Chapter 1

INTRODUCTION

Statement of the Problem

The Nation’s Report Card: Reading 2011 (NCES, 2011), which includes a systemic assessment of vocabulary knowledge, reveals that twenty-five percent of U.S. 8th graders perform below a basic reading level. While this is a change from the twenty-six percent reported in the 2009 Report Card (NCES, 2010), it is not actually considered a statistically significant improvement. The ultimate importance of these reports’ findings is best seen within the context of the National Assessment of Title I (Institute of Education Sciences, 2007) which recounted how the negative impacts of limited sight-word vocabulary ability introduces hurdles to academic success that often culminate in struggling students dropping out of school. These findings shouldn’t really be a surprise to educators. A look back at Whipple (1925) indicates that the significance of a strong vocabulary in learning a wide variety of subject areas has long been recognized. These aforementioned studies are only but a few of a wide assortment of related literature that speak to the foundational importance of vocabulary skills in the overall academic success of students.

As schools continue to recognize the seminal importance of their students’ vocabulary skills to achievement in all subject areas, they will continue pursuing progress in the process of building up students’ essential repertoire of vocabulary words. Research-based strategies that enable comparatively long-term availability of vocabulary
words for use by students are obviously preferable to those that produce gains for only a shorter period of time.

Roediger and Karpicke (2006) performed a timed, controlled study that found a Study/Test/Test/Test strategy was superior to a Study/Study/Study/Test strategy for developing longer-term memories of prose passage content in university undergraduates. Under the conditions that those researchers set up, a participant that had the opportunity to make more attempts to recall the content had an advantage over those that instead had more opportunities to visually review the content. The results of this research, as well as other related research that he and his colleagues have done, shines a light of emphasis on the often-ignored potential of testing in learning. Testing apparently has a potential role not merely as a tool of assessment, but also as a tool that can strengthen learning for more enduring, longer-term use.

This long-recognized academic importance of vocabulary skills and the intriguing, though probably not surprising, results of Roediger and Karpicke combine to trigger a professional interest in my mind. This is an interest that points me toward conducting controlled, quantitative research that explores the fundamentals underlying methodologies for vocabulary acquisition.

Purpose of the Study

The purpose of this proposed quantitative study is to determine if the longer-term effects that Roediger and Karpicke observed (the superiority of a learning strategy that includes a significant component of prompted retrieval over a learning strategy that consists primarily of visual review) can be seen in other contexts. The context of this
present study will focus specifically upon a randomly selected sample of high school students as they attempt to learn sets of vocabulary words and definitions (as opposed to parts of a prose passage as in the Roediger and Karpicke study) under timed, controlled conditions.

*Research Question*

This study would be focused upon the following research question:

Does a study strategy consisting of a greater proportion of testing activities (retrieval attempts) produce significantly greater longer-term retention of definition/vocabulary word pairings than a study strategy consisting of a greater portion of visually-based study activities (instances of review) when employed by high school students?

*Research Hypotheses*

\[ H_0: \] One week after the initial baseline assessment, the experimental treatments, and the post-assessment a final assessment will show no significant difference between the number of word-definition pairings retained as a result of a retrieval-intensive strategy and those retained as a result of a review-intensive strategy.

\[ H_1: \] One week after the initial baseline assessment, the experimental treatments, and the post-assessment a final assessment will show a significant difference between the number of word-definition pairings retained as a result of a retrieval-intensive strategy and those retained as a result of a review-intensive strategy.

*Significance of the Study*

The title of Get Smart: Facing High-Stakes Testing Together (Reich, 2010) is indicative of the way many educators seem to feel about assessment in the wake of the
Federal policy known as No Child Left Behind and similarly in regards to the more recent Race to the Top. Testing seems to be portrayed as an enemy that needs to be faced with a united front. The research study that is the focus of this document makes no effort to justify or criticize the proliferation of high-stake tests that these programs have spawned, but rather seeks to examine the constructive potential that repeated, more informal micro-testing may have within the day-to-day learning activities of classrooms and within the confines of individual study sessions.

The specific set of conditions the participants in this study will encounter are obviously not the only way to gain or maintain ongoing knowledge of vocabulary word-definition pairings. Many other factors such as prior knowledge, level of focused attention, amount of repetition, and quality of the mental connections made with prior knowledge fundamentally impact the learning of all types of content (Shell, Brooks, Trainin, Wilson Kauffman, & Herr, 2010). This study seeks to focus exclusively upon only one aspect; the exertion of two specific types of attention that individuals direct toward a body of target knowledge.

What type of attentional effort is most effective in creating long-term knowledge of definition/vocabulary word pairs? Is it attention directed repeatedly upon written representations of the focus content; in this case sets of definition/vocabulary word pairs displayed on a computer screen? Or is it attention directed toward the viewing of written representations (again on a computer screen) followed by multiple prompted attempts to perform a successful retrieval from memory culminating with entry of that data into an interactive web form?
Examination of these questions within the context of a controlled, quantitative study of randomly-sampled high school students will hopefully contribute some insight into what constitutes best practices for developing long-term vocabulary knowledge. The results of this study may also contribute insight into the long-term acquisition of other knowledge as well.