

The Traditional Method + Display of Antonym

ABSTEMIOUS

Careful not to have too much food, drink, etc.

Antonym: self-indulgent

- The healthy farmer formed abstemious habits when he was young.
- He has to be abstemious in eating because he is 30 pounds overweight.
- The monks and the nuns here have willingly chosen this abstemious life.

16

The Traditional Method

LISSOME

Thin and graceful in shape and movement

- A slender, lissome figure eased onto the stage and caught our attention.
- The audience was impressed by the lissome style of that young female gymnast.
- Unlike his awkward brothers and sisters, this child has a lissome, long-limbed body.
- She was lissome and elegant; she gave promise of developing into a brilliant ballerina.

17

The Traditional Method + Sentence Completion

SURREPTITIOUS

Done secretly and quickly

- I actually don't mind your smoking, so there is no need to be surreptitious about it.
- Maggie carried out a surreptitious search of her friend's belongings because _____.

18

The Traditional Method + Display of Antonym

TRENCHANT

Expressed very strongly, effectively and directly without worrying about offending people

Antonym: vague

- She made trenchant criticism of his leadership because it lacked vision.
- Their trenchant comments can definitely help us improve our performance.
- The normally indecisive employee's trenchant opinion about the new marketing project impressed all of his co-workers.

19

The Janusian Thinking Method

MERCURIAL

Often changing

Antonym: stable

- She is a moody artist known for her mercurial temperament.
- Today's world is both mercurial and stable because _____.

20

The Traditional Method + Sentence Completion

TORPID

Lacking energy or interest in doing anything

- The torpid workers dragged the bags into the factory.
- The travelers were torpid because _____.

21

The Traditional Method + Display of Antonym

APPOSITE

Suitable to what is happening or being discussed

Antonym: inappropriate

- He gave students apposite examples of good study habits.
- In the press conference, the prime minister's apposite answers pleased the journalists.
- The apposite caption that accompanied each picture helped students understand abstract art.

22

The Janusian Thinking Method

MUNIFICENT

Very generous

Antonym: stingy

- She was pleasantly surprised at a munificent gift from her boss.
- Knowledge is both munificent and stingy because _____.

23

The Traditional Method

SINUOUS

Having many curves and twists

- Because the river has a sinuous course, only small boats can sail on it.
- A sinuous stream flows slowly through the farmland.
- The variable music and sinuous movements of the dancer matched perfectly.
- After lunch, they leisurely walked their dog along the long sinuous paths of the park.

24

The Traditional Method + Display of Antonym

DULCET

Sounding sweet; pleasing to the ear

Antonym: harsh

- The travelers were enjoying the dulcet sounds of the birds in the forest.
- Her dulcet singing soothed a crying baby.
- The talented musician gave us a dulcet tune on his guitar.

25

The Janusian Thinking Method

PULCHRITUDINOUS

(of someone or something) that is good to look at and gives you a feeling of pleasure

Antonym: ugly

- The actress received compliments on the pulchritudinous dress she wore to the award ceremony.
- Big cities are both pulchritudinous and ugly because _____.

26

The Traditional Method

IMPERIOUS

Giving orders and expecting to be obeyed in a way that seems to be proud

- The manager's imperious look made the worker follow his order quietly.
- She had an imperious manner that everyone disliked.
- His imperious mother had turned him against the idea of marriage.
- His classmates did not allow him to take charge in such an imperious way.

27

The Traditional Method + Sentence Completion

SOLICITOUS

Anxiously caring about someone's safety, health or comfort

- The dedicated principal was always solicitous about the welfare of her students.
- She was very solicitous about her youngest son's health because _____.

28

The Janusian Thinking Method

SANGUINE

Cheerful and hopeful about the future

Antonym: pessimistic

- The easygoing young man was very sanguine about his chances of success.
- Wise candidates are both sanguine and pessimistic because _____.

29

The Traditional Method

OBSTREPEROUS

Making a lot of noise and out of control

- He could not stand obstreperous parties.
- The restaurant manager asked the obstreperous customers to leave.
- The square in front of the city hall was occupied by obstreperous demonstrators.
- The obstreperous audience interrupted his speech many times.

30

The Traditional Method + Sentence Completion

TENDENTIOUS

Expressing a strong, one-sided opinion that is intended to influence people

- Articles in this periodical are tendentious rather than truth-seeking.
- Several editorials in this newspaper were tendentious because _____.

31

The Traditional Method + Display of Antonym

PUSILLANIMOUS

Lacking courage; frightened of taking even small risks

Antonym: brave

- With the tough issues facing our town, the last thing we need is another pusillanimous mayor.
- To attack a defenseless man is a kind of pusillanimous behavior.
- He made a pusillanimous dash for the exit, leaving everyone else behind.

32

The Traditional Method

LACONIC

Using only a few words

- The writer who disapproves of wordy description is famous for his laconic style.
- Sayings and proverbs are often laconic and full of wisdom.
- The busy professor gave a laconic reply to her student's long message.
- His laconic comment on this book contained only two sentences.

33

The Traditional Method + Sentence Completion

PALTRY

Too small in amount to be useful or important

- This fake pearl necklace will cost you only a paltry amount of money.
- Their boss offered him a paltry 1% pay increase because _____.

34

The Traditional Method + Display of Antonym

TURBID

Dirty and muddy

Antonym: clear

- The whole city was immersed in the turbid floodwaters.
- The turbid water of this lake is not usable for drinking.
- We could not see through the turbid liquid in this bottle.

35

The Janusian Thinking Method

BANEFUL

Causing trouble or harm

Antonym: beneficial

- Parents are worried about the baneful influences of TV violence on their children.
- Books are both baneful and beneficial because _____.

36

The Traditional Method + Sentence Completion

PERFUNCTORY

Done as a duty or routine, without care or interest

- The irresponsible manager did a perfunctory check of the manufacturing process.
- He just gave his article a perfunctory revision because _____.

37

The Traditional Method + Display of Antonym

FACTITIOUS

Deliberately created or developed; not natural

Antonym: natural

- His factitious enthusiasm about the activity failed to deceive his teacher.
- The residents were disgusted by the politician's factitious concern for their welfare.
- High import taxes gave domestic goods a factitious advantage in the market.

38

The Janusian Thinking Method

CONTUMACIOUS

Unreasonably resisting authority or discipline

Antonym: obedient

- The new teacher was very annoyed by her contumacious students.
- Teenagers are both contumacious and obedient because _____.

39

The Traditional Method

CHIMERICAL

Imaginary or really impossible

- The lonely girl had cartoon characters as her chimerical friends.
- He thought that this chimerical plan would just waste his time and energy.
- With our determination and hard work, the chimerical idea may be realized.
- The crazy man had many chimerical schemes for getting rich.

40

APPENDIX B

POSTTEST

Please write down the definitions of the following words (adjectives). Your answers will be evaluated by a scale of 0, 1 and 2 points (0: not expressing the meaning of the word at all; 1: expressing the meaning of the word incompletely or improperly; 2: expressing the meaning of the word completely and properly).

Example:

SPLENETIC
2 points: easily annoyed and made angry
1 point: very angry
0 point: not concentrated

1. LISSOME

2. SURREPTITIOUS

3. TRENCHANT

4. MERCURIAL

5. SINUOUS

6. TORPID

7. APPOSITE

8. MUNIFICENT

9. IMPERIOUS

10. SOLICITOUS

11. DULCET

12. PULCHRITUDINOUS

13. OBSTREPEROUS

14. TENDENTIOUS

15. PUSILLANIMOUS

16. SANGUINE

17. LACONIC

18. PALTRY

19. TURBID

20. BANEFUL

21. CHIMERICAL

22. PERFUNCTORY

23. FACTITIOUS

24. CONTUMACIOUS

25. CAPTIOUS

26. OBSEQUIOUS

27. PHLEGMATIC

28. PROPITIOUS

29. GARRULOUS

30. OTIOSE

31. PROVIDENT

32. ABSTRUSE

33. LUGUBRIOUS

34. NUGATORY

35. NEBULOUS

36. MENDACIOUS

37. MORDANT

38. PUNCTILIOUS

39. ABSTEMIOUS

40. MALADROIT

BRIEF SURVEY

1. Gender: _____.

2. Age: _____ years old.

___ 3. You have a strong vocabulary.
A. Strongly agree.
B. Somewhat agree.
C. Neither agree nor disagree.
D. Somewhat disagree.
E. Strongly disagree.

___ 4. Of the four vocabulary teaching methods, which you think is the MOST EFFECTIVE?
A. The traditional method.
B. The traditional method plus antonyms.
C. The traditional method plus sentence completion.
D. The Janusian thinking method.

___ 5. Of the four vocabulary teaching methods, which you think is the LEAST EFFECTIVE?
A. The traditional method.
B. The traditional method plus antonyms.
C. The traditional method plus sentence completion.
D. The Janusian thinking method.

___ 6. Of the four vocabulary teaching methods, which you think is the MOST INTERESTING?
A. The traditional method.
B. The traditional method plus antonyms.
C. The traditional method plus sentence completion.
D. The Janusian thinking method.

___ 7. Of the four vocabulary teaching methods, which you think is the LEAST INTERESTING?
A. The traditional method.
B. The traditional method plus antonyms.
C. The traditional method plus sentence completion.
D. The Janusian thinking method.

___ 8. I think the Janusian thinking method is an effective method of learning antonyms.
A. Strongly agree.
B. Somewhat agree.
C. Neither agree nor disagree.
D. Somewhat disagree.
E. Strongly disagree.

___ 9. I think the Janusian thinking method is an interesting method of learning antonyms.
A. Strongly agree.
B. Somewhat agree.
C. Neither agree nor disagree.
D. Somewhat disagree.
E. Strongly disagree.

___ 10. I think the Janusian thinking method enhances motivation to learn vocabulary.
A. Strongly agree.
B. Somewhat agree.
C. Neither agree nor disagree.
D. Somewhat disagree.
E. Strongly disagree.

___ 11. I think the Janusian thinking method is creative.
A. Strongly agree.
B. Somewhat agree.
C. Neither agree nor disagree.
D. Somewhat disagree.
E. Strongly disagree.

___ 12. I will use the Janusian thinking method to expand my vocabulary in the future.
A. Strongly agree.
B. Somewhat agree.
C. Neither agree nor disagree.
D. Somewhat disagree.
E. Strongly disagree.

Other Comment:

APPENDIX C

WORKSHEET

Examples:

The Traditional Method

CONTRITE

Filled with or showing deep regret for having done wrong

- Her contrite tears could not make her friends forgive what she had done.
- We are willing to accept his contrite apology.
- She was contrite shortly after she yelled at the old man.
- His contrite expression did not affect the judge when she imposed sentence.

The Traditional Method + Sentence Completion

STUPENDOUS

Surprisingly large, impressive, good, etc.

- The audience were fascinated by this stupendous opera.
- Some people did not value this young woman's stupendous achievements because _____.

The Traditional Method + Display of Antonym

INDIGENT

Not having much money or many possessions

Antonym: wealthy

- The houses in this indigent neighborhood looked shabby.
- They were so indigent that they could not buy food for their children.
- This talented musician came from an indigent family, instead of a rich one.

The Janusian Thinking Method

FORTUITOUS

Happening by chance or coincidence

- Antonym: planned
- There is no association between those two incidents; their timing is fortuitous.
- Good fortune is both fortuitous and planned because _____.

The Traditional Method

GRUFF

(of a person, his voice or behavior) rough and unfriendly

- They felt angry at Mike's gruff refusal of their sincere invitation.
- The gruff voices of workmen broke the quiet of the factory.

- His gruff reply to our friendly request made a very bad impression on all of us.
- Beneath his gruff exterior, the farmer was actually very kind-hearted.

The Traditional Method + Sentence Completion

JAUNTY

Feeling or showing cheerfulness and self-confidence

- The schoolboy looked pretty jaunty after the award ceremony.
- My friend is quite jaunty today because _____.

The Traditional Method + Display of Antonym

NEFARIOUS

Sinful, evil or criminal

Antonym: good

- This district was notorious for nefarious activities like robbery and drug trafficking.
- His nefarious friends urged him to steal money from his parents.
- We were all shocked by the apparently moral person's nefarious deeds.

The Janusian Thinking Method

EXPEDITIOUS

Done with speed and efficiency

- Antonym: slow
- Because of time pressure, they will conduct an expeditious investigation into the causes of the accident.
- Haste is both expeditious and slow because _____.

~~~PLEASE STOP~~~
~~~

CAPTIOUS
(Please write down its definition.)

OBSEQUIOUS
(Please complete the following sentence.)
Tom has been obsequious to his boss lately
because _____.

PHLEGMATIC
(Please write down its antonym.)

PROPITIOUS
(Please complete the following sentence.)
Problems are both propitious and unfavorable
because _____.

OTIOSE
(Please complete the following sentence.)
The ideas he offered were otiose because _____.

PROVIDENT
(Please write down its antonym.)

ABSTRUSE
(Please complete the following sentence.)
Sayings are both abstruse and obvious because _____.

GARRULOUS
(Please write down its definition.)

NEBULOUS
(Please write down its antonym.)

MENDACIOUS
(Please complete the following sentence.)
Acting is both mendacious and truthful because _____.

LUGUBRIOUS
(Please write down its definition.)

NUGATORY
(Please complete the following sentence.)
Their attempt to save the paintings from flames is nugatory
Because _____.

MALADROIT
(Please complete the following sentence.)
Swans are both maladroit and skillful
because _____.

MORDANT
(Please write down its definition.)

PUNCTILIOUS
(Please complete the following sentence.)
The technicians performed a punctilious examination of every machine
because _____.

ABSTEMIOUS
(Please write down its antonym.)

LISSOME
(Please write down its definition.)

SURREPTITIOUS
(Please complete the following sentence.)
Maggie carried out a surreptitious search of her friend's belongings
because _____.

TRENCHANT
(Please write down its antonym.)

MERCURIAL
(Please complete the following sentence.)
Today's world is both mercurial and stable
because _____.

TORPID
(Please complete the following sentence.)

The tourists were torpid because _____.

APPOSITE
(Please write down its antonym.)

MUNIFICENT
(Please complete the following sentence.)
Knowledge is both munificent and stingy
because _____.

SINUOUS
(Please write down its definition.)

DULCET
(Please write down its antonym.)

PULCHRITUDINOUS
(Please complete the following sentence.)
Big cities are both pulchritudinous and ugly
because _____.

IMPERIOUS
(Please write down its definition.)

SOLICITOUS
(Please complete the following sentence.)
She was very solicitous about her youngest son's health
because _____.

SANGUINE
(Please complete the following sentence.)
Wise candidates are both sanguine and pessimistic
Because _____.

OBSTREPEROUS
(Please write down its definition.)

TENDENTIOUS
(Please complete the following sentence.)
Several editorials in this newspaper were tendentious
because _____.

PUSILLANIMOUS
(Please write down its antonym.)

LACONIC
(Please write down its definition.)

PALTRY
(Please complete the following sentence.)
Their boss offered him a paltry 1% pay increase
because _____.

TURBID
(Please write down its antonym.)

BANEFUL
(Please complete the following sentence.)
Books are both baneful and beneficial
because _____.

PERFUNCTORY
(Please complete the following sentence.)
He just gave his article a perfunctory revision
because _____.

FACTITIOUS
(Please write down its antonym.)

CONTUMACIOUS
(Please complete the following sentence.)
Teenagers are both contumacious and obedient
because _____.

CHIMERICAL
(Please write down its definition.)

~~~END~~~
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