

EFFECTS OF INSTRUCTION IN CREATIVE PROBLEM SOLVING ON  
COGNITION, CREATIVITY, AND SATISFACTION AMONG  
NINTH GRADE STUDENTS IN AN INTRODUCTION  
TO WORLD AGRICULTURAL SCIENCE  
AND TECHNOLOGY COURSE

by

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## ABSTRACT

The use of Creative Problem Solving (CPS) as an instructional strategy to increase the creativity levels of students across all levels of the curriculum is currently a popular topic of investigation. Curriculum content and the underlying objectives that are presented to students in public schools have been the subject of close scrutiny since school accountability became a hot topic during the 1980's. However, despite all the efforts to improve student productivity through a well defined curriculum, and possibly because of the increased emphasis on student accountability to reflect that student improvement, concern for the apparent declining creativity levels among students appears to be growing.

The purpose of this dissertation was to compare conventional instructional methodologies with those of creative problem solving. It was hypothesized that students' low, high, and total cognition levels, overall creativity levels, and satisfaction with instructional methodologies, improve as a result of instruction through creative problem solving strategies. By improving the levels of creativity within students, they will be better equipped to deal with the complex types of problems the future will present.

This study utilized an experimental, posttest only, control group design. Participants were ninth grade students (n=20) who were enrolled in an Introduction to World Agricultural and Science Technology I course. Posttests were administered to measure low, high, and total levels cognition at the conclusion of the course. For this

measure of the dependent variable, a forty question (10 true/false, 25 multiple choice, and 5 short answer) test was administered. Pretests and posttests were administered to measure student creativity. A standardized Torrance Test of Creative Thinking (TTCT) was used as the measure of the dependent variable of creativity. Pretests, mid-tests, and posttests were used to measure student satisfaction. A satisfaction instrument developed by Brashears (2004) was used for the measurement of clarity, delivery, content, and total satisfaction as the dependent measure of satisfaction. These instruments were used to measure the five research hypotheses of the study.

Results of the study did not support the hypotheses that significant differences exist between creative problem solving and traditional instructional strategies, as they pertain to student cognition, creativity, and satisfaction. However, although not significant, possibly due to the small sample size, upon closer examination of group means, one can detect definite patterns of greater mean score gains among the CPS group over the traditional group in cognition, creativity, and satisfaction. Based on these findings, this researcher suggests that replications of this study be performed with larger sample sizes in different curriculum areas to further perpetuate the integration of creative problem solving strategies as an effective instructional strategy for all age groups and in all areas of the curriculum.

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## CHAPTER I

### INTRODUCTION

#### Introduction

Success in life is based on one's ability to solve problems, great and small. According to Shinn (2004), the world is becoming increasingly complex. Due to population growth, technological advances, environmental degradation, migration, and immigration, today's youth will need to be taught to deal with complex problems. This education must include relationship construction, reflection about experiences, articulation of information to others, and general engagement in a learning community. The creation of problem solving ability that exists in each of us will become a premium in the attainment of success (Treffinger, 1995).

One prime example of the ever increasing complexity of the environment is the information boom. The information age is not slowing down, with technological advances feeding the process at record rates. Since creativity is a useful and effective response to evolutionary change, it is more important now than ever before (Runco, 2004). According to Maraviglia and Kvashtny (2006), it will be the learners who inherit the future during times of adverse change.

According to Meyer (1999), providing the American society with its educational needs has always been the initiative of agricultural education. Historically, learning in agricultural education has provided students with "hands-on" and "minds-on" intent,

design, and delivery. The problem solving method has long been considered a significant part of the pedagogical foundation on which the philosophy of agricultural education is based. John Dewey was at the peak of his career when agricultural education emerged as a secondary school subject, thereby influencing many early teachings and readings of agricultural educators (Parr & Edwards, 2004).

As societal needs change with time, it is the obligation of all types of educational institutions to recognize those trends and adjust to the changing needs of the day. However, many educational programs do not have clearly defined purposes. There is no doubt that some educational work is being done by artistic teachers who lack a clear conception of goals, but do not have an intuitive sense of what is good teaching, what materials are significant, what topics justify addressing, and how to present material and deliver topics effectively with students. Nevertheless, if an educational program is to be planned and efforts are to be made for continual improvement, it becomes very necessary to develop and maintain a clear conception of the goals at which are being aimed. Therefore, these educational objectives become the criteria for selection of material, content outline, development of instructional procedures, and preparation of exams. Thus, all aspects of the educational program should become a means to accomplish basic educational purposes. In order to conduct systematic, intelligent educational programs, one must first be certain of educational objectives sought (Tyler, 1950).

Today, more than ever before, the need exists for educational institutions to prepare students to take cognitive knowledge to a higher level of understanding that will

induce problem solving. John Dewey (1938) concluded that experience must be a significant element of quality education. He further maintained that all experiences created by traditional approaches to education are educational. However, quality of experience is differentiated by the design of the instruction. Equipping students with creative problem solving strategies and techniques should be a focal point for educational institutions at all levels.

As a result of recent research conducted by Maraviglia and Kvaszny (2006), they reached the following conclusions about the levels of creativity being promoted in public schools today. They maintain that the important things we as individuals do depend on the habits of our minds. Furthermore, twelve years of required public schooling is remiss if the process of quality thinking (creative, critical, problem-solving, visionary, global, systemic, paradoxical, etc.) is not being deliberately taught. Finally, this deliberate teaching of processes for quality thinking should be a major ingredient for creating positive changes in the educational experience.

Despite the growing need for creativity in the classroom, increasing pressure to meet performance standards in the state and national accountability systems has compromised creativity. Although the accountability system focuses on core curriculum areas of math, science, social studies, and language arts; all areas of academic support have been mandated to compliment efforts in core curriculum areas, thus inhibiting creativity throughout the system (Osborn & McNess, 2002). Creativity requires a certain amount of freedom to create. Because of the rigidness of the current accountability





































































































































































































































































































































































































































































