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#### **ABSTRACT**

Francis P. Robinson's 1946 text, "Effective Study," first presented his Survey, Question, Read, Recite, and Review (SQ3R) study system, which is held to be the most widely advocated textbook study system. This paper traces the development of the ideas behind the SQ3R. SQ3R's theoretical foundation began with work in scientific-management, and continued with Seashore's 1939 study of work methods, which deemphasized native intelligence and prompted Robinson to design a higher-level study-skill system. Whipple's 1927 study-skills texts included each of the steps later included in SQ3R, while Fornhauser's 1924 study-skills booklet contained all the basic tenets of SQ3R. Finally, Cole and Ferguson's 1935 "Student's Guide to Effective Study" recommended study rules that stressed (1) surveying the material, (2) attending to graphic and textual aids, and (3) reading carefully, then reciting to assess understanding. Practical application of Robinson's thinking consisted of the logical organization of five distinct study activities, each including between two and seven explicitly identifiable substeps, into a total system of study and the assignment of an acronym. This development of SQ3R served as a capstone for the foundation of research findings and pedagogical practices pertaining to college reading programs of the prewar era. Future study systems, however, will be evaluated against a more sophisticated knowledge base. A seven-page list of references is provided, as well as a diagram of the empirical support of SQ3R and a master list of College Reading and Learning Assistance Technical Reports. (SRT)



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#### TRACING THE ROOTS OF TEXTBOOK STUDY SYSTEMS:

AN EXTENDED HISTORICAL PERSPECTIVE

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## TRACING THE ROOTS OF TEXTBOOK STUDY SYSTEMS: AN EXTENDED HISTORICAL PERSPECTIVE

Surveys of the curriculum and materials associated with college reading and study-skills programs consistently reveal that textbook-study systems represent a common instructional element (Bahe, 1970; Covington & Mountain, 1978; Entwistle, 1960; Fairbonks, 1974). Without question, the most widely advocated and emulated textbook study system is SQ3R, a method attributed to Francis P. Robinson. Many historical and critical theoretical treatments of the technique mark its inception with the 1946 publication of Robinson's classic study-skills text, Effective Study. This assumption, however, precludes considering at least 20 years of textbook-study related history that preceded publication of the text (Kornhauser, 1924). A description of



publication of the text (Kornhauser, 1924). A description of pertinent trends and events of this earlier period allows for a greater understanding of the psychological roots of SQ3R and helps explain why educators of Robinson's era were quite willing to embrace the method. And since SQ3R and its over 100 imitators enjoy regular usage (despite warnings of contemporary researchers who suggest that its rigid study regimen may stifle more flexible metacognitive learning strategies), it becomes increasingly important to include all pertinent sources of data in any prospective comprehensive assessment of the technique (refer to Stahl, 1983). For these reasons, this paper traces the evolution of SQ3R with the eventual goal of promoting more accurate critical analyses of this extremely popular method.

#### Influences on Robinson

While the maturing of college reading instruction in recent years is widely acknowledged, strides made prior to the 1950's in the research on reading and study skills, the publishing of instructional materials, and the development of theory go largely unnoticed. It is during this rich era between 1930 and 1945 that F. P. Robinson entered the field of college reading. In these early years of college-study skills programs, a number of pioneering studies at Ohio State University and other institutions reported the success of study-skills courses with probationary students (Beherns, 1935; Book, 1927; Ferguson, 1928; Pressey 1928; Robinson, 1931). When Robinson joined the OSU staff in 1937, a respected how-to-study program already operated there under the



direction of Sidney Pressey and Luella Cole Pressey. During this early stage of his career, Robinson was influenced by a study done by Sherburne (1938), one of the first attempts to involve both underachieving and successful students in a study-skills program. The study intrigued Robinson (1971) as it demonstrated that good and poor students alike could benefit from how-to-study training when compared to matched untrained controls.

To further test the merit of such a program, Robinson (1943) and his assistants provided study-skills instruction to soldiers from a U.S. army unit enrolled in an accelerated academic program at the university. Although these soldiers were highly intelligent and talented, assessments indicated that they did not exercise well-developed study habits. In fact, Robinson felt that past grades were obta\_ned via native intelligence rather than by effective studying. Following training in various study skills, the troops made considerable improvement. Those completing instruction showed proportional gains in workrate (19%), comprehension (10%), notetaking (16%), and table reading (30%). Robinson inferred that students could benefit from study-skills instruction stressing higher-level work habits. The idea of nurturing higher-level work habits was not altogether new, but it began to draw the attention of educators in the early 1940's. Robinson's case, this concept would become fully integrated with his views on college reading instruction.

Theoretical Basis for Higher-Level Work Skills



Although the formal SQ3R method evolved during the second world war, its roots can be traced to the turn of the century. At that time, Frank and Lillian Gilbreth as well as Frederick Taylor and Henry Gantt conducted prototypical time and motion studies. These studies subsequently fostered the scientific-management approach. In short, the procedure employed task analysis, personnel assessment, pretask training, and job planning to match ideally work methods, workers, and specific tasks.

Robinson (1950) acknowledged that early work in scientific-management formed the basic theoretical groundwork for SQ3R. Yet it was ultimately Robert Seashore's work (1939) that prompted Robinson to design a higher-level study-skill system. Seashore felt the work method selected by a person (qualitative variations of reacting to a situation) was an additional variable to consider apart from traditional biological and prior training factors that influenced individual differences in human performance. Seashore suggested that pupils might be unaware of the smaller steps of his work method because of the inclusive nature of the larger cognitive task. Moreover, to Seashore, the preliminary adoption of work methods could be discarded in favor of others, and the final work method could be refined by such processes as the overlapping of component parts and the development of "higher units." Seashore believed that work methods were important in determining individual differences in sensory, affective, intellectual, and motor activities. He warned that simply to control the amount of training for a particular



task and attribute all other results to biological capacities was overlooking what is often the unknown factor, the work method. He emphasized not so much "what you are born with," as "what you do with it" (p. 126).

Drawing upon Seashore's ideas, Robinson began to design an optimum higher-level work method for textbook reading. To develop such a system, Robinson (1950) reported:

. . . the best approach to designing higher-level adjustment skills is not a descriptive analysis of what any one group of people has done--a common experimental design in psychology. Rather it is a creative use of example, related research findings, suggestions, and theory to design possible skills. The efficiency of any such skills will then have to be evaluated: these results may in turn suggest other possible refinements. (p. 235)

While Seashore's essay provides the basic theoretical foundation for most of the textbook-study systems currently in use, many textbook-study system developers are probably unaware of the relationship Seashore's or Gilbreth's work bears to their own.

Relationship of Other Early Study Systems to SQ3R's Development

While Robinson surely used principles of extant theory to design SQ3R, there is some question whether he reviewed recommendations of major study-skills texts of the era to select the most effective techniques to include in the new higher-level study method. Authors of early study-skills texts tended to provide students with lists of generally-accepted, and in some cases, research-supported study skills. The research conclusions were often based on interviews of students possessing effective



study habits, while in other instances, the authors drew inferences from published research.

One of the earliest respected study-skills texts for high school and college students (Whipple, 1927) contained lists of positive study habits and skills necessary for academic success. Interestingly, the chapters on reading and textbook study recommend each of the steps later included in SQ3R. The major difference between Whipple's recommendations and those of current text-study advocates is the rather disjointed approach of the former and the packaged approach of the latter.

Kornhauser's (1924) study-skills booklet, another example from the era, provides brief introductions followed by lists of effective study rules. While rules are spread over several chapters, a consolidation of major concepts shows that all the basic tenets of SQ3R are indeed present.

Sidney Pressey and Luella Cole Pressey also greatly influenced Robinson's work at OSU. The probable nature of this influence is revealed in the study-skills booklet that Cole co-authored with Ferguson (1935). Its recommendations were also given through extended lists of efficient study rules which stressed (1) surveying the material in detail, (2) attending to graphic and textual aids, and (3) reading carefully then reciting to assess understanding. An outlining/notetaking procedure was also advocated whereby questions are formulated from main headings. Aside from the organized package and acronym later



provided by Robinson, Cole and Ferguson might largely be credited with presenting SQ3R as we know it.

In one of first textbook-study systems, Bird (1931) recommended the use of the "Self-Recitation Study Method." with other texts and booklets of the period, the author stressed surveying to develop gist understandings and to plan strategies for further reading. Next, the learner was to read logical divisions of text to determine main points. These main points were then used to formulate questions whose answers summarized the content. Bird felt that headings should serve as prompts for question development until the student was familiar enough with the content to pose more analytical questions. Each question would be subsequently placed in a notebook followed by corresponding answers in outline form. Later the student would recite the answer to each question and check for accuracy. A rapid rereading of the chapter was recommended to show the relationship of parts to the whole.

Robinson's first text (1941), <u>Diagnostic and Remedial</u>

Techniques for Effective Study, indicates his familiarity with

Bird's study-skills method. Not only did Robinson cite Bird's

text, but when one notes the striking similarities in the systems

themselves and in the research rationale underlying each, the

familiarity is even more apparent. Yet short of having access to

Robinson's personal notes and library, it is difficult to

determine what other early study systems directly influenced him.

Nevertheless, it is clear that the basic steps of SQ3R had been



presented prior to World War II and that others besides Robinson were contemplating systematic textbook-study procedures. Some might even argue that Robinson only gave the field a catchy acronym for a generally accepted set of existing textbook-study techniques. Indeed, some part of SQ3R's popularity may be due to the willingness of American educators to embrace acronyms after having lived through a depression and a World War replete with governmental and military abbreviations.

#### Robinson's Rationale for the Development of SQ3R

In the 1941 text, Robinson included diagnostic tests and programs for remediating problems with the traditional Three R's and with social and personal aspects of college life. Nowhere in the text is SQ3R mentioned; however, practice was recommended with several future component steps. When stating that reading comprehension was fostered by vocabulary knowledge and efficient reading rates, as well as outlining, questioning, identifying main points, adjusting pace and reciting, Robinson provided a hint of things to come (1941, p. 227). He also recommended active reading and reviewing of the text at regular intervals. As with all revised editions of this text, Robinson presented a research base for his recommendations, content typically not included in other study-skills texts of the era.

Further research support for SQ3R came from one of Robinson's masters degree students (McCormick, 1943). This researcher measured the effectiveness of combining reading to answer questions with self-recitation as a study method. While the study



was somewhat flawed, it was of value because the training procedure was essentially the precursor of SQ3R. McCormick concluded that properly motivated students could learn work-study skills if given training of sufficient duration and intensity. A major value of the McCormick thesis, beyond its direct empirical support for SQ3R, was its transforming the construct of a higher-level work-study method (merely assumed to be effective because of research supporting the individual steps) into an integrated system that collectively promoted students' reading comprehension and rate as well as their notetaking skills.

In 1946, Effective Study, a much revised version of the 1941 text, was published. This text formally introduced SQ3R as a higher-level study method. As previously noted, Robinson's interpretation of scientific management theory led him to believe that a higher level work-study method could be devised by integrating research-driven work methods. The practical application of his thinking was the logical organization of five distinct study activities, each including between two and seven explicitly identifiable substeps, into a total system of study. The rationale presented in this text along with evidence from the initial text and McCormick's (1943) thesis formed a foundation resting on respected literature of the era. Figure 1 illustrates the empirical base Robinson drew from as support for SQ3R.



#### Insert Figure 1 about here

This body of research consists of 23 published reports from respected scholarly journals of the prewar era. It provides the greatest amount of support for the recitation step. This is to be expected since it involves many subroutines such as summarizing, outlining, and reciting. Less evidence is offered for the survey, question, and review steps. Interestingly, the support for active reading invokes a bit of reverse logic by noting activities considered counterproductive to the process.

Critical analyses of these studies using current standards of research quality reveal several regular faults in training issues, experimental design, statistical methodologies, and population generalizability (Graham, 1982; Stahl, 1983; Wark, 1964; Willmore, 1966). The problems identified by critics of the system should not necessarily be directed against the process which led to the product itself. After all, the overall pool of research pertaining to reading pedagogy was limited in the prewar period. Robinson and his assistants simply worked with the best available materials in the best way they knew how. And although problems existed with the initial research base, more recent theoretical papers and research reports update the construct of the system (Adams, 1980; Adams, Carnine, & Gersten, 1982; Kopfstein, 1982; Materniak, 1982; Oakey, 1979; Pauk, 1973, 1974; Robinson, 1950, 1959, 1961, 1970; Tadlock, 1978).



From an historical perspective, the primary research base taken in total draws upon a credible proces, and promotes a subsequent product that is reasonably impressive. It is of limited significance, then, that the maturing research models and statistical processes of the latter 20th century suggest a questioning of SQ3R's initial theoretical premises. Rather, the development of SQ3R served as a capstone for the foundation of research findings and pedagogical practices pertaining to college reading programs of the prewar era. Its popularity may then be viewed as the appropriate response by secondary and postsecondary reading specialists of the GI bill era given existing knowledge. The historical account of SQ3R demonstrates that although a strategy may seem thoroughly grounded in the finest theory and experimental research of its day, the years ahead may very well find it lacking. Simply stated, the future promises that any current construct will be evaluated against a progressively more sophisticated knowledge base. Just as SQ3R, a system predicated upon introspection and scientific management and work method theories, is apt to be questioned today from the existing theoretical base of cognitive science, so too may we expect current research-driven strategies (e.g. summarizing and mapping) to be reconsidered in light of new research, or as likely, paradigmatic shifts of the future.



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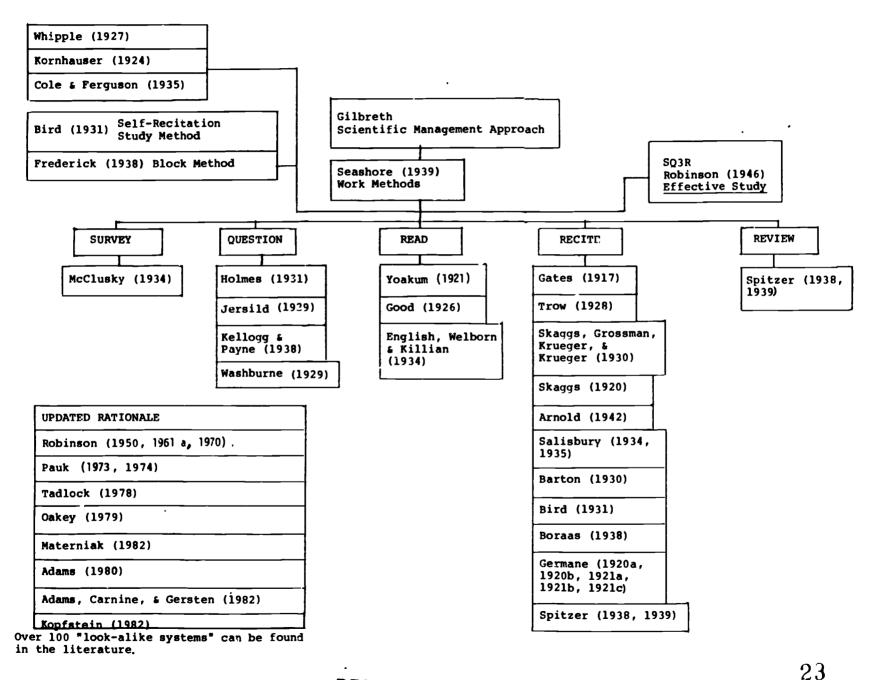
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#### Figure Caption

Figure 1. Empirical Support for Robinson's SQ3R Method (1946).





## Master List College Reading and Learning Assistance Technical Reports Georgia State University

### Technical Report No.

- Brozo, W. G., Schmelzer, R. V., & Spires, N. A. A Study of Test-Wiseness Clues in College/University Teacher-Made Tests with Implications for Academic Assistance Centers. (ERIC No. ED 240-928)
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- Schmelzer, R. V., Brozo, W. G., & Stahl, N. A. Using a Learning Model to Integrate Study Skills into a Peer-Tutoring Program. (ERIC No. ED 256-244)
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