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CHARTING A COURSE TO CREATIVITY

IN DEVELOPMENTAL EDUCATION

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CHARTING A COURSE TO CREATIVITY

IN DEVELOPMENTAL EDUCATION

by

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Treatise

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Dedication

This treatise is dedicated to my community college students whose extraordinary commitment to pursuing their academic dreams while working and caring for their families inspired me to continue my own education. From them did I learn to be at once wife, mother, teacher, and student.

Acknowledgements

Throughout life, I have learned that we never accomplish anything noteworthy without the assistance of others. As I conclude my study, I wish to express my heartfelt gratitude to the many individuals who have enabled me to pursue my dream of earning a doctoral degree. For over a decade, I had deferred this dream, choosing other professional paths instead. Yet in the words of my cherished mentor, Dr. Donald Green, I found the courage to return to graduate school. "I think you need to continue down the path you started," he told me after I had completed my tenure in an interim administrative position. I am profoundly grateful to Dr. Green for seeing in me leadership qualities that, at the time, I did not see in myself.

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Fortunate was I to learn from exceptionally knowledgeable and caring mentors at The University of Texas at Austin. Mere words cannot convey the gratitude I feel for the role that Dr. John E. Roueche, honored professor and mentor, has played in my life.

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Never have I experienced a richer opportunity to grow in my scholarship, leadership, and personhood than under Dr. Roueche's expert tutelage. I thank the late Dr. William Moore for teaching me to apply the "principle of symmetry" when researching and writing. To Dr. William Lasher I express my gratitude for reminding me that the most important lessons about leadership often occur outside the classroom. To Dr. Norvell Northcutt I extend a special thanks for guiding me through a tour of Western philosophy via his "Introduction to Systems of Human Inquiry" course and for teaching me about the dissertation writing process. I also wish to thank Dr. Angela Oriano-Darnall, who, like a big sister, mentored me throughout the doctoral odyssey that she herself completed a few years ago. Both in person and online, she stood steadfastly by my side, offering counsel and comfort. For introducing me to multicultural counseling and providing a psychological perspective about qualitative analysis, I thank Dr. Alissa Sherry, whose celebration of diversity I will embrace as a community college leader.

For the late-night conversations that we shared about her past and my future, I thank Irene Majerus Wagner, my late grandmother, who believed that one day I would write a book. Would that she could see that I have lived our dream. I sincerely appreciate Joseph Edward Ciez, my late grandfather, for instilling in me a deep, abiding love for God to whom I owe the greatest thanks of all for making possible the achievement of my dream. I also thank my parents, Patrick Martin and Judith Ann Ciez, for their steadfast belief in me. Somewhere on our father-and-daughter car trips to Dad's alma mater, the University of Michigan, a love for learning blossomed within me. Years later, I cannot imagine having embarked upon the doctoral journey without the support of my mother— my best friend—who was always just a phone call away.

To my treasured husband James Johnathan Keller Volz and our beloved sons Noah Collin Riley and Gabriel Aden Joseph, I express my utmost love and gratitude for the sacrifices that they made throughout my odyssey. On James' strong shoulders have I stood, reaching for my dream, as our children yearned for the days when Mommy could freely play with them. Alas, my family, I return home where you have patiently awaited my arrival.

CHARTING A COURSE TO CREATIVITY

IN DEVELOPMENTAL EDUCATION

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A central problem in community colleges' developmental education programs

concerns the over-emphasis on basic skills instruction to the possible exclusion of higher

order thinking. Although the ability to read, write, and compute establishes an

indispensable foundation for future academic success, basic skills instruction alone does

not teach students how to analyze, synthesize, and evaluate ideas—all of which are imperative in the global, knowledge-based economy where creative thinking constitutes the primary form of capital. The purpose of this study, therefore, was to synthesize creativity research and developmental education by investigating the significance of creative thinking in developmental courses taught at Florida Community College at Jacksonville's Kent Campus.

To fulfill the study's purpose, the researcher employed a qualitative research design and methodology through which she explored the perspectives and practices of twelve participants selected through stratified purposeful sampling. Representing different disciplines, the participants varied in their instructional classification (full-time versus part-time) and developmental teaching experience. Having designed a basic interpretive qualitative study, the researcher, as a human instrument, sought to understand the participants' perceptions regarding the importance of promoting creativity in developmental courses; the characteristics of classroom environments that facilitate creative thinking; as well as the instructional approaches and methods that foster such thinking. By triangulating the data collection through interviews, observations, and document analyses and by obtaining member checks of the interviews from the participants, the researcher endeavored to enhance the trustworthiness of the findings.

Presented in the rich, thick description distinctive of qualitative analysis, the study revealed that the enthusiastic, caring, and learner-centered participants possessed the personality characteristics necessary for the cultivation of creative thinking among students. Despite being intended to promote the acquisition of basic skills, many of the participants' approaches and methods, particularly the use of personalized instruction,

verbal praise, cooperative learning, and figurative language, could also be employed to

establish learning environments that facilitate creative thinking. Upon reviewing the data,

the researcher made recommendations designed to contribute to the limited body of

knowledge about the synthesis of creativity research and developmental education.

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CHAPTER ONE: INTRODUCTION

Introduction and Statement of the Problem

America's community colleges face a staggering array of challenges—rising costs, shrinking federal and state resources, increasing demands for access, and a growing need for developmental education (Roueche, Ely, & Roueche, 2001b). As Roueche and Roueche (1999) assert, "Not one of the challenges has remained so controversial, has so divided community colleges ideologically, and has remained so resistant to change as has remedial education" (p. 41). Grubb and Cox (2005) likewise regard developmental education as "one of the most difficult challenges our entire education system has to face" (p. 102). According to Gardner, the term *developmental education* provokes "deep and aversive" reactions for many stakeholders (Spann, 2000). Each year, 29% of college students in general and 41% of community college students in particular need at least one developmental course in reading, writing, or math (McCabe, 2000, p. 4). Because so many students require remediation, developmental education lies "at the heart of the curriculum" (Cohen, 1987, p. 3). In 1977, Roueche and Snow predicted that "the problems associated with remedial education in college will not go away" (p. ix). Over thirty years later, the problems have persisted and have been exacerbated by the demands of the global, knowledge-based economy.

A central criticism of developmental education concerns its curricular and instructional approach to the teaching of basic literacy skills. Critics of developmental education contend that it has failed generations of students by merely requiring them to

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drill and practice reading, writing, and mathematics. In many developmental courses, teachers have emphasized the basics to the possible exclusion of higher order thinking skills. Certainly, the ability to read, write, and compute establishes the foundation for future academic success. Basic skills instruction alone, however, does not teach students how to analyze, synthesize, and evaluate ideas. As a review of the relevant literature reveals, today's workforce demands that college graduates have mastered more than the basics; they must also know how to think critically and creatively.

Although many scholars have addressed the importance of critical thinking in higher education, relatively few have focused on the necessity of creative thinking, especially in developmental education. As Petrowski (2000) maintains, however, "Creativity research has much to offer us as educators, as individuals, and as employees working in academic institutions" (p. 305). Signifying a person, process, or product considered to be at once new and useful, imaginative and productive (Bleakley, 2004, p. 466; *Creative*, 1989/2007; Dineen, Samuel, Livesey, 2005, p. 155), creativity is essential for success in both college and the global marketplace. As the place where millions of students begin their post-secondary experience, the college-preparatory classroom could provide an optimal, though often overlooked, environment for teachers to promote creativity. By integrating higher order thinking skills, particularly creative thinking skills, into developmental education, community college teachers could help students become lifelong learners within the knowledge economy.

Historically responsive to their local communities and increasingly adaptive to the global society, community colleges are uniquely positioned to prepare developmental students for the demands of the current economy. Indeed, developmental education

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represents a critical nexus for change within community colleges—change that will benefit not only individual students but also society. In light of the aforementioned social, economic, and educational factors, the purpose of this study was to integrate creativity research and basic skills instruction by investigating the perspectives and practices of twelve developmental instructors at Florida Community College at Jacksonville's Kent Campus regarding the role of creative thinking in developmental education.

Definition of the Area for Research

Drawing upon inter-disciplinary insights from psychology, business, and education, this inquiry applied creativity research to studies of developmental education in community colleges. The researcher conducted the investigation at the Kent Campus of Florida Community College at Jacksonville (FCCJ), a large urban institution serving over 64,000 students through its five campuses and seven centers in Jacksonville, Florida ("About FCCJ," 2008; "Campuses/Centers," 2007). Located in Jacksonville's historic Riverside/Avondale district, the Kent Campus provided the specific site for the inquirer's interviews, observations, and document analyses. During the interviews, she sought to understand the perspectives of full- and part-time reading, writing, and math instructors regarding the importance of creative thinking in developmental education. In addition to interviewing the faculty to learn about their perceptions of creativity, the researcher observed them teach, thereby gaining insights into the classroom approaches and methods used to foster basic and/or higher order thinking skills. To learn about the written course descriptions, outcomes, and objectives, the researcher conducted document analyses of the college's learning outcomes and assessment forms, course outlines, and participants'

syllabi. This study was intended to assist community college educators with integrating creativity research into developmental education, thereby preparing students for the demands of the knowledge economy.

Research Questions

In the title of an article published in *Teaching in Higher Education*, Crème (2003) poses a question worthy of investigation: "Why can't we allow students to be more creative?" She further queries, "Why does higher education not see promoting creativity as its job?" (p. 273). Her questions underscore both the importance of creativity and higher education's relative neglect of it as an explicit instructional and institutional outcome. A review of the literature, moreover, revealed a considerable gap in studies about creativity's role in developmental education at community colleges, thus suggesting the need for further research. By exploring the following research questions in a qualitative study, the investigator endeavored to address this gap:

1. To what extent is creative thinking important for students enrolled in developmental education courses at Florida Community College at Jacksonville's Kent Campus?

2. What are the characteristics of classroom environments that facilitate creative thinking among developmental students?

3. What instructional approaches and methods can teachers employ to foster creative thinking in developmental students?

Perhaps in meeting the qualitative criteria of being "open-ended, clearly stated, and few in number" (Hatch, 2002, p. 69), these questions reinforced the need for a new inquiry.

Through an integration of creativity research and developmental education, this study presented both a theoretical and practical perspective for enhancing basic skills instruction.

Assumptions of the Study

Prior to conducting a study at Florida Community College at Jacksonville's Kent Campus, the researcher had made several assumptions. While acknowledging that developmental education "may mean very different things in different places with different students" (Brothen & Wambach, 2004, p. 18), the researcher assumed that the purpose of the field is to help students grow cognitively, affectively, and socially through a holistic approach to instruction and student services. The researcher also assumed that because of the high failure and attrition rates of developmental students, both community college scholars and practitioners need to examine past and present approaches to basic skills instruction. The researcher further assumed that upon doing so, developmental educators, like the students whom they serve, will remain open to learning, change, and growth.

The inquirer assumed, furthermore, that creativity research provides a potentially transformative approach to developmental education and that the integration of these fields will enhance student performance in both college-credit courses and the workforce. Like Esquivel (1995), the researcher assumed that "all individuals have the potential to be creative, that children are naturally creative, and that creativity may be a life long process" (p. 187). Embracing a humanistic-developmental perspective, the researcher assumed that "it is the role of educators to enhance the creative potential of all students"

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(Esquivel, p. 189), regardless of their "developmental" classification within the community college. Ultimately, the researcher assumed that developmental students possess the capacity for creative thinking, which, when cultivated at the community college, can help them become more effective thinkers and problem solvers in the knowledge economy.

Definition of Terms

Basic skills: Taught in developmental education programs at virtually all community colleges and at some universities, basic skills include the ability to pay attention and concentrate; "appropriate study skills, strategies, and habits"; as well as memory, listening, speaking, reading, writing, and mathematical skills (Angelo & Cross, 1993, p. 20).

Community college: As a post-secondary institution, the community college offers associate of arts, associate of science, and associate of applied science degrees. In recent years, some community colleges have also received baccalaureate-granting status. In 1901, at the height of the Industrial Era, the first community college in the United States—Joliet Junior College—was founded (Brint & Karabel, 1989, p. 27). Offering both university transfer and vocational programs, community colleges have traditionally maintained open-door policies, granting diverse citizens access to higher education. In addition to meeting students' academic and vocational learning needs, community colleges provide continuing education and community service (Baker, 1999, p. 35). According to Flannigan, Greene, and Jones, a variety of social, political, and economic forces, including the end of the Great Depression, the advent of the GI Bill, and the

recommendations of the 1947 Truman Commission, resulted in the expansion of the comprehensive community college system (Roueche & Jones, 2005, p. 2), which currently includes nearly 1,200 institutions serving 11.6 million students in both credit and non-credit programs nation-wide (American Association of Community Colleges, 2006; Fields, 2004, p. 4).

Creative class: Constituting 30% of employed United States citizens, this socio-economic classification of people refers to those who exercise their knowledge and creativity for a living—namely, professionals in science and engineering, architecture and design, education, arts, music, entertainment, business, finance, law, health care, and related areas (Florida, 2002, p. 8). Independent, flexible, and educated, members of this class possess creative capital, thus providing their country with a competitive advantage over other nations (Florida, p. 5).

Creative thinking: A form of higher order cognition, creative thinking entails generative and productive thinking (Fogarty & McTighe, 1993, p. 163). Connecting the new with the familiar to generate ideas and products that are both original and useful, creative thinking coincides with the level of synthesis in the cognitive domain on Bloom's Taxonomy of Educational Objectives (Angelo & Cross, 1993, p. 181; Starko, 2005, p. 5).

Creativity: A term that eludes a clear definition, *creativity* refers to a person, process, or product considered to be both new and useful, imaginative and productive (Bleakley, 2004, p. 466; *Creative*, 1989/2007; Dineen, Samuel, Livesey, 2005, p. 155). Numerous scholars, including Cropley (2001), Edelson (1999), and Florida (2002), regard creativity as the ultimate form of capital in the current economy.

Critical thinking: A form of higher order cognition, critical thinking encompasses analytical and evaluative thinking (Fogarty & McTighe, 1993, p. 163). Involving the "breaking down" of problems and questions into manageable components, critical thinking corresponds with the level of analysis on Bloom's Taxonomy (Angelo & Cross, 1993, p. 159).

Developmental education: Often referred to as "remedial education," developmental education involves basic skills instruction in reading, writing, math, study skills, and at some colleges, English as a second language. Designed to prepare students for college-credit course work, developmental education entails both instruction and student services (NADE, 2001).

Higher order thinking skills: The higher order thinking skills include the "ability to apply principles and generalizations already learned to new problems and situations," "analytic skills," "problem-solving skills," the "ability to synthesize and integrate information and ideas," as well as the "ability to think creatively" (Angelo & Cross, 1993, p. 20). In short, higher order cognition entails both critical and creative thinking skills.

Knowledge economy: Unlike the manufacturing economy of the previous era, the knowledge economy of the new millennium is driven not by the production of goods but by the intellectual and creative capital of its workers. Engaging in mental rather than material labor, knowledge workers synthesize, generate, analyze, and evaluate ideas for a living (Zeszokarski, 2001, p. 68). As jobs involving manual labor become increasingly scarce in the knowledge economy, workers must continually update their skills through the pursuit of lifelong learning (Seltzer & Bentley, 1999, p. 9). Within the current social

milieu, access to higher education, particularly to developmental education in the nation's community colleges, has become an economic imperative (McCabe, 2000).

Significance of the Study

A highly controversial issue, developmental education continues to spark debates in community colleges. One of the pivotal critiques involves its inherent focus on basic skills instruction, and many thinkers contend that developmental education has failed generations of students. A review of the literature regarding the influence of global transformations on higher education, especially on community colleges, reveals the need for new approaches to teaching and learning. As numerous scholars have noted, knowledge workers in the information age must exercise a fundamentally different set of skills from manual laborers in the industrial age. Arguably the premium form of capital in the global economy, creativity includes the ability to identify and solve problems by applying knowledge from one context to another (Seltzer & Bentley, 1999, p. 10). In the current socio-cultural context of education, students need to know more than how to read, write, and calculate; they must learn to analyze, synthesize, and evaluate. McCabe (2000) asserts that community colleges play a critical role in preparing diverse learners for the demands of a rapidly evolving society (p. 7). Because a significant number of students begin their post-secondary education in a college-preparatory classroom, developmental education could provide fertile ground for the promotion of creativity. By simultaneously prioritizing basic and higher order skills, teachers could design learning experiences that challenge students to think creatively and to become lifelong learners.

Although several scholars have investigated the role of critical thinking in developmental education, a dearth of scholarship exists about the significance of creativity to student success. Additionally, many critics have emphasized the weaknesses of developmental education within community colleges, yet few have focused on the teaching of creative thinking skills as a viable addition to the exclusive emphasis on basic skills instruction. At present, many disparate pieces of the creativity puzzle exist in the literature. Such pieces include the need for reform in developmental education, the demand for creativity in the knowledge economy, as well as the relationship between creativity research and developmental education. To assemble this complex puzzle, the researcher designed a study in which she investigated the role of creative thinking in basic skills instruction at community colleges.

Employing qualitative inquiry, this study focused on community college teachers' perspectives and practices regarding the promotion of creative thinking among developmental students. The investigation's significance emerged from the collection, analysis, and reporting of data about the approaches to developmental education at one community college from which other community college scholars and practitioners can learn. Upon reviewing the data, the researcher made recommendations to contribute to the limited body of knowledge about the synthesis of creativity research and developmental education. Perhaps community college educators will employ the study's recommendations to enhance student learning in developmental education programs.

Limitations of the Study

Just as Sternberg (2006b) acknowledges in "The Nature of Creativity" that he does not address "every question that a complete theory of creativity must answer" (p. 97), so also does the researcher humbly recognize the limitations of her study. While offering a limited "sampling" of creativity's manifold "aspects" (Sternberg, p. 97), she presented a humanistic-developmental perspective of how community college teachers can foster creative thinking in developmental students. By examining creativity through this lens, the researcher necessarily overlooked other perspectives that might also have elucidated the subject. The study was limited, moreover, to interviews, observations, and document analyses conducted in one semester at one community college campus of twelve developmental educators. The findings from this small but purposeful sample, while potentially transferable to developmental education programs in other community colleges, represent the start of a new conversation, not a definitive explication of an ongoing discourse. The very nature of the investigation eludes such an explication, for being "large, unwieldy, and hard to grasp," creativity is, admittedly, "hard to study" (Sternberg, 2006a, p. 3). To date, the literature on the importance of creative thinking skills in developmental education is limited. Thus, in exploring the relationship between creativity research and developmental education, the author ventured into relatively new scholarly territory. Despite the limitations of a short-term qualitative inquiry, the researcher ultimately hoped to produce a study that, true to the nature of creativity, is both novel and valuable.

Organization of the Study

In the complicated, multi-faceted study of creativity, many target audiences exist—psychologists, business professionals, educators, community stakeholders, among others. As Koestler (1964) attests, "Anyone who writes on a complex subject must learn that he cannot aim one arrow at two targets" (p. 21). A qualitative analysis of the importance of creative thinking skills in developmental education, this study was aimed at community college educators committed to enhancing developmental students' learning experiences. By examining developmental education's past and present, the author pointed in the direction of change through creativity research.

To achieve this goal, the researcher organized the study into five chapters and various appendices. Following the introduction, Chapter Two contains a review of the relevant literature on creativity research, developmental education, the current socio-cultural context of teaching and learning, the definition and characteristics of creativity, as well as educational perspectives and classroom applications regarding creative thinking. While Chapter Three delineates the study's qualitative research design and methodology, Chapter Four presents the data analysis and findings. Lastly, Chapter Five consists of the study's conclusions, implications, and recommendations.

CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction

Chapter Two provides a review of the extant literature on creativity research, developmental education, and the knowledge economy. These seemingly disparate elements represent the closely interwoven threads of a complex socio-economic tapestry. By applying creativity studies to developmental education, the researcher endeavored to reveal the need for reform in basic skills instruction, which over 40% of community college students require (McCabe, 2000, p. 4). In addition to chronicling the history of both creativity research and developmental education, this chapter documents their current state of the art. Although scholarship abounds about the importance of critical thinking to learning, a gap in the literature exists regarding the role of creative thinking for developmental students, who like their counterparts in college-credit courses, will work in a knowledge economy where the premium form of capital is creativity.

In Chapter Two, the researcher surveys creativity studies and developmental education; addresses the importance of both basic and higher order thinking skills; examines the socio-cultural context of education; explores the definition and characteristics of creativity; distinguishes between creativity and related concepts; introduces the assessment of creativity; and discusses educational perspectives and classroom applications regarding creative thinking. A synthesis of creativity research and developmental education, this survey represents an attempt to close a gap in the existing literature.

A Survey of Creativity Research

The History of Creativity Research

From Mysticism to Scientific Inquiry

The question of creativity has intrigued human beings throughout history. As Malcolm observes, "The concept of creativity has captured our imaginations for centuries" ("The Creating Brain," 2006). In the foreword to Koestler's *The Act of Creation* (1964), Burt writes, "From time immemorial the gift of creativity has been venerated almost as if it were divine" (p. 13). Although the subject of creativity has long fascinated human beings, the perception of it as a divine, mystical, or spiritual phenomenon has often precluded scientific interest in it. In fact, creativity research is a relatively new field of inquiry. Not until J. P. Guilford's 1950 presidential address titled "Creativity" before the American Psychological Association at Pennsylvania State College did significant research on the topic begin (Baer & Kaufman, 2006, p. 13; Guilford, 1950, p. 444). Prior to this time, creativity had been a "neglected area" of scholarly interest (Petrowski, 2000, p. 305). Haring-Smith (2006) speculates that little research had been conducted about creativity before the mid-twentieth century because "popular descriptions of the creative act as a visitation of the muse or serendipitous inspiration removed the topic from scientific consideration" (p. 23). Petrowski also attributes psychology's relative disinterest in creativity to the "Platonic notion" that it is a "mystical phenomenon" and to the perception that it is a spiritual, rather than scholarly, subject matter (p. 305). The conception of creativity as genius "associated with mystical powers of protection and good fortune" or as "madness and frenzied inspiration" dates

back to the ancient Greeks (Albert & Runco, 1999, p. 18). Indeed, the traditional view of creativity as a mystical or mad act likely limited scholarly interest in it.

By focusing on measurable differences in individuals' intellectual abilities, Galton (1874, 1883) drew conclusions with important implications for creativity research, including the notion that genius is not a supernatural phenomenon and that, despite being rare, this capacity potentially exists in many people because of its distribution throughout populations (Albert & Runco, 1999, pp. 24-25). Through his empirical research, Galton dispelled the belief that creativity is a mystical occurrence that cannot be studied scientifically (Albert & Runco, p. 25), thus paving the path for future scholars.

Guilford's 1950 Address

In his groundbreaking 1950 address, Guilford, a highly influential psychologist, called for research on creativity and the associated concept of "divergent thinking" whereby individuals branch out intellectually, generate alternative solutions to problems, and make associations between seemingly unrelated concepts (Cropley, 2001, p. 134; Gardner, 1993, p. 20). Although Guilford (1950) had established the "investigation of creativity" as one of his "long-standing ambitions," he broached the topic gingerly, as he explained in his address: "I discuss the subject of creativity with considerable hesitation, for it represents an area in which psychologists generally, whether they be angels or not, have feared to tread" (p. 444). After surveying books and articles referenced in *Psychological Abstracts* between approximately 1927 and 1950, he discovered that "less than two-tenths of one per cent" of the literature directly addressed the subject of creativity (p. 445). Characterizing the "neglect of this subject by psychologists" as "appalling," Guilford offered several explanations for its conspicuous absence in the

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extant literature of the day, including the difficulty of establishing criteria for creativity, methodological problems with measuring it, and a predominantly behaviorist approach to learning theory and research (445-446).

As a psychometrician who recognized the "social importance of creativity" to "both industry and governmental agencies" searching for "leaders," Guilford envisioned scientific research on creativity that would resemble the vigorous, early twentieth-century investigations of intelligence (Gardner, 1993, p. 20; Guilford, 1950, p. 446). Guilford believed that both divergent thinking (the generation of many intellectual possibilities) and convergent thinking (the search for one definitive answer) were necessary for creativity (Richards, 2001, pp. 250-251). By proposing in the Structure of Intellect (SI) model that multiple intellectual capabilities exist, Guilford "opened the door for creativity" (Richards, pp. 251, 256). Guilford's address stimulated scholarly interest in creativity and psychometrics among psychologists, sociologists, economists, and educators (Richards, p. 250; Haring-Smith, 2006, p. 23). In addition to Guilford, other early researchers of creativity, such as Barron (1955) and Torrance (1962), endeavored to identify potentially creative leaders by measuring their creativity with psychometric instruments as well as by focusing on individuals' personality traits (Haring-Smith, p. 24).

The Sputnik Shock

In the 1950s, Guilford's research, coupled with concerns about national security, led to a focus on creativity (Cropley, 2001, p. 134). Cropley traces the interest in promoting creative thinking skills to the Sputnik shock in the late 1950s when the Soviet Union launched a series of artificial satellites that orbited the earth. In response to this

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shocking technological achievement, the United States created NASA in 1958 ("Space Exploration," 2008). This sense of shock also permeated America's school system whose stakeholders decried the lack of creative thinking skills in high school and college graduates. Social critics of the day argued that American schools needed to place greater emphasis on promoting inventive and original thinking that would enable the United States to compete in the space war against the Soviet Union. In 1958, the United States passed the National Defense Act, an educational reform bill intended to enhance pedagogical approaches in math, science, foreign languages, and the creative arts (Esquivel, 1995, p. 187). Thus, in the mid-twentieth century, a variety of socio-cultural factors as well as scholarly inquiries converged, forming the field of creativity research.

Current Approaches to Creativity Research

A Summary of Basic and Applied Creativity Research

A review of the extant literature reveals that research about creativity falls into one of two categories—basic or applied. Conducted largely by psychologists, basic research focuses on the fundamental qualities of creativity, whereas applied concerns practical uses of acquired knowledge. The largest body of applied research about creativity comes from the disciplines of education and business (Simonton, 2006, p. 491). While educational researchers have investigated teaching strategies for fostering creative thinking and the most effective methods for identifying creatively gifted children, business scholars have studied strategies for enhancing employees' creativity (Simonton, p. 491). Most applied researchers address "small-c" as opposed to "big-C" creativity.

Through a variety of research theories and perspectives, the former addresses creativity in everyday people, the latter in geniuses (Simonton, p. 493).

Specific Approaches to the Study of Creativity

A "complex phenomenon," creativity has given rise to many different research approaches, including the psychometric, contextual, experimental, biographical, and biological (Petrowski, 2000, pp. 305-310):

- **The psychometric approach**: Psychometricians, like Guilford, Torrance, and Sternberg, believe that creativity is a "measurable mental trait," similar to intelligence, and develop tests to measure divergent thinking (p. 305).

- **The contextual approach:** Scholars who apply a contextual or systems approach, such as Csikszentmihalyi, focus not on a creative individual but on the context in which creativity occurs—namely, the individual's interaction with the domain (that is, a discipline—for example, educational administration) and field (one's colleagues or the gatekeepers within a particular domain—for example, the peer reviewers of a journal article submission, p. 307).

- **The experimental approach**: Cognitive psychologists explore creativity as a mental process encompassing not only divergent thinking but also generative activities (memory retrieval, associations, synthesis); exploration (attribute finding, hypothesis testing, limitation finding); periods of gestation and incubation of ideas leading to insights; and the activation of previously and recently acquired knowledge influencing one's thinking (p. 308).

- **The biographical (or historiometric) approach**: Researchers examine the lives of highly creative people to discover various experiences and influences

that resulted in their extraordinary accomplishments (p. 309). As Petrowski

notes, biographical scholars of creativity have discovered that even "hyper-

creative" individuals take approximately ten years to master their domain (pp.

309-310). After about a decade of working in a particular discipline, such

individuals may experience "creative breakthroughs" (p. 310). This finding

from biographical research about creativity contains important implications for

education. Because "mastery precedes insight" and "intuition requires

proficiency," teachers may likewise need to spend many years refining their

craft to realize their full creative potential (Petrowski, p. 310).

- **The biological approach:** Examining cortical brain activity, researchers
  applying this approach investigate the physiological differences between highly
  creative and less creative individuals (p. 310).

Studies culled from many of the theoretical approaches that Petrowski highlights

informed this literature review.

The State of the Art in Creativity Research and Developmental Education

Despite the premium that the United States has traditionally placed on creativity

in business and industry, it remains an "undervalued and understudied" field of inquiry

(Kezar, 2005, p. 57). Higher education, in particular, has been particularly resistant to the

study of creativity as a means for enhancing student learning outcomes (Cropley, 2001, p.

159). As Connor-Greene, Murdoch, Young, and Paul (2005) note, "An extensive body of

psychological research addresses critical thinking, but relatively little published work has

focused on ways to enhance creative thinking" (p. 215). Additionally, although many

critics have emphasized the weaknesses of developmental education within community

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colleges, few have addressed the teaching of creative thinking, defined as "a cognitive process of original problem solving by means of which original products are generated" (Davidovitch & Milgram, 2006, p. 385), as a viable alternative to the over-emphasis on basic skills instruction. While a featured column entitled "Critical Thinking" appears in *The Journal of Developmental Education*, the researcher did not uncover a similar emphasis on creative thinking during her survey of the literature. Petrowski (2000) speculates that "the lack of cross-fertilization" between creativity research and post-secondary instruction may be attributable to "the relative youth of the creativity field" (p. 305). Not yet sixty years old, creativity research is burgeoning with new intellectual possibilities in terms of higher education in general and developmental education in particular.

Characterizing interest in creativity at the turn of the millennium as being "explosive," Albert and Runco (1999, p. 17) note that the growth of scholarship on a topic is reflected in the emergence of professional journals—a variety of which, according to Kaufman and Sternberg (2006) and Amabile (1996, p. 16)—now address creativity: *Creativity Research Journal*; *The Journal of Creative Behaviour*; *Imagination, Cognition, and Personality*; *Metaphor and Symbolic Behavior*; *Roeper Review; and Creativity and Innovation Management*. Indeed, the literature review unveiled a seminal opportunity for community college scholars intrigued by creativity to explore interdisciplinary connections. Gardner (1993) notes that the majority of research about creativity has been conducted by scholars in psychology and other disciplines focused on the individual. He adds, however, that because of its complex, multi-faceted nature, "creativity is precisely the kind of phenomenon or concept that does *not* lend itself to

investigation completely within a single discipline" (p. 36). The researcher, therefore, mined a variety of disciplines, including psychology, business, and education, for insights into creativity applied to developmental education.

Developmental Education

The Definition and Purpose of Developmental Education

A review of the definition and purpose of developmental education elucidates the need for creative thinking skills among developmental learners. Upon enrolling, students at most community colleges take standardized, multiple choice placement tests in reading, writing, and math. Some community colleges also administer a holistically graded writing sample. Students' scores on the tests determine their placement in the curriculum (Grubb et al., 1999, p. 175). Despite possessing a high school diploma or the equivalency, many students lack the basic literacy skills necessary in college (Perin, 2006, p. 339). When students test below a score that represents minimal proficiency in a given skill, they are placed into a remedial, or developmental, course for that area.

Though used interchangeably, the words *remedial* and *developmental* evoke different connotations. As Casazza (1999) states, "Although it can be counterproductive to get into a battle of words," they can be "significant when they represent an approach or basic philosophy." Whereas the word *remedial* emphasizes individual skill deficiencies, the term *developmental* focuses on the cognitive and affective aspects of developing "the whole student" (Roueche & Roueche, 1999, pp. vii-viii). The word *remedial* originates from the noun *remedy*, meaning "any medicine or application which puts an end to

disease and restores health" (Gleazer, 1998, p. 102). According to McGrath and Spear

(1987), the concept of remediation follows a medical model in which "specific

weaknesses are diagnosed, appropriate measures are prescribed, and the learner/patient is

evaluated to determine the effects of treatment" (p. 12). The medical metaphor suggests

that students suffer from a problem that needs to be cured. Even though the students may

not need to be corrected or repaired, "their academic problems do" (Roueche & Roueche,

p. 17). Because the term *remediation* often elicits a negative connotation, many educators

prefer the word *developmental*, which implies that the students will develop various

academic competencies (Grubb et al., 1999, p. 179).

      With its roots in developmental psychology and learning theory, developmental

education encompasses course work in reading, writing, math, study skills, and in some

programs, English as a second language. It also includes various forms of learning

assistance, such as tutoring, mentoring, and supplemental instruction; personal and career

counseling; and academic advising (NADE, 2001). The term *developmental* involves a

process in which instructors and student services professionals examine students' entry-

level skills, inquire about their academic goals, and provide strategies for helping them

achieve those goals (Boylan, 2002, p. 61). In addition to focusing on students' intellectual

growth, developmental education emphasizes their social and emotional development. A

comprehensive model, developmental education interweaves cognitive, social, and

affective aspects of learning to help students fulfill their potential (Casazza, 1999). As

Wambach and Brothen (2000) attest, developmental students learn not only course

content but also skill sets that will enable them to succeed in college and in the

workplace. Possessing a lengthy history, developmental education is characterized by an emphasis on academic training as well as personal development (Wambach & Brothen).

The History of Developmental Education

At the turn of the twentieth century, William Rainey Harper, then president of the University of Chicago, proposed the idea of a "junior college" that would "provide skill-deficient students an additional two-year time period to prepare for senior college work" (Roueche, Ely, & Roueche, 2001a, p. 9). As a result of Harper's vision, the first community college opened its doors in 1901-1902, expanding access to higher education. Based on the philosophy that education is imperative to democracy and to the betterment of society, community colleges "equalize opportunity for all people" (Roueche & Roueche, 1999, p. 9). The history of developmental education, though, far predates that of two-year colleges.

Contrary to popular belief, developmental education did not originate in community colleges during the 1960s and 1970s. In fact, the practice of providing remedial instruction to under-prepared college students in America has occurred for nearly four hundred years (Casazza, 1999). Roueche, Ely, and Roueche (2001a) trace remediation back to 1636 at Harvard University where students received tutoring to become proficient in Latin—the academic language of the day (p. 7). According to Shaw (1997), the University of Wisconsin implemented the nation's first college-preparatory program in 1849 (p. 285). Additionally, in 1871, Charles Eliot, president of Harvard at the time, complained of freshmen entering the university with "bad spelling, incorrectness as well as inelegance of expression in writing, [and] ignorance of the

simplest rules of punctuation" (Casazza, 1999). Harvard, therefore, created a competency

exam that included a writing component. Because 50% of applicants were failing the

exam and were being admitted provisionally, Harvard began offering additional

assistance to prepare students for college-level requirements by 1879 (Casazza). Likewise

perceiving a need for remedial education, Wellesley College started offering courses in

organizational and study habits in 1894 to help its students succeed (Roueche & Snow,

1977, p. 6).

Nineteenth-century legislation, moreover, expanded access to higher education for

students, many of whom were under-prepared. The Morrill Acts of 1862 and 1890, in

particular, "opened the doors to a broader range of students" (Casazza, 1999). While the

first act funded colleges committed to teaching agriculture and mechanics, the second act

prohibited funding to public institutions where discrimination persisted. By the early

1900s, "colleges and universities at all levels were offering developmental courses," the

most common of which included "remedial reading" and "study skills" courses

(Casazza). According to Casazza, over 350 institutions of higher learning offered study

skills courses for under-prepared students by 1909. Throughout the twentieth century,

"the doors to higher education were opened even wider," particularly through the GI Bill

of Rights for World War II veterans (Casazza). Sensitive to the educational needs of the

GI's returning from World War II, the Truman Commission called for the creation of a

national system of two-year colleges "within commuting distance of every American"

("State Funding for Community Colleges," 2000).

As four-year institutions experienced a surge in student enrollments during the

1950s and 1960s, they became increasingly selective in their admissions policies and

began reducing their remedial programs. During that period, the responsibility for helping students acquire basic skills shifted to community colleges (Roueche & Snow, 1977, pp. 6-7). Frequently referred to as the "people's college," the community college is "a uniquely American innovation, one adapted to the American form of democracy" (Young, 1997, p. 74). With the doors to higher education now widely opened through the expansion of the nation's community college system, diverse students—including veterans, women, racial and ethnic minorities, and individuals from lower socio-economic backgrounds—entered college, often in need of remediation (Casazza). According to Kozeracki (2005), such students either "were never taught the basics" in earlier grades or "were exposed to good instruction but did not pay attention" (p. 40). As "necessarily second-best alternatives to reforming the way we educate students from their earliest days," developmental education programs represent the community college's commitment to solving academic problems that originated in primary or secondary school (Grubb & Cox, 2005, p. 102). With demand driven by increasing numbers of under-prepared high school graduates and English language learners, moreover, "developmental education is not going away" (Grubb & Cox, p. 93).

Developmental Education and Democracy

Fundamental to democracy, developmental education provides higher educational access to at-risk citizens who otherwise may not have the opportunity to pursue the American dream. At the October 1998 United Nations Educational, Scientific and Cultural Organization (UNESCO) conference on higher education, the chair delivered a compelling message: "Absolutely nobody—not one single person—should feel sentenced

to a lifetime of exile from the world of learning. It is a matter of human dignity, in fact, a matter of real democracy" (Casazza, 1999). As Casazza emphasizes, access to higher education is one of the democratic principles upon which the United States is founded. With their open-door policies, the nation's community colleges provide post-secondary learning opportunities to diverse citizens. Instrumental to the success of these students, developmental education within community colleges encompasses remedial courses and support services, which McClenney (2000) views as a "vital second chance" in the academic pipeline. Rather than "apologize for our involvement in developmental education," McClenney urges community college stakeholders to recognize the importance of developmental students to the country's economic productivity and social well-being. As Smittle (2003) declares, "If the democratic ideals of our educational and governmental systems are to be supported by American higher education, it is essential that higher education is truly open to all interested citizens" (p. 14). Similarly, Perin (2006) maintains that as an integral aspect of the community college mission, developmental education not only helps individuals gain access to higher education but also benefits society (p. 340). According to Brothen and Wambach (2004), offering access to higher education to all students, even the academically under-prepared, remains a "primary tenant of the U. S. educational system" (p. 22). The central issue, then, concerns not "whether educators will work" with such students to deliver basic skills instruction but rather "how they will do so" (Brothen & Wambach, p. 22).

An Examination of Basic Skills Instruction

Developmental programs nation-wide experience a high student attrition rate. Reportedly, almost half of community college students successfully finish their developmental course work, but unfortunately, "reliable collective data sources" have not confirmed this estimate (Roueche & Roueche, 1999, p. 53). A fundamental question remains: What happens to the other half of students who do not complete their developmental courses? Roueche and Roueche (1999) contend that "losing 50 percent of any population is unacceptable, particularly when colleges cannot explain with certainty how or why the loss occurs" (p. 53). The figure that one out of two students never completes the prerequisite course work for college-credit studies compels community college educators to examine instructional approaches to developmental education.

Throughout its history, developmental education has emphasized basic literacy skills over content, meaning, and higher order thinking skills. Moore (2005) asserts that for decades, developmental education has failed to prepare students for college-level course work. He further argues that the "techniques for teaching remedial education" remain "hopelessly out of date" (p. xix). Taking a "one-size-fits-all" approach to basic skills instruction, developmental education often consists of the drills, reviews, and tests that pervade the K-12 curriculum. In over-emphasizing basic skills acquisition, many developmental instructors do not "promote the intellectual and cognitive development of remedial education students" (Moore, pp. 196-197). Distinguishing between "student- and meaning-centered" teaching and "deadly drill-and-kill" instruction, Grubb et al. (1999) likewise criticize developmental education (p. 174). He and his colleagues associate the weakest form of developmental education with the "conception of literacy

as a skill," not as the construction of meaning. When teachers view literacy as the mere acquisition of basic skills, their instruction frequently "collapse[s]" into "drill and kill" activities that trap students in rote cognitive procedures (Grubb et al., p. 181).

Unfortunately, a "disjunction" exists between college-credit and remedial courses. Whereas the former emphasize content, the latter focus on a "skills-oriented pedagogy" often divorced from meaning (Grubb et al., 1999, pp. 184-185). That remediation frequently precedes the study of content "creates a teaching problem" (Grubb et al., p. 184). Students typically enter community colleges with the goal of participating in either an academic transfer or a workforce program, but only 42% of them graduate from high school with the requisite skills for college-level course work (McCabe, 2000, p. vii). Each year, more than one million students nationally must take developmental courses: 20% in reading, 25% in writing, and 34% in math (McCabe, p. 4). In many such courses, students do not explore thought-provocative content but rather study "forms and abstractions" that require the memorization of commas and semicolons as well as decimals and fractions (Grubb et al., p.184). In these learning environments, the already at-risk students find their subject matter interests deferred as "semesters and possibly years of drudgery . . . precede any useful and significant outcomes" (McGrath & Spear, 1987, p.18). Frustrated by the deferment of their academic goals, many students do not fulfill their developmental requirements.

When divorced from personally meaningful, socially relevant content, basic skills instruction often fails to help students grasp important course concepts. According to Grubb et al. (1999), "Remediation usually requires teaching the technical aspects of a symbolic system"—that is, the processes and functions of language or mathematics (p.

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189). Arguing that the concepts in a writing course may appear "as rules to be mastered" without real-world applications, McGrath and Spear (1987) criticize developmental studies for implicitly devaluing language (p. 17). Becoming excessively preoccupied with "mastering semantic, syntactic, and orthographic correctness," many developmental students do not learn to read and write effectively (McGrath & Spear, p. 17). Although they may learn how to distinguish a main idea from a supporting detail, they may struggle to comprehend the underlying theme of a text. While they may learn how to correct a fragment or run-on, they often do not know how to turn a phrase or coin a metaphor in their own writing. Too often, basic skills instruction does not generate critical thinking and creative writing.

In math courses, students study numbers and operational signs, algebraic variables, and relationships expressed in graphs. Having experienced a similar instructional style from elementary to high school, students know the routine in a developmental math course: The instructor explains a formal operation and relates it to a prior skill. The students practice with worksheets, complete problems at home, review the work in class, and take a test. For many developmental learners, "math becomes a series of formal operations without any particular use," and they often cannot see its relationship to other courses (Grubb et al., 1999, p. 190). According to Grubb et al., even fewer developmental math courses reflect a "meaning-centered" curriculum than do reading and writing ones, for math instructors, especially in community colleges, have not engaged in as many dialogues about the dilemma between skills-based and content-based pedagogies. Thus, many developmental math students "continue to repeat the same errors that have carried them through elementary and secondary schooling" (Grubb et al.,

p. 194). In developmental courses where remediation exists separately from content, the teaching—however well-intentioned—may become "didactic" and "unimaginative" (Grubb et al., p. 195).

Without a balance between basic and higher order thinking skills, many developmental students remain under-prepared for college-level course work. By focusing exclusively on basic skills, students do not learn to "question, analyze, interpret, critique, challenge, or . . . recognize the logical interconnectedness of things" (Moore, 2005, pp. 196-197). Boylan (2002) reports that "students in general and developmental students in particular are rarely taught" critical thinking skills "in high school or in their early college courses," and "a lack of well-developed critical thinking skills is often a causative factor in the failure of developmental students" (p. 95). Busily memorizing facts, rules, and formulas, many developmental students do not learn "to use logic, to analyze information, and to solve problems" (Boylan, 1999). Moore also criticizes developmental education for not "encouraging" students "to search the past, examine the present, or imagine the future" (pp. 196-197). Rarely in their courses do developmental students discuss social issues to which they can relate their own family histories and personal experiences (Moore, pp. 196-197). Without exploring strategies for intellectual inquiry, problem-solving, and reasoning, students do not learn how to think, or ultimately, how to learn. Experiencing "rote, sterile, and ritualized" learning activities, many students find themselves as "intellectually impoverished" after remedial instruction as they were before it (Moore, p. 197). Sternberg (2004) similarly remarks that many undergraduate courses (and even some graduate ones) emphasize "the memorization of facts and ideas." Though important to the learning process, "memorizing facts . . . will

not help students cope with rapid changes in the professional and personal landscapes."

Like a clarion bell, the call for change within higher education—and within

developmental education in particular—rings loudly and clearly, sounding the need for

higher order thinking.

The Development of Both Basic and Higher Order Thinking Skills

Angelo & Cross's Teaching Goals Inventory

Through their Teaching Goals Inventory and Classroom Assessment Techniques

(CATs), Angelo and Cross (1993) provide a helpful distinction between basic academic

skills and higher order thinking skills (pp. 18-23)—the kind for which critics of

developmental education call. To use CATs effectively, teachers begin by completing the

Teaching Goals Inventory in which they prioritize their instructional goals for a particular

course. The scale ranges from "essential" to "important" to "not applicable." On the

Teaching Goals Inventory, the various goals are clustered into one of six categories:

higher order thinking skills, basic academic success skills, discipline-specific knowledge

and skills, liberal arts and academic values, work and career preparation, and personal

development (Angelo & Cross, pp. 18-22). Designed to engage students in the learning

process, CATs, such as one-sentence summaries, concept maps, and invented dialogues,

help teachers determine "how and how well students are learning," not merely "what and

how much" (Angelo & Cross, pp. 183, 197, 203-204). By linking their classroom

assessment techniques to teaching priorities, instructors can more effectively assess

students' understanding of course concepts.

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Representing the first and second clusters respectively, higher order thinking skills and basic academic success skills differ significantly from each other. The higher order thinking skills cluster includes such goals as developing the "ability to apply principles and generalizations already learned to new problems and situations," "analytic skills," "problem-solving skills," the "ability to synthesize and integrate information and ideas," and the "ability to think creatively" (Angelo & Cross, 1993, p. 20). Moore (2005) and Boylan (1999) maintain that developmental education has historically omitted these critical and creative thinking skills from the curriculum. Developmental studies have instead emphasized the acquisition of basic academic success skills, which Angelo and Cross identify as improving "skill at paying attention"; developing the "ability to concentrate"; enhancing memory, listening, speaking, reading, writing, and mathematical skills; and developing "appropriate study skills, strategies, and habits" (p. 20).

The Importance of Higher Order Thinking Skills

In completing the Teaching Goals Inventory, many developmental teachers would understandably rank the items in the basic academic success skills cluster as "essential." Perhaps assuming that students will acquire higher order thinking skills in college-credit courses, developmental teachers have not prioritized them to nearly the same extent as they have basic skills. Yet by omitting higher order cognitive skills, instructors have inadvertently created the disjunction about which McGrath and Spear (1987), Grubb et al. (1999), Boylan (1999, 2002), and Moore (2005) write. Many students learn how to read and write as well as how to study and memorize without necessarily knowing how to analyze and solve problems. Ironically, the action verb *develop* begins most of the

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objectives in the higher order thinking cluster. Meaning "to aid in the growth of" and "to strengthen," the verb *develop* forms the core of the phrase "developmental education"—a philosophical commitment to nurturing the cognitive and affective growth of the whole student ("Develop," 2004, p. 388; Roueche & Roueche, 1999, pp. vii-viii). Potentially enveloped within this philosophy, the promotion of higher order thinking may not be incompatible but rather complementary with basic skills instruction.

The Distinction Between "Critical" and "Creative" Thinking

The Definition of Critical Thinking

Higher order thinking encompasses both *critical* and *creative* thinking, which despite being used interchangeably, differ from each other. Because the "cultivation of creative/critical thinking is one of the important missions of higher education," the relationship between these terms should be clarified (Yang & Lin, 2004, p. 35). Lipman (1993) regards the promotion of higher order thinking—or "good thinking," as he frequently refers to it—as "the central objective of educating." As the two major aspects of higher order cognition, critical and creative thinking exist in "transaction with one another" (Lipman), yet many educators possess a clearer understanding of critical thinking than of creative thinking. According to Gong (2005), "Critical thinking as an educational goal enjoys a general consent: Few teachers would object to critical thinking as a curricular component" (p. 40). From kindergarten to college, teachers emphasize the importance of critical thinking skills. Perhaps, though, some educators appropriate the term *critical thinking* without having fully explored its meaning.

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To promote effective critical thinking among students, teachers must understand its nature (Gong, 2005, p. 40). Paul (1993) defines critical thinking as "the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action" (p. 22). Reflecting on a study conducted by Bain and associates of sixty engaging college professors, Hargrove (2005) reports that classroom environments in which critical thinking is valued challenge students to examine quality, reason from evidence, make decisions, justify their decisions, and continually improve (p. 30). Yang and Lin (2004) note the following aspects of critical thinking: inference, identification of assumptions, deductive reasoning, interpretation, and evaluation (p. 36). In addition to knowing how to recognize assumptions, question premises, identify logical fallacies, and draw conclusions, critical thinkers possess the ability to be objective, impartial, and fair-minded (Gong, p. 40). While engaged in critical thinking, individuals "screen, select, and support possibilities; compare and contrast options; make inferences and deductions; and improve or refine alternatives in order to make effective judgments and decisions" (Treffinger & Isaksen, 2005, p. 345). In short, critical thinking entails analytical reasoning. As Sternberg (2004) asserts, "Critical thinking is important, but as a complement to, not as a substitute for, creative thinking." Harris (1998) maintains that although both critical and creative thinking are "vital to a successful working life," the "latter one tends to be ignored until after college." Students, however, need to learn not only how to criticize others' ideas but also how to produce their own (Sternberg).

Critical and Creative Thinking: Analysis and Synthesis

Several researchers help to differentiate between critical and creative thinking. In cross-referencing their Classroom Assessment Techniques with Bloom's Taxonomy of Cognition, Angelo and Cross (1993) associate critical thinking with analysis and creative thinking with synthesis. The CATs for critical thinking examine a student's skills at "breaking down" questions and problems; such skills exemplify "procedural learning"— that is, the "how" rather than the "what" of thinking (p. 159). The CATs for creative thinking survey the "original intellectual products" resulting from a "synthesis of course content" and the student's "intelligence, judgment, knowledge, and skills" (Angelo & Cross, p. 181). When thinking creatively, individuals form and express "meaningful new connections"; "perceive gaps, challenges, or concerns"; suggest "many varied or unusual possibilities"; elaborate upon ideas; and reflect on alternative approaches (Treffinger & Isaksen, 2005, p. 345). Scholl (2005) regards critical thinking as being principally "evaluative" and creative thinking as being primarily "generative." Similarly, Fryer (2006) labels the former as "analytical" and the latter as "generative" (p. 124). As Fogarty and McTighe (1993) summarize, critical thinking embodies analytical and evaluative qualities, creative thinking generative and productive ones (p. 163).

Fogarty and McTighe (1993) further clarify the differences as well as similarities between these two forms of thinking in both the cognitive and affective domains (p. 165). Although many aspects of creative thinking differ from those of critical thinking, others overlap. A sense of wonder and curiosity, for example, represent creativity, while organization and evaluation signify criticality. In the cognitive domain, both forms of higher order thinking entail the use of prior knowledge, metacognitive reflection,

problem solving, and the like. In the affective domain, critical and creative thinking involve an individual's sense of humor, self-efficacy, cooperation/collaboration with others, a willingness to take risks, and perseverance. Fogarty and McTighe suggest that critical and creative thinking, while distinct, are not diametrical opposites (p. 165).

Paul (1993) and Paul and Elder (2006) provide additional clarification regarding the nature of creative and critical thinking. While *criticality* is presumed to be "directable and teachable," *creativity* is commonly believed to be "undirectable and unteachable" (Paul & Elder, p. 34). Paul, though, asserts that "there is very little truth in this view" (p. 21). The truth, he believes, is that "there is no way to generate creative geniuses nor to get students to generate highly novel ground breaking ideas by some known process of systematic instruction," for the concept of creativity, like that of criticality, involves "unknowns, even mysteries" (p. 21). Despite such uncertainties, educators can teach for creative and critical thinking co-presently by distinguishing between the terms while recognizing their "inseparable, integrated, and unitary" aspects (Paul, p. 21).

Positing that the two work best "in tandem," Paul and Elder (2006) challenge stereotypical notions of critical thinking as logic- and reason-based and creative thinking as intuitive and irrational (p. 34). To support their view, they cite the following quotation as an epigraph to their article "Critical Thinking: The Nature of Critical and Creative Thought": "The critical and creative functions of the mind are so interwoven that neither can be separated from the other without an essential loss to both" (p. 34). As this statement implies, criticality and creativity are closely intertwined—rather than antithetical—aspects of thinking, ultimately forming "one seamless fabric" (Paul & Elder, p. 34). According to Treffinger and Isaksen (2005), moreover, producing

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numerous ideas will not necessarily enable individuals to solve problems; likewise, merely analyzing and evaluating a few ideas may result in a "shortage of promising possibilities" (pp. 345-346). Individuals must instead endeavor to strike the "dynamic balance of creative and critical thinking" (Treffinger & Isaksen, p. 346). Fryer (2006) similarly asserts that critical and creative thinking interact to produce "something creative" (p. 124). Whereas creativity encompasses "a process of making or producing," criticality entails one of "assessing or judging" the merit of an idea or product (Paul & Elder, p. 34). With rare exception, "creativity presupposes criticality and criticality creativity" (Paul, 1993, p. 24). As Bleedorn (1993) reflects, "Even as *creative thinking enters the critical thinking process*, so also *critical thinking enters the creative thinking process*" (p. 18). While engaged in the creative process, individuals evaluate the quality of their thoughts and actions, revising this or modifying that.

In the midst of creation, the acts of creativity and criticality co-exist, reason Paul and Elder (2006, p. 35). Creativity encompasses more than novelty; it involves a critical examination of that which has been created (Paul, 1993, p. 39). Fobes (1996) contends that creative and critical thinking should not be separated but rather integrated in the problem-solving process, for "at the highest level of creativity, judgment is not an afterthought" (p. 20). Indeed, critical thinking is an integral part of creativity. When painting, an artist might scrutinize his color or texture choice, replacing one brush with another to produce a different, more pleasing look. When solving a problem, an elementary algebra student simultaneously exercises creative and critical thinking—questioning his approach and the alternatives to it, perhaps erasing the first attempt and trying anew. Similarly, a student writing a paragraph for an introductory composition

class generates sentences, questions his word choice and comma usage, thinking at once creatively and critically. Like two sides of the proverbial coin, creativity and criticality complement each other (Paul & Elder, p. 35), particularly as educational goals. As Paul writes,

> If we can engage each of our students passionately in genuine intellectual work on genuine intellectual problems worthy of reasoned thought and analysis and continually help each student to become a more judicious critic of the nature and quality of his or her thought, we have done all we can do to make likely both the critical and creative development of each student. (p. 39)

When teaching for critical thinking, educators simultaneously teach for creative thinking; when teaching for creative thinking, they likewise teach for critical thinking. A survey of the literature, however, reveals that within the P-16 educational context, teachers often emphasize basic skills to the exclusion of higher order thinking.

The Socio-cultural Context of Developmental Education

The P-16 Educational Context

An Over-emphasis on Basic Skills Instruction and Assessment

To understand the role of creativity within developmental education, community college scholars and practitioners must explore its significance within the broader P-16 educational context. Criticizing the delivery of public education, Gross (2005) asserts that creativity has historically "taken second place to rote learning." Tracing the conspicuous

absence of critical and creative thinking back to the early twentieth century when Frederick Taylor's concept of scientific management was applied to the classroom, Gross argues that students have been treated as "products," not as individuals with "unique predispositions, talents, and minds." She cites the 1983 publication *A Nation at Risk* as a catalyst for the present back-to-basics movement within public education. She also contends that in fulfilling the requirements of the No Child Left Behind Act (2002), public education has largely ignored "student imagination." Sternberg (2004) observes that "the kind of thinking students need most to acquire—creative thinking—is the kind that they often have the least opportunity to develop." Indeed, when education means simply memorizing facts and figures, students do not learn how to think for themselves.

Other critics of public education decry its over-emphasis on basic skills at the cost of creativity. In an article titled "How to Bring Our Schools out of the 20th Century," Wallis, Steptoe, and Miranda (2006) posit that "an entire generation of kids" may "fail to make the grade in the global economy because they can't think their way through abstract problems, work in teams, distinguish good information from bad or speak a language other than English." In addition to critical and creative thinking skills, students need to acquire team work and social skills, information literacy, as well as knowledge of a second or other language. Viewing the United States' educational system as being overly "regimented" in terms of standardized exams, Andreasen ("The Creating Brain," 2006) observes that today's children "are taught to pass exams rather than to think originally." Necessitated by a "highly prescribed, standards-based curriculum," the "teach-to-the-test approach" to education typically entails "monologue-like lectures, drilling, and repetitive recall of definitions and facts" (Moore, 2003, p. 6). When taught in this manner, students

become passive learners with "few opportunities for developing higher-order thinking skills" (Moore, 2003, p. 6). As Bunting (2006) asserts, "The average classroom is a pressure cooker crammed with so many shoulds, oughts, and musts that creativity, joy, and a sense of teacher ownership have lost their place in the conversation about teaching" (p. 76). With a heavy emphasis on "test-based accountability," many schools leave little classroom time for "creative and critical thinking as well as problem solving experiences" (Bunting, p. 76; Ediger, 2001, p. 79). Instead, rote learning and memorization often dominate the curriculum (Ediger, p. 79).

An Alternative to Exclusively Assessing for Basic Knowledge and Skills

The emphasis on basic skills is reflected not only in classroom instruction but also in assessment, which, according to Guilford (1950), significantly influences student learning. If teachers purport to teach creative thinking but administer standardized tests measuring basic skills, students will ultimately learn to pass the tests rather than hone their thinking abilities. As Guilford (1950) writes, "We all know teachers who pride themselves on teaching students to think and yet who give examinations that are almost entirely a matter of knowledge of facts" (p. 448). Recognizing the importance of facts to creativity, Guilford explains that he values factual knowledge. Certainly, "no creative person can get along without previous experiences or facts," for no one "creates in a vacuum or with a vacuum" (Guilford, p. 448). Although "the learning of facts" occupies a "definite place" in education, Guilford recommends that educators establish clear instructional objectives regarding the role of factual knowledge in teaching and learning, and he reminds teachers that "the kinds of examinations" given determine the real "objectives for the students," regardless of those explicitly stated (p. 448).

According to Sternberg (1997), public schools tend to measure two kinds of student abilities—memorization of information, and to a lesser degree, the analysis of it (p. 20). Some students, however, excel in other areas traditionally neglected by the schools—namely, in "creativity and the practical application of information" (p. 20). As Sternberg remarks, these abilities often "go unappreciated and unrecognized" (p. 20). Rather than exclusively teaching students how to memorize and analyze, Sternberg emphasizes the value of also engaging them in creativity and practical application, regardless of the discipline. By using a combination of the following abilities, students can learn in a richer, more meaningful way (Sternberg, p. 21):

- **Memory** includes recall regarding the who, what, when, where, why, and how of a topic.

- **Analysis** involves comparing, contrasting, judging, and evaluating.

- **Creativity** entails supposing, imagining, designing, and inventing.

- **Practice** refers to putting knowledge to use by implementing it according to common sense.

Memory and analysis alone are not the only abilities necessary for student success and should not preclude the development of creative and practical thinking, both of which Sternberg regards as increasingly important in the current social milieu (p. 23). In like manner, Alkeaid (2007) contends that college professors should "reward not only powers of memory but also powers of comprehension, skills for practical work, and creativity." Ultimately, Sternberg advocates for "a more balanced approach to education" so that teachers can reach not just some of their students but all of them (p. 24).

The Student of the Present, the Citizen/Worker of the Future

Outside the classroom exists a rapidly changing global society that both influences, and is influenced by, the schools. Cropley (2001), like many other scholars, considers "unprecedentedly rapid change" to be the "dominant characteristic of modern life" (p. 135). Guenter (1994) likewise regards the twenty-first century as a period of rapid change, necessitating "creative solutions to both new and old problems" (p. 64). Writing in 1980, Torrance predicted that the children of the day would grow up to perform work tasks that did not even exist at that time. Such work, he argued, would "require abilities, skills, attitudes, and information that we cannot imagine" (p. 298). Today's students now live in the world that Torrance envisioned nearly thirty years ago. With information, knowledge, and creativity as its primary forms of capital, this world differs significantly from that of earlier generations. Wide-scale, socio-economic changes prompt questions like that raised by Kay (1991): "What kind of citizen/worker will we need in the future?" Reasoning that "success in today's job market often requires creativity, flexibility, and a readiness to see things in new ways," Sternberg (1997) provides insight into the necessary qualities of a global citizen/employee (p. 23). Characterizing creativity as a "way of dealing with change and the unknown and the unexpected," Treffinger believes that this capacity can help individuals "construct the future" (Henshon, 2006, p. 121). Bleedorn (1993), furthermore, reports that "creativity is perceived as the foremost talent for effective leadership in a global future" (p. 17), which, like the present, will be distinguished by constant change.

Creativity as the Foundation for Individual and Societal Success

As yet under-recognized and under-appreciated, creativity is vital not only to student success but also to societal advancement. Kemple and Nissenberg (2000), in fact, attribute "the progress of civilization" to "creative thinking" (p. 67). Any significant human accomplishment embodies an act of creativity, from Edison's invention of electricity to Fleming's discovery of penicillin to Einstein's theory of special relativity. Unfortunately, however, fewer than 10% of questions raised by teachers engage students in creative thinking (Kemple & Nissenberg, p. 67). This figure reveals that the promotion of student creativity remains a marginal goal in most classrooms. Because students receive fewer rewards for "the thinking styles associated with creative performance," they typically demonstrate less creativity as they move through the school system (Lovitts, 2005, p. 146). Children's "creative imagination" reaches its height during the preschool years and begins to decline by kindergarten (Kemple & Nissenberg, p. 67). Thus, an inverse relationship exists between students' grade levels and their creativity. By the time they enter college, students tend to exhibit significantly less creativity than when they first began their education. Yet in a global society characterized by constant change, the cultivation of creativity among all students has become imperative, for those "who fail to acquire a flexible and creative attitude toward life are at risk for obsolescence, not only in their knowledge, but also in their skills for coping with life" (Sternberg, 2004).

Critics of public education assert that the promotion of creativity is not frivolous but rather foundational for both individual students and society. According to Kemple and Nissenberg (2000), "Nurturing young children's creative potential is not a frill. It

stands at the center of preparing children for life," of preparing them for careers as "the scientists, inventors, artists, musicians, dramatists, innovators, and problem solvers of the future" (p. 67). Recognizing the centrality of creativity to the K-12 curriculum, Treffinger urges educators not merely to "fill" students "up with knowledge of present and past" but to teach them the thinking skills demanded by a global society (Henshon, 2006, p. 121). In a similar vein, Starko (2005) maintains that "creative thinking is important for all students," for "neither our society nor the global community can afford citizens who do not think flexibly and solve problems" (p. 349). In the article "America's Looming Creativity Crisis," Florida (2004) argues that "education reform must, at its core, make schools into places that cultivate creativity" (p. 134). Similarly, Cropley (2001) contends that "creativity is necessary for economic and social progress" and that educators can promote creativity by reforming educational practices (p. 133). To that end, Florida asserts that the United States needs "the equivalent of a GI bill for creativity," funding research and development as well as providing opportunities for more students to attend higher learning institutions (p. 134). Sharing these social concerns, Wallis, Steptoe, and Miranda (2006) declare that the public school system must do more to prepare students for jobs that necessitate "creative and innovative skills" in the knowledge economy. Unlike many service jobs, these positions are not likely to be "outsourced or automated" (Wallis, Steptoe, & Miranda). As Wallis, Steptoe, and Miranda observe, the new economy requires that students learn to *think outside the proverbial box*. Though banal, this frequently appropriated expression reveals the premium that the global society places on creativity.

The Call for Creativity in Higher Education

From Public Policy Makers

From pre-school to college, the ability to think creatively is a significant educational goal—one for which public policy makers and other institutional stakeholders are vehemently calling. According to *A Test of Leadership: Charting the Future of U.S. Higher Education*, a report commissioned by Secretary of Education Margaret Spellings (2006), literacy among college graduates has declined throughout the past decade. Furthermore, "unacceptable numbers of college graduates enter the workforce without the skills employers say they need in an economy in which, as the truism holds correctly, knowledge matters more than ever" (p. x). Such skills encompass critical thinking, writing, and problem solving, among others (p. 3). As the authors of *A Test of Leadership* acknowledge, intellectual capital is increasingly important in a knowledge-driven economy where "ninety percent of the fastest-growing jobs" will necessitate some higher education (p. 1). Noting declining performance among United States college graduates and rising demands for higher education, the authors "urge postsecondary institutions to make a commitment to embrace new pedagogies, curricula, and technologies to improve student learning" (p. 4). These novel approaches to curriculum, instruction, and educational technology will involve, undoubtedly, the promotion of creative thinking skills.

At the crux of stakeholders' demands for greater institutional effectiveness and accountability lies the often tacit assumption that colleges and universities will promote creativity. As Couture (2006) remarks, accrediting agencies, boards of trustees, businesses, and industry insist that post-secondary institutions be accountable for student

learning while also holding them responsible for "developing, quite literally, creativity—

for producing an American workforce that can outdo any other in innovation,

entrepreneurship, and technical and scientific discovery" (p. 29). In response to the

question "And creativity is *what*?" Couture concludes, "It is both our American legacy

and future" (p. 30). It is the force that has resulted in America's being the world's leading

political and economic power. It is the force that has made the United States' higher

educational system one of the country's "greatest success stories" (U.S. Department of

Education, 2006, p. ix). It is the force that will determine the United States' economic

and educational success in the twenty-first century. Perhaps by explicitly expressing

creativity as an academic and institutional outcome, stakeholders can help colleges and

universities to foster it.

For "The Creative University"

The aforementioned outcome, among other possibilities, might encompass the

emergence of "The Creative University" as well as "The Creative Campus," both of

which illustrate the interconnection between the knowledge economy and higher

education (Duderstadt, 2000; Tepper, 2004). James Duderstadt, former president and

professor of science and engineering at the University of Michigan, refers to the current

age as "a time of unprecedented change"—one that challenges stakeholders to "transform

institutions of higher education into entirely new paradigms" through an entrepreneurial

spirit based on "energy and creativity." By collaborating, faculty and administrators can

establish an environment in which change is not perceived as a "threatening" occurrence

but rather as an "exhilarating opportunity" to embrace learning (Duderstadt). Anticipating

educational transformations in the twenty-first century, Duderstadt envisions many

alternative institutional models, including "The Creative University," whose imaginative pedagogies and extracurricular activities would "teach and nurture the art and skills of creativity." According to Petrowski (2000), few institutions—aside from the Buffalo State College Center for Studies in Creativity—currently prepare individuals to teach in the environment that Duderstadt envisages (p. 304). Paraphrasing an engineering expression, though, Duderstadt asserts that "the best way to predict the future is to invent it." By imagining tomorrow's institutions of higher learning, today's leaders will "take steps to create them" (Duderstadt).

For "The Creative Campus"

Like "The Creative University," "The Creative Campus" provides an exemplar for institutional change. In a *Chronicle of Higher Education* article entitled "The Creative Campus: Who's No. 1?" Tepper (2004) observes that "we live in a scorecard society," measuring students' aptitudes, intelligence, creativity, and personalities. Various organizations routinely award institutional grades to public schools as well as rank colleges and universities based on numerous factors, such as faculty-student ratios, faculty research, technology, endowments, diversity of the student population, among others. Though inherent in outstanding teaching, research, and public service, "creativity has been ignored in college rankings and assessments" (Tepper). Tepper, however, regards it as being no less important than the aforementioned criteria for comparing institutions. Referencing Florida's 2002 study, Tepper asserts that "creativity has become the sine qua non of a successful America." Indeed, nurturing creativity not only benefits individuals but also society, educationally and economically (Tepper). Concerned that creativity has remained "an undervalued policy goal for colleges and universities,"

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Tepper proposes that institutions establish a "creativity index" to measure and assess a campus's creative environment based on the following criteria:

- Collaboration among students and between students and faculty

- Cross-cultural interchange among diverse students and faculty

- Interdisciplinary communication on campus

- Time and funding allocated for research, sabbaticals, student independent studies, and research assistantships

- Tolerance for failure and the encouragement of risk-taking

The presence of such conditions contributes to the promotion of a creative campus—an environment in which institutional creativity thrives, thereby facilitating its growth in the classroom, and potentially, in the developmental classroom on the community college campus.

Creativity: The Driving Force of the Knowledge Economy

The Transition from Industry to Knowledge

The demands of the knowledge-based economy compel developmental educators to question the way in which they teach and their students learn. Not only pedagogical but also socio-cultural, the current problems facing basic skills instruction extend far beyond the classroom. A review of the literature related to the influence of global transformations on higher education, especially on community colleges, reveals that the new economy necessitates a new pedagogy (Hartley, 2003). Through their open-door policies, community colleges educate nearly half of the post-secondary students in America (Fields, 2004, p. 4). Historically responsive to their local communities' needs,

these institutions play a vital role in preparing diverse students for the challenges of the global marketplace (McCabe, 2000, p. 7). Whereas the manual laborers of the industrial age typically acquired one set of skills that lasted a lifetime, the knowledge workers of the information age must continuously hone multiple skill sets to remain economically competitive. Perhaps the most valuable skill in the global society is creativity, defined as the ability to find and solve problems by connecting prior knowledge to new situations (Seltzer & Bentley, 1999, p. 10).

The twentieth century, which began in the industrial age and ended in the information age, served as "the setting for continuous changes in the U.S. labor force" (McCabe, 2000, p. 18). In 1900, the United States' economy consisted primarily of goods-producing industries in which two-thirds of workers were employed in such areas as agriculture, forestry, fisheries, manufacturing, mining, and construction (Zeszokarski, 2001, p. 68). To keep abreast of changes precipitated by the industrial age and World War II, Americans needed to obtain higher levels of education (Zeszokarski, pp. 19-20). As Zeszokarski remarks, changes in industry resulted in new occupations that require a fundamentally different set of skills: Whereas yesterday's industrial workers dug, drove, lifted, and picked for a living, today's knowledge employees analyze, communicate, and create (p. 68). By 1990, the non-goods producing and service industries had grown to over 50% of the economy, while only 27.8% of Americans worked in the goods-producing sector (Zeszokarski, p. 18). Although workers in the industrial era tended to maintain a "relatively stable set of competencies," the new knowledge employees must simultaneously work and learn (Seltzer & Bentley, 1999, p. 9). Without regularly

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updating their skills, these workers risk becoming marginalized as they compete "within

a shrinking set of low-skill vocations" (Seltzer & Bentley, p. 9).

Technological advancement, organizational change, and increased global

competition have catalyzed the "shift from manual work" to "thinking jobs" that require

"a whole new range of skills," involving problem-solving, communicating, and managing

risks (Seltzer & Bentley, 1999, p. 9). The workplace has changed more in recent years

than at any other time in United States history (DiConti, 2004, p. 167). As the economy

evolved, the "primary currency for employment" at the end of the twentieth century

became higher education (McCabe, 2000, p. 20). A set of statistics reveals the dramatic

changes in educational requirements for employment. Throughout the 1950s, 60% of jobs

involved unskilled labor; 20% entailed skilled positions; and 20% necessitated

professional training (McCabe, p. 20). These figures have changed significantly, for by

the 1990s, 65% of jobs required skilled workers, whereas only 15% included unskilled

laborers. The need for professionally trained employees, such as doctors and lawyers, has

held steadily at 20% (McCabe, p. 20). Today, the working class, composed of those

involved in the manufacturing, construction, and transportation industries, constitutes

only 25% of the labor market (Florida, 2002, p. 9). Consisting of members from the

personal care, food service, and clerical fields, the service class accounts for

approximately 45% of the United States workforce (Florida, p. 9). A new class, however,

has emerged within the rapidly changing society.

The Emergence of the Creative Class

In *The Rise of the Creative Class*, Florida (2002) posits that the economic demand

for creativity has led to the growth of the "Creative Class" (p. 8). Today, 38 million

Americans, constituting 30% of employed United States citizens, belong to this new class (Florida, p. 8). The "core" of this class consists of individuals in science and engineering, architecture and design, education, arts, music, and entertainment. Surrounding the core are "creative professionals" in business, finance, law, health care, and related areas, all of which require problem solving, independent thinking, and advanced levels of education (Florida, p. 8). Unlike their counterparts in the working and service classes, who are paid to follow a supervisor's orders, members of the creative class are "paid to create" while exercising considerable autonomy and flexibility (Florida, p. 8).

"Human creativity" has become the "driving force" in the economy and in society (Florida, 2002, p. 4). Florida notes that in the workplace and in other areas of life, people value creativity—a quality that distinguishes human beings from other species. While many thinkers refer to the current period as the "information age" or the "knowledge economy," Florida calls it the "creative age," reasoning that human creativity powers the economy (p. 4). The ability to create new products and ideas as well as to sustain this creative activity in industries as diverse as food and fashion, automobiles and athletic wear, information technology and cosmetics will provide the "decisive source of competitive advantage" (Florida, p. 5). As Florida explains, some people mistakenly associate creativity with only grandiose achievements, such as a revolutionary invention, a breakthrough product, or an avant-garde idea. Creativity, though, also transpires on a much smaller, more mundane scale, manifesting itself in continual revisions and enhancements of existing products, activities, and processes. When nurtured by a dynamic interplay of economic, socio-cultural, technological, and artistic forces, creativity thrives (Florida, p. 5).

Creativity in the Knowledge Economy, Creativity in the College Classroom

"For the first time in history," knowledge represents the "primary source of economic productivity" (Seltzer & Bentley, 1999, p. 9). Seltzer and Bentley assert that "creativity" is "the central theme" undergirding the demand for knowledge (p. 20). In the current socio-cultural context, "the need for creativity has never been greater" (Edelson, 1999, p. 12). Cropley (2001) likewise argues that "creativity is necessary for economic and social progress" and that community stakeholders can promote creativity by reforming educational practices (p. 133). Echoing this assertion, Poon Teng Fatt (2000) views creativity as a valuable "commodity" in the knowledge-based economy. According to Florida (2002), although "creativity has come to be the most highly prized commodity in our economy," it is not a "commodity," per se (p. 5). Unlike commodities, people's "creative capacity" cannot be "bought and sold, or turned on and off at will" (p. 5). Florida maintains that the desire for creativity, so instrumental to the "new order in the workplace," must be stimulated and nurtured by the individuals who possess it, their employees, and the communities in which they live (p. 5). As "the fundamental source of creativity," then, human beings constitute the "critical resource of the new age" (Florida, p. 6).

The economy's shift from a "manufacturing base" to a "knowledge foundation" has necessitated that higher education professionals re-examine their goals (DiConti, 2004, p. 167). Because of the rapidly evolving nature of the global economy, education must in turn change (Edelson, 1999, p. 12). As Cropley (2001) asserts, "Considerations of the global marketplace and the skills needed for a successful career are reinforcing the importance of fostering creativity in higher education" (p. 158). Predicting that college

students will encounter unforeseeable "changes and advances in the workplace and in the world at large," Halpern (1994) contends that educators must transition "from an emphasis on rote knowledge of content, which is quickly outdated, to an emphasis on the processes of thinking, learning, and questioning" (p. 2). Because instructors must prepare students for careers in an ever-changing society, "we need colleges where teaching and learning are valued" (Halpern, p. 349). Perhaps no where in higher education are teaching and learning valued more than in the nation's nearly 1,200 community colleges, which, as Milliron and de los Santos (2004) remark, are "woven into the fabric of American life, and increasingly into the social tapestry of the world" (p. 106).

The Role of Community Colleges in the Knowledge Economy

Community colleges play a significant role in the knowledge economy. Since their inception in 1901, community colleges have been "very responsive educational institutions to societal change" (Young, 1997, p. 74). Levin, Kater, & Wagoner (2006) report that throughout the late 1980s and early 1990s, community colleges experienced dramatic changes in their missions, transitioning from a focus on "student and community betterment to a workforce development model that seeks to serve the 'global economy'" (p. 8). For many institutions, the concept of "community" now transcends the geographical boundaries of the local service area and encompasses the "state, the nation, and the world" (Zeszotarski, 2001, p. 67). In recent years, many community colleges and two-year college associations have incorporated the key tenets of the global economy into their vision and mission statements (Levin, 2000, p. 2).

Posted on its website, the vision statement of the American Association of

Community Colleges (AACC, 2006) reflects the rhetoric of the knowledge-based

economy:

> AACC will be a bold leader in creating a nation where all have access to the
>
> learning needed to participate productively in their communities and in the
>
> economy. Through AACC's leadership, community colleges will increasingly be
>
> recognized as the gateway to the American dream—the learning resource needed
>
> to sustain America's economic viability and productivity.

Such terms as "economy," "resource," "viability," and "productivity" reveal the AACC's

view of higher education as the driving force behind economic success. Emphasizing the

"new economy," "employability," and "applied" skills, community college leaders have

created programs to prepare students for vocations in science, engineering, technology,

investment banking, law, and real estate development, among others (Levin, 2000, p. 20).

For the many students who begin their post-secondary experience in a college-

preparatory classroom, developmental education provides the "gateway to the American

dream" envisioned by the AACC.

Today's employers want to hire highly skilled individuals, yet "many young

Americans do not have the competency for 21st-century employment" (McCabe, 2000, p.

vii). While up to 90% of the jobs in the knowledge economy require some post-secondary

education, only 42% of high school graduates are prepared for college-level course work,

and nation-wide, nearly one-third of high school graduates require some form of

developmental education upon entering college (U.S. Department of Education, 2006, p.

1; McCabe, p. vii). Given these statistics, McCabe asserts that the "future depends on

education" (p. viii). Citing the National Center for Education Statistics, Perin (2006) reports that all publicly funded community colleges provide developmental education (p. 340) through which they play a vital role—according to McCabe—in preparing diverse learners for the demands of the knowledge economy and, ultimately, in closing potential gaps regarding information competency (p. 7).

Also concerned about the changing nature of the workforce, the League for Innovation in the Community College formed a network in 2000 of sixteen innovative community and technical colleges tasked with establishing learning outcomes for the twenty-first century (Miles & Wilson, 2004, p. 87). Throughout a three-year collaboration, participants identified eight broad categories of skills needed for success in college and in the knowledge economy: communications skills, computation skills, community skills, critical thinking and problem-solving skills, information management skills, interpersonal skills, personal skills, and technology skills (pp. 89-90). The category of critical thinking and problem-solving consists of the skills identified by Angelo and Cross (1993) as representing higher order cognition—namely, the application of learned principles and generalizations to new problems, analysis, inference making, synthesis, creative thinking, and the distinction between fact and opinion (p. 20). Although the promotion of such skills may initially appear antithetical to the traditional goals of developmental education, it may be not only complementary but also critical.

The Definition and Characteristics of Creativity

What Is "Creativity"?

A Misunderstood Word

To understand the importance of creative thinking skills to developmental education, community college educators must further explore the definition of creativity. According to Fawcett and Hay (2004), "The word 'creativity' is often used loosely and with varying meaning" (p. 235), thus warranting close examination and explication. Eluding "simple definition and measurement," *creativity*—according to Bowers—has become "one of the most overused words in the educator's vocabulary" (Starko, 2005, p. 23; Davies, 2006, p. 42). Davies observes that *creativity* and its economic corollary *innovation* "have become 'buzz words' of our times, and are often misconstrued, misunderstood, and plainly misused" (p. 40). Some people associate creativity with the mad genius, the starving artist, the absent-minded professor, and the technical wizard, among other stereotypes. Applied to education, the term becomes even more ambivalent. On the one hand, educators may positively associate *creativity* with gifted and talented students in advanced classes. On the other hand, they may negatively associate the term with rebellious students who never seem to conform to the teacher's expectations. Invoking images of muses and divine inspiration, the phrase "creative thinking . . . must be demystified and brought down to earth" (Paul & Elder, 2006, p. 34), perhaps, in part, through an exploration of its definition.

No Single Definition

A review of the related literature reveals that *creativity* resists a "universally acceptable definition" (Jones, 1972, p. 5). Referring to a person, process, or product, the term *creativity* first appeared in the English language in 1678 (Bleakley, 2004, p. 466; "Creative," 1989/2007). At the height of the Enlightenment Age, which emphasized rationalism and empiricism, the word *creative* also became associated with productivity, leading to the contemporary definition of creativity as that which is both novel and useful, imaginative and productive (Bleakley, p. 466; "Creative"). Because "no consensus" about its meaning exists, scholars do not agree about "whether creativity is located in a person, a product, or a process" (Fleith, 2000; Petrowski, 2000, p. 305). Fleith explains that the foregoing categories—person, product, and process—in addition to the socio-cultural environment constitute the "various conceptions of creativity" and thus become the "focal points for researchers." Connor-Greene, Murdoch, Young, and Paul (2005) remark that creativity is an "elusive concept" that at times becomes trivialized by the criteria used to assess it (p. 216). Similarly, Fishkin (1999) describes creativity as a "fascinating combination of phenomena" that cannot be captured within a "single definition" (p. 5). Whereas Fisher (1990) defines creativity as a "collection of attitudes and abilities that lead a person to produce creative thoughts, ideas or images" (p. 31), Craft (2003) characterizes creativity as "possibility thinking," which, according to Jeffrey and Craft (2004), involves recognizing and solving problems, discovering alternative perspectives, and asking significant questions (pp. 81-82). Mirowsky and Ross (2007) characterize creativity as "productive activity involving originality, resourcefulness, and self-expression" (p. 385). Grisanti regards creativity as "the surprise,

the exception," inhabiting an individual's "inner libraries of memory, dream, and reflection" (Kay, 1998). Regardless of the discipline in which it occurs, creativity surprises people's expectations through the creator's insights and innovations.

A Quality to be Cultivated

Clearly, the word *creativity* resists a ready definition. Angelo and Cross (1993) observe that "creative thinking is a topic about which there is much discussion and speculation, but little agreement among teachers, researchers, and theorists" (p. 181). As Jones (1972) explains, creativity is "not a single factor" but rather "a collection of different abilities" that include "flexibility, originality, and sensitivity" (p. 5). According to Starko (2005), most definitions of creativity consist of two criteria: "novelty and appropriateness" (p. 5). For an idea or product to be considered "creative," it must ultimately be both new and useful to its creator and to others. Davidovitch and Milgram (2006) clarify that "a product may be a response of any kind," including a physical creation, an idea, or a solution to a problem (p. 385). Dineen, Samuel, and Livesey (2005) suggest "the generally accepted definition of creativity as a process producing an outcome that is novel/original and appropriate/valuable" (p. 155). According to Fobes (1996), the challenging aspect about being creative is not producing new ideas; it is about generating ones that others find useful (p. 20). The term *creativity*, then, refers to that which is at once new and unique, relevant and useful.

Though difficult to qualify, creativity may be something that individuals recognize when they see it. According to Lovitts (2005), "While it may not be possible to define creativity objectively," it is "something that people can recognize and agree upon" (p. 141). Unlike the ability to read, write, or compute, creativity is not a skill to be

mastered but a quality to be cultivated. As Seal (1997) posits, "Creativity cannot be conquered; it is a tacit, peripheral awareness that at times approaches a skill, but only rarely. It can be nourished, however, especially by the sorts of people who want to teach freshmen." By exploring the socio-cultural aspects of creativity, perhaps community college educators can gain additional insights into it.

Where Is "Creativity"? Csikszentmihalyi's Systems Model

Creativity as a Systemic Phenomenon

Researchers have explored not only the question of "What is *creativity*?" but also that of "Where is *creativity*?" Through his systems model, Csikszentmihalyi (1996) initiated a "provocative inquiry" that represents an "important conceptual advance" in the study of creativity (Gardner, 1993, p. 37). Csikszentmihalyi asserts that creativity is more than a "mental activity" transpiring in someone's mind; rather, it involves "the interaction between a person's thoughts and a sociocultural context" (p. 23). Instead of being an individual occurrence, it is a "systemic" one (p. 23). Although the term *creative* refers to that which is "new and valuable," the concept of value is determined not only by the individual creator but also by the culture in which she creates (Csikszentmihalyi, p. 25).

Three Creative Phenomena

Csikszentmihalyi (1996) contends that the word *creativity* is too broad and general, referring to many different concepts and thus generating confusion (p. 25). To clarify the term, he distinguishes among three creative phenomena:

- Individuals who share unique, original thoughts and who may be engaging conversationalists are often referred to as *creative*, yet because they do not make

long-lasting, significant contributions to the culture, Csikszentmihalyi regards

them as being *brilliant* instead of *creative* (p. 25).

- Individuals who experience life freshly and originally, making wise judgments
  and worthy personal discoveries about which the public does not know, are
  considered to be *personally creative* (p. 25).

- Those who have significantly influenced their culture, like Leonardo da Vinci,
  Edison, Picasso, and Einstein, may be deemed *creative* (Csikszentmihalyi, pp. 25-
  26). Because their achievements are public, scholars can more easily research and
  write about them (p. 26). Csikszentmihalyi considers personal creativity to be the
  "small-c" variety and cultural creativity as the "big-C" kind (p. 26). Transcending
  the merely personal, the latter form of creativity contributes to the culture through
  an interaction among the domain, field, and individual creator (p. 26).

The Domain, the Field, and the Individual

According to Csikszentmihalyi (1996), scholars can best observe creativity in the

interconnections within a system composed of three components (pp. 27-28). Consisting

of a set of "symbolic rules and procedures," the first part is the *domain*—that is, a

discipline or branch of knowledge with its own discourse, rules, and norms (pp. 27, 37).

The study of literature, for example, represents a domain, as does that of British

Romanticism or Victorianism at a more granular level. Domains exist within cultures,

defined as "the symbolic knowledge shared by a particular society, or by humanity as a

whole" (p. 28). As the second part of creativity, the *field* refers to the individuals who

serve as the domain's "gatekeepers," deciding whether a novel idea or product should

become part of the domain. In literature, the field encompasses college professors,

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literary scholars, professional editors, writers, teachers, librarians, literary critics, among others who decide whether a particular text will become part of the accepted canon. Lastly, the *individual person* represents the third element within the creative system. Csikszentmihalyi regards said person as being creative when she generates a new idea or product that the field considers worthy of being included in the domain.

Within Csikszentmihalyi's systems model, creativity is "any act, idea, or product that changes an existing domain, or that transforms an existing domain into a new one" (1996, p. 28). According to this definition, creativity is a phenomenon that profoundly influences a domain. A creative person, moreover, is "someone whose thoughts or actions change a domain, or establish a new one" (Csikszentmihalyi, p. 28). Rather than merely existing within one person's mind, creativity ultimately occurs within a socio-cultural context—"in the relationships within a system" (Csikszentmihalyi, p. 36). Gardner (1993) postulates that "nothing is, or is not, creative *in and of itself*," for "creativity is an inherently communal or cultural judgment" (p. 36). An idea, process, product, or other entity is not intrinsically creative but rather must be judged as such by a particular community. Through his model, Csikszentmihalyi posits that creativity transpires in a three-fold system consisting of a domain (a collection of cultural knowledge as well as the rules and procedures for using that knowledge); a field (the experts who, acting as the "domain's gatekeepers," identify and legitimize colleagues' contributions to the field); and individuals (those who must use elements in the domain originally to be deemed creative by members of the field, Lovitts, 2005, p. 141).

A Social Phenomenon Spanning a Human Lifetime

Synthesizing the research, Lovitts (2005) suggests that creativity resides less in a particular person than in the triarchic relationship among the domain, field, and individual. Several scholars, including Sternberg and Lubart (1995), Amabile (1996), Csikszentmihalyi (1996), and Sternberg (1997), have focused on creativity as a "social phenomenon that takes place within a social context and involves a sociocultural judgement of the novelty, appropriateness, quality and importance of a product" (Lovitts, p. 141). To make a noteworthy contribution to the domain, an individual must understand what the field values. The individual, in other words, must possess expert knowledge, accrued through research and experience over approximately ten years, within a specific discipline (Gardner, 1993, p. 32; Lovitts, p. 142). According to Gardner, noteworthy creators master a "formidable challenge" of coupling the "most advanced understandings" in their domain with the questions, curiosity, and wonder of their childhood (p. 32). By mining the inquisitiveness and open-mindedness of early childhood, adults can build upon the "capital of creativity" so necessary for making significant contributions to a particular domain (Gardner, pp. 31-32).

Gardner's observation about the preservation of childhood wonder in one's adulthood prompts further reflection. Researchers differ in their perceptions of creativity in children compared to that in adults. Piaget regarded early childhood as "the most creative period in life"—a time when children "construct the world" and their role in it (Cohen & Gelbrich, 1999, p. 150). Vygotsky, by contrast, maintained that childhood does not represent the apex but rather the beginning of creative thinking (Starko, 2005, p. 59). According to Vygotsky, a child's imagination is "not richer" but instead "poorer" than an

adult's, for the latter possesses more knowledge, deeper understandings, and wider interests than does the former (Starko, p. 59). Describing the "passionate interests of young children" as the "seeds of adult creativity," Cohen and Gelbrich (1999) as well as Fishkin (1999) help to reconcile the conflicting views regarding the development of creativity. By "questioning" and "searching," "inventing" and "discovering," children explore interests that can potentially germinate into the "mature" creativity of adults (Cohen & Gelbrich, p. 147; Fishkin, p. 18). This maturity could lead to the expertise that allows individuals to make substantive contributions to their domain.

Socio-cultural Influences on Creativity

Cultural Influences

The socio-cultural environment certainly influences the development of individuals' creativity. Ng (2003) explains that human beings construct their identities differently based on the cultures in which they live (p. 225). People socialized in an individualistic society, like that of many Western countries, which value personal rights and liberties, often experience "the psychological need for uniqueness and differentiation," resulting in "individuated behavior" (Ng, pp. 224-225). By contrast, individuals living in a collectivistic society, like that of many Eastern countries, which honor "social order and harmony," typically experience "the psychological need for validation and similarity with the social group," generating "conforming behavior" (Ng, pp. 224-225). Involving the introduction of new qualities in an existing domain, creativity is a type of individuated behavior (Ng, 2003, p. 224). Various psychological measurements, including tests for divergent and convergent thinking, suggest that people

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living in individualistic societies tend to display higher levels of creativity than their counterparts in collectivist societies (Ng, p. 230). By influencing individuals psychologically, culture shapes the development of their creativity.

Social Influences

Closely interrelated with motivation, social factors also significantly influence individuals' creativity (Amabile, 1996, p. 3). Writing about "a gap in creativity research," Amabile (1996) notes that many scholars have focused on the creative characteristics of famous people such as Einstein or Picasso as well as on differences regarding personality and intellect in individuals who score high on creativity tests compared to those who do not (p. 5). Given the scholarly focus on individual differences, other "potentially important areas of inquiry into creativity have been virtually ignored," including conditions and situations in the social environment that promote creative thinking (Amabile, p. 5). Espousing the need for "developing a social psychology of creativity," Amabile posits that "social and environmental factors seem to play a crucial role in creative performance" (pp. 5-6). An individual's social environment—that is, her working conditions (or, in the classroom, the learning conditions)—"can significantly increase or decrease the level of creativity produced" (Amabile, p. 17). Through an experimental approach to the study of creativity, Amabile has observed a "recurrent theme": The intrinsic motivation of working on "something for its own sake" because it is "interesting and involving" enhances creativity, whereas the extrinsic motivation of working on something to satisfy an "external goal" diminishes it (Amabile, pp. 6, 15, 17). Although the former is "conducive" to creativity, the latter is "detrimental" to it (Amabile, p. 15). When individuals' own interest and pleasure in an activity motivates

them, they become more creative than when others impose a goal on them (Amabile, p. 15). Responsive to the social environment, individuals with intrinsic motivation can achieve "high levels of creativity" (Amabile, p. 17).

The Characteristics of Creative People

Teachers' Perceptions of Creative Students

The term *creativity* engenders varied connotations, ranging from the positive to the negative. A child deemed "creative" may be thought of as either exceptionally gifted or terribly unruly. Teachers' perceptions of creative children appear to differ in theory and practice. According to a 1975 study conducted by Feldhusen and Treffinger, 96% of surveyed teachers supported the promotion of creative thinking skills (Cropley, 2001, p. 137). Clearly, the majority of teachers in this study favored the idea of teaching students how to think creatively. In the classroom, however, many teachers disapprove of or dislike traits associated with creativity, such as boldness, originality, and an interest in novelty (Cropley, p. 137). Dineen, Samuel, and Livesey (2005) report that "teachers tend to consider creative pupils problematic and disruptive" (p. 157). By contrast, teachers favor courtesy, punctuality, obedience, and the adoption of others' (i.e., the teachers') ideas (Cropley, p. 137). In terms of thinking skills, some teachers tend to prefer memorization and recall over critical thinking and individual decision-making (Cropley, p. 137). A consistent finding in educational research reveals that although teachers often dislike characteristics traditionally associated with creativity, such as impulsiveness, non-conformity, emotion, determination, risk-taking, and autonomy, they state that they value creativity (Westby & Dawson, 1995, pp. 2, 5). Confirming this finding through their

study, Westby and Dawson conclude that "potentially creative children may be at risk for being rejected by teachers" (p. 9). Perhaps, as Cropley suggests, teachers—whether of children or adults—need clarification about what creativity means and how to nurture its growth (p. 137).

Playfulness and Exploration

Creative people tend to exhibit intellectual playfulness and exploration. After studying the writing of creative individuals, Starko (2005) identifies three characteristics that they share: an enthusiastic exploration of ideas, a tendency to play and wonder, and the ability to transform observations into questions (p. 183). Brodsky Chenfield (2007) similarly reports that creative people exhibit "enthusiasm, excitement, spontaneity, playfulness, and imagination." Sipp also considers play to be an essential aspect of creativity, facilitating "spontaneous responses" that produce "unexpected and innovative results" ("Explore Your Creativity Through the Power of Play," 2007). When individuals can "explore freely without judgment," new ideas, innovations, and inventions emerge (Sipp, "Explore Your Creativity Through the Power of Play").

To explore ideas is to search beyond their surface implications. An insightful reader, for example, does not merely read a text but delves into its style, theme, use of figurative language, and allusions to other works. Integral to creative thinking, the process of exploration involves intellectual odysseys of various course assignments. As Starko (2005) contends, though, "Creative individuals do not just explore; they play," reveling in the opportunity to reflect on ideas for the sheer joy of doing so, for the "Oh, wow!" of the experience (p. 184). In both childhood and adulthood, creativity reveals itself in such play, defined as a "joyful, spontaneous activity" that melds reality with

fantasy (Jones, 1972, p. 12). Many students see math problems as "home*work*"; however, the individual who becomes utterly engaged in the process of solving them and genuinely has fun while doing so is at play. Although teachers may find teaching playfulness to be difficult, they can illustrate it through their passion for their discipline and for the act of teaching. By approaching "a subject not as content to be covered" but as an idea "worthy of curiosity," teachers can exemplify an infectious sense of intellectual play, thereby engaging students in the creative process (Starko, p. 185).

Persistence

When an individual immerses herself in play for an extended period of time, she exhibits persistence—another essential component of creativity—that ultimately enables her to pose questions and to generate solutions to problems (Starko, 2005, pp. 184-185). Andreasen notes that one of the primary personality traits among creative individuals is persistence, the ability to continue working on an idea or problem despite the fear of failure or the reality of rejection ("Creativity—Learned or Innate?" 2006). Possessing seemingly "indefatigable industry," creative thinkers often reflect at length on a problem before experiencing "unexpected flashes of insight" that lead to new ideas (Jones, 1972, pp. 15-17). A creative thinker, according to Jones, can transcend the "usual sequences of thought" to experience "different and productive sequences" that please both her and others (p. 7). Creative patterns of thought involve acts of comparing, contrasting, visualizing, interpreting, and problem solving (Scholl, 2005). Engaged in a creative process, the thinker finds a problem or issue worthy of being addressed, generates ideas for solving it, and evaluates those ideas (Starko, 2005, p. 192). Typically self-sufficient

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and independent, creative individuals enjoy lengthy periods of "disorder" or uncertainty, often experienced in the process of play (Jones, pp. 15-17).

Sternberg's Investment Theory of Creativity and Other Research-based Insights

        With its six separate but interconnected aspects, Sternberg's Investment Theory of Creativity, in addition to other researchers' insights, further elucidates the characteristics of creative people (Sternberg, 2006b, pp. 89-91):

- **Intellectual skills**: Sternberg (2006b) considers three intellectual skills— synthesis, analysis, and practical-contextual application—to be especially important to an understanding of creativity. Synthetic skills refer to an individual's ability to perceive problems in novel ways and to transcend the limits of conventional thinking. Analytical skills, furthermore, involve one's recognition of ideas that merit further investigation and of those that do not. Additionally, the practical-contextual skills pertain to one's ability to apply new ideas in different contexts and to persuade others of the merit of the ideas. Sternberg considers the confluence of these three skills to be valuable. Analytical skills without synthesis or practical application lead to critical, though not creative, thinking. Synthetic skills without analysis result in ideas that have not been scrutinized for their value. Practical-contextual skills in the absence of the other two may result in social acceptance of ideas because of the manner in which they were presented, not because of their inherent worth (Sternberg, p. 88). According to Sternberg's theory, these skills work best in conjunction with, rather than isolation from, one another.

- **Knowledge**: To advance a field, an individual must know a great deal about it, yet such knowledge can also lead to a closed mind—one that can no longer see beyond that which the individual has already mastered. Because of these two conflicting possibilities, Sternberg (2006b) explains that knowledge can either "help" or "hinder" creativity (p. 89).

- **Thinking Styles**: Sternberg (2006b) regards thinking styles as individuals' preferred ways of employing their skills—that is, how people decide to exercise their intellectual skills (p. 89). "Major creative thinker[s]" tend to think "globally as well as locally," perceiving both the big picture and the specific details, thereby discerning the questions worthy of investigation (Sternberg, p. 89).

- **Personality**: Sternberg (2006b) posits that creative individuals often possess a willingness to surmount obstacles, to take reasonable risks, to tolerate ambiguity, and to demonstrate self-efficacy, defined as belief in one's self (pp. 89, 91). Other personality traits associated with creativity include independent thinking, self-confidence, interest in complex problems, an artistic inclination, open-mindedness, persistence, and a quest for perfection (Baer & Kaufman, 2006, pp. 17-18). "Very curious about all kinds of things," "adventuresome," and "a little bit iconoclastic," creative individuals may at times "get into trouble," particularly when they are young, because they appear to be "rebellious," therefore becoming "unpopular" among their teachers and peers (Andreasen, "The Creating Brain," 2006). Andreasen, therefore, urges that teachers search for ways to acknowledge and encourage creative thinkers rather than inadvertently "punishing them for their originality."

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- **Motivation**: According to Sternberg (2006b), "Intrinsic, task-focused motivation is also essential to creativity" (p. 89). Individuals engaging in creative efforts do so because they love their work rather than the possible extrinsic rewards associated with it. Drawing upon the research of Sternberg and Lubart (1995), Lovitts (2005) observes that motivation is a "key factor that mediates between what a person *can* do and what a person *will* do" (p. 148). Passionate about their work, creative people are intrinsically motivated (Petrowski, 2000, p. 307).

- **Environment**: As Sternberg (2006b) notes, individuals need an environment that both supports and rewards their creative efforts. Without such a nurturing environment, people may never display, let alone realize, their creative potential (p. 89). According to Esquivel (1995), both nature and nurture influence an individual's creativity: On the one hand, some genetic factors may account for an individual's propensity for creativity; on the other hand, the environment in which one lives and learns, combined with other socio-cultural factors, influences the achievement of her creative potential (p. 186).

Additionally, Elder and Paul (2007) note that three conditions support a person's ability to attain high levels of creative thinking: "a minimal," though not necessarily exceptional, "level of innate intellectual capacity," an environment that stimulates and nurtures this capacity, and the intrinsic motivation to achieve one's creative potential (p. 37). Creative individuals, then, possess a confluence of the aforementioned factors.

The Creative Process

Creativity as an Exploratory Process

Complex and multi-faceted, the construct of "creativity" applies not only to people but also to a process. In an interview with Andreasen, Flatow (2006) asks, "What happens in the creative person's mind?" ("Creativity, Learned or Innate?"). Andreasen likens the creative process to "an almost aha-like experience" that "typically occurs" when an individual is in a state of somewhat "altered consciousness—walking, swimming, daydreaming," at which time an idea that had been in the "background" suddenly "crystallizes and an answer emerges." Most creative individuals do not know how the process will end. Writers, for example, may not know what will happen in their stories; artists may not know what picture they will ultimately create. Immersing themselves in an exploratory process, they learn and discover while creating. Andreasen (2006) notes that insight into this process holds "interesting implications for education"; indeed, "thinking about ways to help our children be more creative is another one of the very important social and educational questions that we face" ("Creativity: Learned or Innate?"). Such a question may also be relevant to adult learners enrolled in developmental education.

Creativity as Part of the Human Condition

"The act of creation," to borrow Koestler's words (1964), is an inextricable part of the human condition. Simonton (2006) invites readers to reflect on the role of creativity in life when he writes, "To a very large degree, creativity made the world we live in. Remove everything about us that was not the product of the creative mind, and we would find ourselves naked in some primeval forest" (p. 490). Language, art, music,

architecture, science, modes of transportation, forms of agriculture—all facets of society—reflect human creativity. Defining the "essence of creativity" as "the capacity to think up original solutions to day-to-day problems and challenges," Hospers (2003) maintains that the creative process involves the linking of previously unconnected ideas, ultimately leading to "new combinations" and innovations (p. 149). Engaged in the act of creation, creative thinkers see what others do yet think and behave in different ways (Hospers, p. 149).

An Illustration of Creativity

The invention of the printing press in the fifteenth century poignantly illustrates the creative process (Hospers, 2003, p. 149; Koestler, 1964, pp. 121-124). For centuries, people had engraved symbols on wooden blocks, stamped seals on letters, and pressed grapes to make wine. In 1450, however, the German monk Gutenberg, while attending an annual wine festival in Mainz, thought of combining these disparate elements in a novel way to construct a machine that could produce multiple Bibles. Because Gutenberg perceived familiar elements in an alternative way, the printing press was developed and revolutionized the world of letters, epitomizing creative thinking (Hospers, p. 149; Koestler, pp. 121-124). Often accompanied by serendipity, the creative process couples the fresh with the familiar as thinkers like Gutenberg both find and solve problems.

Creativity and learning are enveloped within a similar process of growth, change, and adaptability. Perceiving creativity as being intricately interconnected to learning, Edwards (n. d.) writes, "In many ways 'learning' and 'creativity' are two sides of the same coin; they are the currency of education" (p. 91). To learn is to create a personal understanding of new knowledge. In this process, learning encompasses creativity, which

simultaneously entails learning. As Edwards observes, the conditions necessary for effective learning to occur closely mirror those essential for creativity, including "inspiration, distillation, clarification and perspiration" (p. 92). Edwards further characterizes creativity as a process of "unlocking the potential" of children and adults. For such potential to be attained, however, a "culture of trust" based on a shared goal and an intellectually supportive environment must exist (Edwards, p. 91).

The Distinction Between Creativity and Related Concepts

Creativity and Intelligence

To understand the nature of creativity, community college educators should clarify its relationship to other concepts, beginning with intelligence. Traditional intelligence exams measure students' general ability factor, also known as a *g* factor score or IQ (Sternberg, 1997, p. 23). In the past, scholars had assumed that a close correlation existed between intelligence and creativity, which is, in fact, a primary aspect of most influential theories of intelligence (Baer & Kaufman, 2006, p. 15; Kaufman, 2006, p. 1065). Early twentieth-century researchers like Terman (1925) regarded creativity as a hereditary factor closely connected to intelligence and possessed by only a few exceptionally gifted people (Esquivel, 1995, p. 186). Later researchers, including Thurston (1952), Guilford (1956), Gardner (1983), and Sternberg (1988), perceived creativity as being related to yet conceptually different from intelligence (Esquivel, p. 186). A review of the contemporary literature reveals that although creative individuals often possess above-average IQs, the relationship between creativity and IQ scores

diminishes beyond an IQ level of 120 (Baer & Kaufman, p. 15). Though correlated, creativity and intelligence are not the same concept. In individuals with an IQ of 120 or above, "psychometric creativity is independent of psychometric intelligence" (Gardner, 1993, p. 20). At this level, IQ no longer exerts as strong of an influence on creativity, indicating that "creativity is not unusual or rare" (Petrowski, 2000, p. 306). The research further implies that individuals may be highly intelligent but not extraordinarily creative, or conversely, considerably creative but not exceptionally intelligent (Petrowski, p. 306). Creativity "is not restricted to cognitive or intellectual functioning or behavior"; rather, it encompasses a "complex mix of motivational conditions, personality factors, environmental conditions, chance factors, and even products" (Feldhusen & Goh, 1995, pp. 231-232). In addition to intelligence, creativity entails a host of social, psychological, environmental, and other factors.

An indirect relationship, then, exists between creativity and intelligence. Andreasen (2006) defines creativity as "an intellectual capacity that's not directly related to intelligence and that is the capacity to see new things, [form] new relationships, [and] create novel things" ("Creativity: Learned or Innate?"). As the ability to recognize new possibilities and forge synergistic relationships, creativity couples prior knowledge with new learning. According to Koestler (1964), "The creative act . . . does not create something out of nothing; it uncovers, selects, re-shuffles, combines, synthesizes already existing facts, ideas, faculties, and skills" (p. 120). A synthetic act, creativity is "the ability to interweave the familiar with the new in unexpected and stimulating ways" (Angelo & Cross, 1993, p. 181). Although most individuals of normal intelligence can enhance their creativity, few fulfill their potential (Connor-Greene, Murdoch, Young, &

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Paul, 2005, p. 216). Offering an educational perspective, Connor-Greene, Murdoch, Young, and Paul remark that "students are often capable of more creativity than their teachers think, but assignments may not allow or encourage them to demonstrate creative thinking" (p. 216). When teachers do not promote or reinforce creative thinking skills, students neither develop nor demonstrate their creativity, despite having the capacity for it (Connor-Greene, Murdoch, Young, & Paul, p. 220). This observation compels educators to explore the relationship between creativity and other terms with which it is easily confused.

Creativity and Talent/Genius

Creativity differs not only from intelligence but also from talent and genius. Whereas creativity refers to the quality of being novel and valuable within a socio-cultural context, talent involves the "innate ability to do something very well" (Csikszentmihalyi, 1996, p. 27). *Creativity* and *talent*, therefore, are not synonymous terms. That one is talented in a given area, such as mathematics, does not necessarily mean that she is also creative. Similarly, *genius* denotes *brilliance*, which is not the same as being *creative*, for one can be brilliant without being creative, and contrarily, creative without being brilliant. By understanding these semantic shades of difference, educators can gain insight into the nature of creativity.

Creativity and Divergent Thinking/Production

Yet another term with which creativity is often confused is *divergent thinking* (or *divergent production*). Whereas divergent thinking results in numerous responses to open-ended questions, convergent thinking involves a search for one definitive answer that can be memorized (Richards, 2001, p. 250). Convergent thinking refers to correct or conventional responses to test items; divergent thinking, by contrast, pertains to the generation of many different—perhaps unique and idiosyncratic—responses to questions (Gardner, 1993, p. 20). To this day, many people regard creativity as being synonymous with divergent thinking in part because of Guilford's compelling research (Sternberg, 2006a, pp. 4-5). According to Starko (2005), however, "divergent thinking alone is not creativity" but rather a tool for enhancing it (p. 192). Although divergent thinking helps individuals generate many ideas, they must go beyond this form of thinking by critically evaluating the merit of such ideas. Divergent thinking, then, provides a launching point for creativity, which involves finding a worthy problem, producing strategies for exploring the problem, and ultimately evaluating those strategies (Starko, p. 192). A complex construct, creativity encompasses aspects of both divergent and convergent thinking.

Creativity and Gender/Ethnicity

Developmental educators who teach a diverse spectrum of students may also be interested in learning about creativity in relation to gender and ethnicity. According to Baer and Kaufman (2006), no significant differences exist between men and women in terms of creativity, regardless of varying socio-cultural backgrounds (p. 22). Kaufman

(2006) also reports that "most studies have found no gender differences in creativity, and those that have found differences have not found any consistent pattern of differences" (p. 1067). Thus, male and female students possess similar potential for creativity. Kaufman further notes that "there are few significant differences in creative abilities across ethnicities" (p. 1066). The relatively small number of differences among individuals of various ethnicities reveals an opportunity for cultivating diverse students' creativity in the nation's community colleges, which, according to the American Association of Community Colleges (2006), serve 11.6 million students in both credit and non-credit programs. Often from minority families and lower socio-economic backgrounds, many community college students are academically under-prepared, thus requiring remediation in reading, writing, and/or math (Paulsen, 2001, p. 66)—courses in which they could potentially enhance their creativity.

The Assessment of Creativity

A Challenging Task

Just as the effort to define creativity has proven challenging, so also has that of assessing it. According to Cowdroy and de Graaff (2005), "Assessment of creativity has been a longstanding problem" (p. 507). Similarly, Starko (2005) remarks that "efforts to assess creativity have been as challenging as the quest to define it" (p. 419). Because of creativity's "complex and elusive nature" as well as the limitations of existing measurements, assessing creativity remains a "daunting task" (Starko, p. 419). "Given the complexity of the models and conceptions of creativity," remark Feldhusen and Goh

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(1995), "assessment of creativity could not be anything but complex" (p. 235).

Reflecting on humans' seemingly limitless capacity for knowledge, invention, and

innovation, Harris (2001) rhetorically asks, "Have you ever seen a creativity meter?" (p.

147). He then concludes that in the knowledge economy, "there are no limits to creativity

and ingenuity" (p. 148). Responsible educators nevertheless feel compelled to measure

that for which they teach or that for which they advocate should be taught. As Starko

acknowledges, unless teachers know how to identify student creativity, the goal of

enhancing it appears "doomed to fail" (p. 419). Therefore, the elusive question "How do

we measure creativity?" continues to provoke reflection and debate. According to

Connor-Greene, Murdoch, Young, and Paul (2005), "When educators teach and assess

students in a way that values creativity, academic performance improves" (p. 216).

Students' "creative performance improves" when they receive instruction and

assessments that emphasize the development of creativity (Horng et al., 2005, p. 357).

Tests for Creativity

Numerous tests for creativity exist, including the Thinking Creatively in Action

and Movement, Thinking Creatively with Sounds and Words, Guilford's Structure of

Intellect Assessments, the Wallach and Kogan Tests, the Remote Associates Test, the

Creative Reasoning Test, and the Torrance Tests of Creative Thinking (TTTC)—the most

commonly used of all (Starko, 2005, pp. 428-435). E. Paul Torrance significantly

influenced the scholarship of creativity through the Torrance Tests of Creative Thinking,

which measure divergent thinking in verbal and non-verbal domains (Sternberg ctd. in

Kaufman & Sternberg, 2006, p. 5). According to Gardner (1993), common questions on a

creativity test ask individuals to think of as many different uses for a particular object, different titles for a story, or different interpretations of an abstract drawing as they can (p. 20). An individual considered to be "psychometrically creative" can conceive of numerous divergent responses to such test items (Gardner, p. 20). After conducting creativity tests for several decades, psychometricians have concluded that though frequently reliable, such assessments are not necessarily valid (Gardner, p. 20).

Creativity tests often produce consistent results that cannot, unfortunately, be validated through other assessments. Creativity tests are reliable, meaning that an individual who repeatedly takes the same creativity test is likely to receive a similar score (Gardner, 1993, p. 20). These instruments, however, have not been proven valid in that the results have not been effectively correlated with other measures of creativity, such as an individual's performance in her domain. A person who makes creative contributions to her discipline, for example, may not perform well on a creativity test (Gardner, p. 20). Kaufman (2006) also notes that creativity researchers continue to debate the validity of tests that measure divergent thinking. Scholars question whether creativity can be measured in one or two domains, such as the verbal and figural on the TTCT, and even whether "the complex construct of creativity" can be adequately assessed by psychometric instruments (p. 1068). Observing that many critics regard such tests as being "narrow, easily faked and easily trained," Kaufman concedes that "these criticisms do have merit" (p. 1076). Gardner concludes that creativity tests, to an even greater degree than intelligence tests, have not successfully fulfilled the purpose for which they were designed—namely, to provide a reliable and valid measure of an individual's creativity (p. 20). According to Gardner, such instruments "have made little difference in

the broader research and educational communities" (pp. 20-21). In addition to lacking "predictive validity," tests for creativity have generally failed "because it's not really possible to capture the ability to be creative with a test" (Andreasen, "Creativity, Learned or Innate?" 2006). Kaufman, though, remains optimistic that a more impartial measurement, when developed, will enable scholars to obtain a more complete profile of a student or an employee, potentially reducing errors in college admissions or personnel hiring (p. 1076).

Resistance to Quantification

By developing reliable and valid measurements for creativity, educators could better recognize it and thus develop learning conditions that support and nurture it (Starko, 2005, p. 420). Professional consensus about these measurements might help teachers progress beyond the merely intuitive "I know it when I see it" (Starko, p. 420). Such a consensus, however, begins with agreement about the definition of creativity— agreement that continues to evade researchers. Differing definitions and theories of creativity lend themselves to different measurements, thus complicating the process of obtaining valid and reliable tools (Starko, p. 422). As Starko comments, "There is no universally agreed-on theory of creativity, no criterion for identifying creativity that satisfies all critics, and no standardized test that is free from concerns about some forms of reliability and validity" (p. 451). To date, no single instrument has successfully quantified the multitude of cognitive, affective, social, and cultural variables that influence a person's creativity (Starko, p. 451). Creativity remains "the most difficult of all psychological constructs to measure" (Feldhusen & Goh, 1995, p. 240). Perhaps this

resistance to quantification provides educators with greater insight into creativity's complex nature, ultimately fueling the scholarly quest to understand it.

Creativity: Educational Perspectives and Classroom Applications

From Creativity Research to Classroom Practice

After exploring creativity research, community college educators may wonder how they can apply it to developmental education. Lindström (2006) notes that teachers have traditionally regarded the nurturing of creativity as a lofty goal that is "diffuse by nature and difficult to translate into the everyday reality of school" (p. 54). How, then, can teachers use the insights gained from creativity studies to enhance developmental students' learning? As Kozeracki (2005) remarks, many community college instructors search for a bridge between educational theories and classroom teaching practices, regarding the "practical" as being "more useful" (p. 47). Similarly, Cambourne (2000) asserts, "Teachers the world over are eminently practical beings" who desire to translate theory into practice (p. 414). According to Guenter (1994), teaching for creativity entails three key components—instructor characteristics, the classroom environment, and pedagogical strategies—which, in conjunction with an appreciation of students' innate creativity, provide the "foundation for an education that enhances creativity" (p. 67). To assist developmental teachers with meaningfully applying knowledge from creativity research, the researcher has highlighted issues related to students' creative thinking skills, including teachers' personal characteristics, classroom learning environments, creativity-enhancing techniques, as well as the attitudes and habits conducive to creativity. Included

also is a synopsis of Glendale Community College's Multiple Intelligences/Learning for Understanding initiative as a benchmarking model for community college educators dedicated to promoting creative thinking among developmental learners. Perhaps by exploring these issues, instructors can translate creativity research into classroom practice.

Teaching for Creativity

Though closely related, the concepts of "creative teaching" and "teaching for creativity" differ from each other. Whereas creative teaching involves the use of engaging instructional strategies, teaching for creativity is designed to encourage students to think creatively. Yet as Jeffrey and Craft (2004) observe, "The former is inherent in the latter and the former often leads directly to the latter" (p. 84). The distinction between "creative teaching" and "teaching for creativity," in fact, may "have dichotomized an integrated practice," for teachers who teach creatively often promote creative learning among their students (Jeffrey & Craft, p. 77). In other words, creative teaching frequently engenders creative thinking.

Having originated around 1953, the idea of teaching for creativity may sound intimidating to some teachers (Bleedorn, 1993, p. 18; Cropley, 2001, p. 135). Many teachers question what creativity is, why it is important, and how it can be taught. The goal behind teaching for creativity is not necessarily to produce "creative geniuses" or to launch the next artistic renaissance but rather to help all students achieve their full academic and personal potential (Cropley, p. 135). Next arises an age-old question, posed by Flatow (2006) in an interview of Andreasen: "Can you learn creativity?" to which she

responds, "You can surely learn ways to be more creative" ("Creativity, Learned or Innate?"). Maintaining that "people can improve their ability to be creative," Andreasen laments the fact that many people do not have opportunities to cultivate and express their creativity. Reflecting on a similar question, Burke Hensley (2004) asserts that "curiosity and creativity cannot be taught in the traditional sense of teaching" but rather must be nurtured in "a rich environment" (p. 33)—one shaped by teachers' personality characteristics as well as by their instructional approaches and methods. Andreasen's observation that "we must have all over the world gifted people who don't do anything just for lack of opportunity and nurture" compels educators to design classroom environments in which students can develop their creative thinking skills.

The Influence of Teachers' Personality Characteristics
on Students' Creativity

Through their personalities, teachers can significantly influence the development of students' creativity. According to Esquivel (1995), studies of the effects of teachers' personalities on students' creative development reveal that teachers with "enthusiasm, empathy, dedication to students, personal flexibility, openness, creativity, and imagination" are the most successful in helping students develop creativity (p. 189). Often possessing a humanistic-developmental philosophy, these teachers express a positive attitude toward creativity, relate to students flexibly, accept differences in opinion, and think open-mindedly (Esquivel, p. 189). In their study of eight teachers at a central Texas community college, Hamza and Farrow (2000) note that the following personality characteristics among teachers foster students' creativity (p. 33):

- Sense of being approachable

- Personableness

- Creativity, imagination, innovation

- Care and compassion

- Knowledge

- Energy

- Ability to motivate others

- Leadership in terms of effective classroom management skills that provide for both structure and flexibility

- Insightfulness.

Of all these qualities, perhaps the most important is a teacher's ability to form good relationships with her students (Esquivel, p. 190).

Creating Positive Learning Environments

The Importance of a Positive Learning Environment

In addition to teachers' personality characteristics, the classroom environment shapes students' creativity, which is a product of both nature and nurture. Haring-Smith (2006) contends that although creativity certainly has a biological basis, it is "also nurtured" in environments that support risk-taking, autonomy, and flexibility (p. 24). According to Petrowski (2000), an expanding body of research on the significance of a creative climate at work exists, yet scholars have not fully applied these findings to the classroom (p. 310). Just as the organizational environment is important to employees' creativity, so also

is the classroom climate critical to students' creativity. The influence of the environment in the promotion of creative thinking certainly warrants scholarly attention.

The Role of Trust, Emotions, and Attitudes

As with other environments, a positive classroom atmosphere depends on the establishment of trust among its participants. According to Grisanti, the nurturing of creativity among students "begins with trust," which teachers can establish, in part, through attentive listening (Kay, 1998). Paraphrasing Rabbi Reb Zalman Schacter-Shalomi, Grisanti writes, "There are ears that have the power to open mouths." Through a "kind of empowering listening," teachers can encourage students to think creatively. Robinson and Kakela (2006) note that if "given the space and encouragement, students can learn how to be creative, express their creativity, and listen to others" (p. 202). An environment conducive to creative thinking encourages individuals to take intellectual risks while accepting some frustration and failure (Kay, 1998). Lovitts (2005) observes that the environment in which employees work significantly influences the fulfillment of their creative potential (p. 149). In a parallel fashion, the learning environment helps to determine the extent to which students feel comfortable expressing their creativity. According to Torrance (1980), "Emotional factors are more important than intellectual ones" regarding the "creative thinking process" (p. 306); this finding necessitates that teachers committed to helping students enhance their creativity understand the role of emotions.

Hamza and Farrow (2000) report that teachers who maintain positive attitudes toward learning and toward students often establish environments conducive to creative thinking and problem solving (p. 34). Indeed, "The feelings, attitudes, behaviors,

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boundaries, and constraints of both teacher and students influence the climate in a classroom" (Hamza & Farrow, p. 34). Fogarty and McTighe (1993) also comment that the learning environment that teachers construct influences "students' attitudes toward learning and their perceptions of themselves as thinkers" (p. 166). A positive learning environment promotes inquiry and a willingness to experiment, respects individuals' thinking styles, enables students to select some learning methods and resources, and welcomes diverse viewpoints (Fogarty & McTighe, p. 166).

The Qualities of Creativity-Enhancing Environments

A variety of adjectives describe creativity-enhancing environments, including "open, comfortable, relaxed, challenging, safe, supportive, trusting, humorous, energized, and collaborative" (Hamza & Farrow, 2000, pp. 34-35). Teachers skilled at establishing such environments implement the following practices (Hamza & Farrow, p. 35; Dineen, Samuel, Livesey, 2005, p. 159; Esquivel, 1995, p. 194):

- Maintaining and projecting a positive attitude toward students and the learning process

- Establishing a student-centered learning environment in which the students and teacher learn together

- Fostering playfulness, intellectual risk-taking, and exploration

- Encouraging students to engage in original, creative thinking

- Avoiding over-emphasizing lecturing

- Incorporating team efforts in the classroom

- Assigning interdisciplinary activities

- Citing real-life events to which students can relate

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- Focusing on student interests

- Honoring divergent thinking and student diversity

- Accepting uncertainty and ambiguity

- Allowing students to make choices when possible

- Asking open-ended questions that do not have a "yes" or "no" answer

- Supporting independent study

- Helping students to generate ideas when they experience mental blocks

- Creating challenging learning activities that inspire original thinking and exploration by helping students "progress gradually from being memorization-dependent to becoming independent thinkers and problem solvers" (Hamza & Farrow, p. 35).

- Maintaining an open mind by encouraging students to share new, opposing views and to raise challenging questions.

Acting like coaches and advisors, teachers who build creativity-enhancing environments make learning a fun, engaging, and active experience. Such teachers help students feel valuable by instilling in them a sense of pride and ownership in their classroom and school. Employing more cooperative learning practices than competitive ones, these teachers create personally meaningful, socially relevant learning experiences (Esquivel, p. 194). As Hamza and Farrow note, "Students look to teachers as academic leaders for guidance and direction" (p. 35). By leading insightfully and teaching passionately, teachers can help students become creative thinkers (Hamza & Farrow, p. 35).

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Teachers' Approaches and Methods

The Importance of Active, Engaged Learning

Through their approaches and methods, moreover, teachers can influence students' creative development. As Hamza and Farrow (2000) remark, "How someone teaches is vital to learning" (p. 33). Instructors' teaching styles significantly influence student learning outcomes. Cropley (2001) notes several factors that "militate strongly against" the promotion of creativity, including assignments that simply require the reproduction of facts, classroom settings that do not allow for risk-taking, as well as highly structured tasks that prohibit novelty and ambiguity (p. 145). The lecture has been the predominant approach to instruction on college campuses, yet this method does not engage students in the kind of active learning necessary for creative thinking (Cropley, p. 166). While listening passively to the professor lecture, students do not often engage in problem-solving activities. Citing Postman and Weingartner (1969), Connor-Greene, Murdoch, Young, and Paul (2005) remark that "traditional education is too often a process of 'Guess what I'm thinking' in which students try to supply 'The Right Answer'"—that is, the one they believe the teacher expects (p. 215). In contrast to this passive learning process, creative thinking entails perceiving ideas in alternative ways (Connor-Greene, Murdoch, Young, & Paul, p. 215). Approaches more conducive to the promotion of creativity include collaborative assignments, student portfolios, journals, peer assessment, and the like (Cropley, p. 167).

By employing a variety of instructional approaches, such as discussions, debates, small group activities, group projects, and student-teacher interactions, teachers can foster student curiosity, inquisitiveness, and a willingness to explore possibilities (Hamza

& Farrow, 2000, p. 33). To stimulate creative thinking in students, teachers must become

role models of creativity by exuding curiosity, passion, and originality (Cropley, 2001, p.

168). Rather than merely lecture, teachers can help students "*discover* and *construct*

knowledge for themselves and to solve problems" through various approaches (Cropley,

p. 168). As Cropley notes, teaching for creativity will challenge many students to

"unlearn previous study habits and attitudes to education" as instructors communicate a

value for higher order thinking skills and active learning (p. 173).

Creativity-enhancing Approaches

When actively engaged, students learn to think creatively. Connor-Greene,

Murdoch, Young, and Paul (2005) argue that teachers should seek innovative approaches

to promote students' "active engagement with ideas in a meaningful, reflective manner"

(p. 215). By viewing "knowledge acquisition as a means to creativity rather than an end

in itself," teachers can foster both divergent and convergent thinking (Dineen, Samuel,

Livesey, 2005, p. 164). "Creativity-fostering teachers," according to Cropley (2001),

often apply the following classroom approaches (p. 138):

- Developing and maintaining a classroom environment in which students feel comfortable talking, thinking, and working
- Socially integrating all students into a learning community within the classroom
- Encouraging cooperation while avoiding competitive situations that generate envy
- Allowing for alternating periods of activity and relaxation to stimulate reflection
- Modeling and appreciating a sense of humor
- Avoiding loaded questions and those that require a "yes/no" response

- Asking "What if?" questions to prompt inquiry and an exploration of ideas, and when relevant, objects

- Making statements that lead students to pose original questions

- Considering students' questions seriously

- Withholding immediate feedback that might generate fixed or stereotypical patterns of behavior

- Modeling the constructive examination of ideas, concepts, rules, and facts

- Encouraging independent thinking by allowing students to discover problem-solving strategies

- Allowing mistakes that do not physically or psychologically harm the individual student or other class members

- Viewing errors as a constructive sign of learning

- Engaging students in an analysis of their own problem solving and potential errors

- Supporting students' interest in a variety of academic areas

- Displaying acceptance and appreciation of unique thoughts, imaginative ideas, and new products

- Teaching students to become aware of and to value their own creative thinking as well as that of others

- Providing a variety of stimulating materials and resources for the development of ideas

- Balancing the importance of factual knowledge with creative thinking skills

- Promoting self-awareness and self-evaluation among students

- Helping students to handle the frustration and failure inherent in the learning process

- Rewarding courage as often as praising correct answers.

Such approaches promote a student-centered learning environment in which students feel comfortable taking intellectual risks and exploring their creativity.

No one particular approach appears to hold the key to unlocking students' creativity. Hamza and Farrow (2000) report that their study "did not reveal an ultimate method to use in teaching, or an ultimate way to foster a classroom learning climate that promotes creative thinking" (p. 35). Although the teachers differed in terms of their personalities, classroom climates, and instructional approaches, they taught intuitively, spontaneously, and uniquely, thereby positively influencing students' creative thinking skills (Hamza & Farrow, p. 35).

Techniques for Promoting Creativity

Educators committed to nurturing their students' creativity can explore a variety of techniques, which could conceivably help students master basic skills course outcomes. The techniques serve as a means for achieving two ends—on the one hand, promoting the acquisition of basic literacy skills, and on the other hand, fostering creative thinking. Rather than being mutually exclusive, these teaching goals—facilitated through various instructional techniques—positively reinforce each other. In describing several creativity-enhancing techniques, Guevara (n.d.) mentions a "set of creative activities that work" as a teacher's "bag of tricks" (p. 26)—a figurative expression implying that effective teachers perform a kind of magic in the classroom. Similarly, Roueche,

Milliron, and Roueche (2003) refer to award-winning community college teachers as "practical magicians" whose craft involves more art than science. Adapted largely from the K-12 educational sector and industry, the following techniques, when applied to the developmental classroom, might help students become more creative thinkers.

Problem Finding

Creative individuals tend to explore ideas with interest and enthusiasm, play with possibilities and wonder, as well as discover intriguing questions to raise (Starko, 2005, p. 183). "Wandering and wondering" are interrelated aspects of "learning and creativity" (Starko, pp. 183, 344). Starko maintains that "students can be taught the value of wandering and wondering," particularly through the questions that both teachers and the students themselves raise (pp. 183-184). Rather than simply asking "What do you see in this passage?" a teacher, for example, could ask, "What puzzles you about this passage?" The goal of such a question is not to focus exclusively on what students do not understand but rather to foster a sense of wonder. As Starko observes, productive individuals frequently engage in the act of wondering—questioning what they hear, see, feel, and experience (p. 344). Whereas questions raised in school often have one correct answer, those raised in the workplace typically do not. By teaching students to ask questions, teachers not only help them to think more creatively but also to become lifelong learners (Starko, p. 345).

To engage students in deep, meaningful questioning, teachers can help them distinguish among the various types of questions, including those involving comprehension, application, opinion, and imagination, among others. By asking different kinds of questions, teachers can involve students in different levels of thinking—from

basic skills acquisition to critical and creative cognition. On one end of the intellectual spectrum, comprehension questions usually have just one valid answer and serve to clarify students' understanding of a topic; on the other end, "what if" questions do not have one specific answer, reflecting instead a sense of wonder (Starko, 2005, pp. 345, 348). As Starko attests, "If the questions asked in school always have one and only one correct response, students are unlikely to believe that original ideas are valued or accepted" (p. 348). To express the value of creativity, teachers can encourage students to ask divergent questions—those for which not one but rather many different answers exist (Starko, p. 348). Additionally, Starko encourages teachers to model questioning behaviors in class (p. 345) by sharing their curiosity with such questions as "I wonder what would happen if we re-wrote the ending of this short story. What do you think we could write? What would the impact of that revision be?"

Emphasizing that the classroom should be a "place where students ask questions rather than just answer them," Starko (2005) suggests that instructors teach students to question ideas and concepts (p. 184). As students produce their own questions, they begin to think more critically and creatively about a topic, thereby playing a more engaged role in the learning process. By respectfully responding to students' questions, teachers can create an environment in which students feel comfortable asking them, even if not all of the questions can be fully explored because of time constraints (Starko, p. 345). In addition to posing original questions in class, students can find problems by maintaining an "idea notebook" in which they record their individual questions, ideas for writing, conversations with others about academic topics, and sketches (Starko, p. 189). Such a

tool enables learners to collect and reflect on thoughts and feelings that may lead to new ideas and products.

Divergent Thinking

Strategies for promoting creative thinking often focus on divergent thinking, a term associated with Guilford's Structure of the Intellect model. Defined as "the ability to think of many different responses to a given situation," divergent thinking encompasses the following elements (Starko, 2005, p. 189):

- **Fluency:** generating many ideas

- **Flexibility:** considering different categories and points of view

- **Originality:** proposing unique ideas

- **Elaboration:** expanding upon or improving ideas with additional details.

Teachers can promote divergent thinking through the questions that they pose. To help students enhance their fluency, for example, a math teacher might ask, "How many ways can you think of to solve this problem?" To promote flexibility, the teacher might ask, "What is another way that you could solve this problem?" To enhance originality, the teacher could invite students to "think of an approach to this passage that no one else might have considered." To nurture elaboration, the teacher can ask students to build upon a particular idea (Starko, p. 191). Teachers, however, should help students apply divergent thinking practices and other creativity-enhancing techniques judiciously. As Starko cautions, "If students are to use strategies to increase their creative thinking, the strategies must be taught in meaningful ways" (pp. 191-192). Students need to learn the appropriate contexts in which to apply various thinking skills. Likewise, Antonietti (1997) recommends that teachers help students determine which learning problems

warrant creative thinking (p. 75). Students need to think creatively when a definitive

answer for a problem does not exist; when prior experience is not necessarily helpful; and

when rules for solving the problem are not available (Antonietti, p. 75). In the case of an

open-ended discussion, divergent thinking techniques could help students advance their

understanding of an issue. In the case of an indisputable fact, though, divergent thinking

would be irrelevant; rather, convergent thinking would be necessary.

Brainstorming.

Brainstorming is perhaps the most familiar of all the divergent thinking

techniques for enhancing creative thinking (Starko, 2005, p. 193). Treffinger and Isaksen

(2005) consider *brainstorming* to be the most commonly used and often misused term

associated with creativity (p. 344). Invented by Alex Osborn in 1953, brainstorming is a

group activity in which each person contributes ideas regardless of their plausibility (Baer

& Kaufman, 2006, p. 17; Cropley, 2001, p. 138). Neither the teacher nor the participants

in a brainstorming activity should criticize the ideas, particularly by uttering "killer

phrases" like "How will you ever get that to work?" (Cropley, p. 138). At this stage of

idea generation, the quantity of thoughts supersedes the quality. Founded on the concept

of deferred judgment, traditional group brainstorming involves the production of

numerous ideas that are not evaluated until a later time according to the following four

guidelines (Starko, pp. 193-194):

- Individuals generate ideas before offering one another any criticism, whether
  verbal or non-verbal (e.g., eye rolling, frowning, and the like).

- All ideas, even the seemingly far-fetched, are encouraged.

- The generation of many ideas will likely lead to some good ones.

- Individuals can intellectually "hitchhike"—that is, build upon, combine, and play off one another's ideas.

The fluency achieved through brainstorming in the classroom could potentially lead to creativity thinking.

SCAMPER.

Another form of divergent thinking, Osborn's concept of SCAMPER—Substitute, Combine, Adapt, Magnify/Minify, Put to Other Uses, Eliminate, Rearrange/Reverse—is an acronym for a creativity-enhancing technique (Guenter, 1994, p. 66; Starko, 2005, p. 199). Designed to catalyze a "creative flow of ideas," this technique involves the application of the aforementioned action verbs to a particular problem. The "S," for example, prompts students to ask, "What material or part can I use instead of the usual one?" (Starko, p. 199). As Starko notes, substitutions, as in an artificial sweetener for sugar, often form the basis of innovations in society (p. 199). The "C" represents a novel combination expressed in a question like "How can I combine various ideas or parts to make something new?" (Starko, p. 199). Signifying the term "adapt," the "A" refers to a change that a student could make to an existing idea or product in order to form a new and better one (p. 200). Similarly, the "M" in SCAMPER can represent modifying a current idea or product, or alternatively, magnifying something by making it bigger or minifying it by making it smaller (Starko, pp. 200-201). The contemporary big screen TV provides a magnified model of the traditional television set. Today's personal home computer illustrates a minified version of yesterday's mega machines. Representing the act of putting an idea or product to different uses, the "P" challenges students to ask, "How can I use something in an alternative way?" (Starko, p.

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201). The "E," furthermore, refers to the elimination of various parts or ideas that do not positively contribute to an individual's goal (p. 202). Standing for "rearrange" or "reverse," the "R" in SCAMPER invites students to play with a product's or an idea's sequence, to rearrange its parts, or to take an opposite approach, perhaps in solving a difficult math problem or revising a paper. SCAMPER enables students to vary their perspectives and combine different possibilities to arrive at creative solutions (Guenter, p. 67). By approaching intellectual challenges with SCAMPER, students can produce new, creative ideas (Cropley, 2001, p. 141).

The Creative Problem Solving model.

Incorporating both divergent and convergent thinking, Creative Problem Solving (CPS) is a model for both describing and enhancing the creative process (Starko, 2005, p. 216). Though well-suited for open-ended inquiries, CPS is not necessarily appropriate for problems with one definitive solution (Starko, p. 46). Having undergone various iterations over the past fifty years, the current CPS model consists of four major components—Understanding the Challenge, Generating Ideas, Planning for Action, and Planning the Approach, each of which includes various stages (Starko, pp. 44-47):

- **Understanding the Challenge:** In this component, individuals study a major goal, challenge, or opportunity as they endeavor to clarify their thinking and establish the primary direction for their work. Within this component, individuals typically begin by articulating a brief and general goal. Next, thinkers will often explore data from varying perspectives and focus on the most critical elements. Individuals will then participate in the third stage of Understanding the Challenge, which involves framing questions—that is, generating various problem

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statements, often with the prompt "In what ways might we . . .?" (Starko, pp. 44-45).

- **Generating Ideas:** As the second component of the CPS model, Generating Ideas includes only one stage—that of producing ideas to address the problem statement(s) through a variety of divergent thinking strategies, such as brainstorming, SCAMPER, and others (p. 45).

- **Preparing for Action:** Entailing strategies for transforming possibilities into viable solutions, or "ideas into actions," this component includes two stages: Developing Solutions, which refers to the application of specific strategies for analyzing, enhancing, and choosing among ideas, and Building Acceptance, which involves making plans to implement the selected solutions. At the Developing Solutions stage, individuals use various criteria to evaluate each idea. When building acceptance, individuals construct action plans in which they delineate the necessary steps, resources, and responsible parties for the idea's implementation (pp. 45-46).

- **Planning the Approach:** At work throughout the whole process, this metacognitive component involves ongoing assessment of the problem-solving activities. Throughout this process, individuals question their direction and set of strategies (pp. 46-47).

The steps in the Creative Problem Solving model include both divergent thinking, which involves the production of many varied responses, and evaluative thinking, which entails the selection of the most viable ideas for additional exploration (Baer & Kaufman, 2006, p. 17). A flexible, fluid model, CPS can be used in its entirety or according to the most

instructionally relevant parts. Teachers might choose, for example, to emphasize just one or two components or even one or two stages within a given component (Starko, pp. 222-223). Indeed, the CPS model can help students enhance their creative problem-solving skills.

Appropriating metaphors and analogies through synectics.

Though focused more on the types than on the number of ideas generated, the appropriation of metaphors and analogies provides another vehicle for promoting divergent thinking that leads to creativity (Starko, 2005, p. 223). Through analogies, students learn to relate parallel ideas, discover insights, explore fresh viewpoints, and form original syntheses (Starko, p. 223). By learning to think metaphorically, students can make new, seemingly unrelated connections (p. 224), thereby enhancing their problem-solving abilities. A term used to describe the process of connecting disparate elements, *synectics* relies on analogies and metaphors. Employed by business and research organizations, this technique includes direct and personal analogies. In a direct analogy, students search for connections between one item, situation, or idea and another seemingly unrelated one. Students might draw a direct analogy, for example, between a sentence's verb and a car's engine to illustrate the idea that just as an engine powers a car, so also does a verb propel a sentence.

More complex than direct analogies, personal analogies challenge students to imagine that they are the object or situation being studied (Starko, 2005, p. 226). By personally analogizing themselves to a particular object, students learn to explore an alternative perspective, enhance their analytical and synthetic skills, as well as cultivate empathy for others. The students' familiarity with the subject matter as well as their

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developmental level will influence "the depth of connection and empathetic involvement in the analogies that they create" (Starko, p. 227). Though challenging, personal analogies help students to discover novel ideas and gain fresh insights into the subject matter (Starko, p. 227).

de Bono's Lateral Thinking Techniques

In addition to psychologists and educators, several business consultants, including Edward de Bono, have proposed creativity-enhancing techniques. A renowned creativity theorist in the popular press, de Bono has influenced the training programs of corporations and organizations across the globe through his concept of lateral thinking (Starko, 2005, p. 210). In contrast to linear thinking, lateral thinking involves unconventional, seemingly illogical approaches designed to help individuals discover "a different perspective or vantage point" while engaged in problem-solving (Starko, p. 210). Teachers might find de Bono's "Creative Pause" and "Six Thinking Hats" particularly applicable in the classroom.

The Creative Pause.

In this form of lateral thinking, individuals deliberately stop in the midst of a problem-solving activity to focus on a specific aspect of their approach not because a flaw in their thinking has occurred but rather because the pause promotes metacognitive awareness about the problem-solving act. Upon questioning their "train of thought," students can determine whether they should continue pursuing the current track or explore another one (Starko, 2005, pp. 210-211). This technique can help students become aware of their thinking process, thus honing their capacity for creativity.

Six Thinking Hats.

Also illustrative of lateral thinking, de Bono's Six Thinking Hats (Starko, 2005, pp. 214-215) provides a helpful technique for teachers to share with students. The instructional value lies in its applicability to a variety of problem-solving situations. In de Bono's popular technique, six different hats represent six unique ways of approaching a problem: The blue hat symbolizes a particular exercise's goals; the white hat signifies the information needed for solving the problem; the green hat involves the creative endeavor; the red hat focuses on emotion and intuition; the yellow hat represents a search for positive results; and the black hat depicts the need for critical evaluation. Through the Six Thinking Hats, teachers can animate presentations while modeling an exciting thinking tool for students. Wearing different hats, literally and intellectually, students discover a multitude of perspectives for approaching problems. Adaptable in a variety of disciplines, this approach enables students to visualize and experience the cognitive, affective, and social aspects of thinking, thus potentially enhancing their creativity.

The Development of Attitudes and Habits Conducive to Creativity

The aforementioned instructional tools can help students develop creative "attitudes or habits of mind," such as independent thinking, an openness to different possibilities, and persistence after the first attempt at an activity (Starko, 2005, pp.178-179). For creativity to thrive, teachers must help students strengthen their attitudes about it (Fasko, 2000-2001). Referring to the fabled image of "Archimedes leaping out of his bath," Claxton (2006) challenges the stereotypical portrayal of creativity as a "sudden moment of abrupt illumination" during which a facile solution to a complex problem

spontaneously emerges (p. 352). Although Claxton concedes that "inexplicable moments of sudden illumination and insight" do occur, individuals more typically experience "a softer, slower kind of groping for a way of articulating something" just outside their "linguistic grasp" (p. 352). Claxton explores these "gentle, generic, but often unsung, aspects of the creative process" that he terms "soft creativity" (p. 352). This "slow, hazy" form of thinking, which often serves as an "essential precursor to full-blown creativity," does not appear abruptly but rather evolves gradually through the development of various "psychological dispositions"—that is, "habits of mind," "skills," and "attitudes"— conducive to creativity (Claxton, pp. 353, 359).

To foster student learning dispositions that embody "soft creativity," Claxton recommends that teachers do the following:

- Encourage students to submit both rough drafts and final copies of their work in a notebook with the left side reserved for "drafting and doodling" and the right side for "the best draft so far" (p. 353). Teachers might also provide students with opportunities to discuss their initial ideas and explorations with one another, thereby focusing on the process as well as the product.

- Suggest that students maintain a journal for recording conversations, images, quotations, and "fleeting thoughts that did not go anywhere at the time" but may do so in the future (p. 353).

- Feature images of "successive drafts" of essays, poems, paintings, and other endeavors to make "visible" and to lend "legitimacy, value and status" to the "creative, hesitant drafting process" (p. 353).

Rather than take an overly "rationalistic approach" to the teaching of creative thinking skills, Claxton suggests that educators should help students cultivate habits of mind that promote creativity (p. 351).

In response to the question "Can creativity be taught?" Lindström (2006) also offers several suggestions for cultivating attitudes and habits conducive to creativity, which, despite having been designed for the visual arts, are applicable to other disciplines as well. As Davies (2006) notes, many individuals erroneously assume that art is the only discipline with "creative opportunities for teaching and learning" (p. 45); instead, such opportunities, like those suggested by Lindström, can occur across the curriculum:

- **Investigative work**: If teachers assign long-term projects involving themes relevant to specific subject areas, students can enhance their ability to perform investigative work—a significant aspect of creativity (p. 62). As Lindström asserts, to develop their creativity, students need sufficient time to "investigate, test and revise, to reflect and speak to peers, and to make critical assessments of their own work" (p. 63).

- **Inventiveness**: Teachers can foster inventiveness, a primary quality of creativity, in students by focusing not only on their creative products but also on their processes. Additionally, teachers can help students develop inventiveness by challenging them to research, experiment, and revise. "Characterized as problem-finders," creative individuals frequently "discover new challenges when working on a project" (Lindström, p. 63). To find worthwhile challenges and strategies for approaching them, individuals must become engaged in a project for a lengthy period. In addition to being mentally prepared for such endeavors, students must

also possess "a certain degree of courage and a willingness to take risks" (p. 63), nurtured by teachers committed to fostering creativity.

- **The ability to use models**: Essential to the development of creativity, the ability to emulate models means that students study and reflect on others' work, thereby enhancing their own. Though often perceived as being "private and individual," creativity invariably transpires within a "social and cultural context" (Lindström, p. 63). Teachers can positively contribute to "the conditions for creative work" by encouraging students to observe and learn from other individuals' creations.

- **Capacity for self-assessment**: Another important feature of creativity, the capacity for self-assessment develops when students have numerous opportunities to assess their work and to receive feedback from teachers and classmates. Lindström maintains that the most useful feedback emerges from clearly defined criteria specifying the primary aspects of an effective endeavor (p. 63). According to Lindström, "Assessment has an important part to play in the learning process" (p. 64). When honing their creativity, students benefit from not only instructional feedback but also self-assessments and peer reviews. The use of specific criteria and rubrics, furthermore, enables students to focus on important performance indicators, thereby facilitating their ability to reflect upon and discuss their learning.

Perhaps the qualities highlighted by Lindström will foster attitudes and habits conducive to creativity.

A Benchmarking Model for Creative Teaching and Thinking

Through its Multiple Intelligences/Learning for Understanding (MI/LfU) initiative, implemented in 1994, Glendale Community College in Glendale, Arizona, models many of the recommendations from the literature for promoting creative teaching and thinking. This model enables students to choose among various "creative, imaginative learning options" to demonstrate their mastery of course material (Díaz-Lefebvre, 2004, p. 49). Designed by educators who believe that "not all students learn or understand material in the same way," learning options allow individuals to learn concepts in ways other than the "paper-and-pencil" method (p. 51). In the MI/LfU approach, instructors select the relevant course topics and guide students in learning essential concepts and terms. The students then determine the concepts that they will address in their learning option, whose purpose is to offer creative choices and opportunities "accentuating the different intelligences" (p. 52). Learning in an environment where "creativity and the use of one's imagination" are "highly encouraged and rewarded," students choose learning options based on class material, potential test items, and supplemental reading (p. 52). By the 2004 publication of Díaz-Lefebvre's article, 2,400 Glendale Community College students had completed courses, including those designated as developmental English and basic skills math, with MI/LfU learning options (p. 52).

In the program, "students demonstrate their understanding of academic material through a performance of understanding" that includes the following learning options—some traditional, others innovative (Díaz-Lefebvre, 2004, p. 52):

- Acting

- Role playing

- Dance

- Book report

- Mime

- Collage

- Interview

- Poetry

- Drawing, sketching, or painting

- Sculpture

- Computer simulation

- Musical performance

- Traditional test

- Journal writing

Presenting to their peers and instructor, students share what they have learned through a particular learning option, and in the process, become "miniexperts on a subject, topic, or area" (Díaz-Lefebvre, p. 52).

To assess students' understanding of learned concepts as demonstrated in the learning options, participants in the MI/LfU program developed a grading rubric consisting of the following criteria: "Creativity/Imagination; Demonstration/ Performance; Organization/Format; Reflection/Metacognition; and Evidence of Understanding" (Díaz-Lefebvre, 2004, p. 53). Instructors use this rubric as a tool for establishing standards, planning approaches for the achievement of learning outcomes, motivating students, measuring progress, and communicating with learners (p. 53).

Additionally, students complete an evaluation form titled "Reflections on Learning" in which they provide feedback about the MI/LfU approach at the end of each semester (Díaz-Lefebvre, 2004, p. 53). In the 2002-2003 academic year, 100% of students reported that "having the option of choosing how one demonstrates learning is very important," and 85% of students indicated that "being allowed and encouraged to use imagination and creativity enhances and adds excitement to learning" (p. 53). In terms of instructional design and assessment, Glendale Community College's Multiple Intelligences/Learning for Understanding initiative serves as a valuable benchmarking model for community college educators committed to promoting creative thinking among developmental students.

Summary

As the survey of educational perspectives and classroom applications indicates, students can develop a repertoire of problem-solving skills by becoming aware of various thinking tools, attitudes, and habits conducive to the development of creativity. According to Starko (2005), "Instead of sitting and waiting for the muse to strike, students can use deliberate strategies to channel their creative thoughts in new directions" (p. 179). Numerous tools for stimulating creativity exist, including problem-finding, divergent thinking, and lateral thinking, to name a few (Starko, pp. 177-258). Such thought-stimulating techniques by themselves, however, do not generate student creativity. Without being taught how to use these thinking tools, students struggle to apply them to other academic contexts, and the techniques become only nominally useful. Starko asserts that teachers should explain to students how, when, and why particular

techniques will help them think creatively (p. 179). Through these lessons, students can become effective problem solvers not merely for a class period but potentially for a lifetime.

A review of the literature regarding creativity research and developmental education ultimately reveals the need for ongoing study. In his 1996 dissertation titled *Exploration in Teaching Strategies That Foster Creative Thinking and Problem Solving in a Community College*, Hamza studied instructional approaches used to promote creative thinking and problem solving at a central Texas community college. In doing so, he laid a critical foundation upon which other community college scholars could build. More recently, the featured column "Critical Thinking" in *The Journal of Development Education* unveiled an increasing emphasis on creativity's importance to developmental education. In a serial installment published in the journal's Winter 2006 and Spring 2007 issues, Elder and Paul investigate "the nature of critical and creative thought." Both past and present scholarship implies that community college teachers committed to preparing developmental students for the global, knowledge-based economy must teach students not only basic but also creative thinking skills. Much work, however, remains to be done in this interdisciplinary area. To help close the gap between creativity research and developmental education, the investigator explored their intricately interwoven threads through a qualitative study at Florida Community College at Jacksonville's Kent Campus.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

Introduction

As a review of the literature revealed, a limited body of knowledge about the relationship between creativity research and developmental education exists. To address this gap, the researcher designed a qualitative study that she conducted at a community college campus. As an inquiry into human phenomena, interactions, and discourses, qualitative research is about people, with the central goal of providing "an in-depth description and understanding of the human experience" (Lichtman, 2006, p. 8). The purpose of the study was to describe, analyze, and interpret the perspectives and practices of developmental instructors concerning the promotion of creative thinking in basic skills courses at the Kent Campus of Florida Community College at Jacksonville (FCCJ). The investigator brought meaning to the description through analysis and interpretation of the findings (Lichtman, p. 9). Hatch (2002) contends that "part of the power of qualitative work is that it provides careful description and analysis of social phenomena *in particular contexts*" (p. 43). In qualitative research, the term *contexts* refers to the settings in which social interaction takes place, a set of participants and their relationships, and the activities in which the participants engage (Hatch, p. 44). By studying instructors' constructions of creativity's role in developmental education at the Kent Campus, the researcher discovered insights that other community college educators might find applicable to their academic contexts.

Crotty (1998) challenges researchers to answer two questions when designing a study: What methodologies and methods will they employ, and how will they justify

these choices? (p. 2). Guided by the question "why?"—not "how much?" or "how often?"—the researcher employed a qualitative methodology, which was an appropriate choice given her goal of understanding the participants' perspectives about the teaching of creative thinking skills in developmental education. Enabling the researcher to "uncover the meaning a situation has for those involved" (Merriam, 2002, p. 11), a qualitative design was well-suited to the study's research problem and purpose. Situated in the literature, this study represented an attempt to extend the existing knowledge base about creativity research and developmental education.

Although many forms of qualitative analysis exist, such as grounded theory, phenomenology, narrative analysis, ethnography, case studies, among others (Merriam, 2002, pp. 6-10), the researcher constructed a basic interpretive qualitative study, for the purpose was to understand developmental educators' perspectives in one educational setting and therefore to describe, analyze, and interpret them so that others can understand as well. As Merriam attests, "All qualitative research is characterized by the search for meaning and understanding" of various phenomena, processes, perspectives, and points of view (p. 6). In a basic interpretive qualitative study, the researcher searched for meaning and understanding of the participants' perspectives through a variety of methods, including interviews, observations, and document analyses. This triangulation of methods, ideally, served to enhance the trustworthiness of the findings.

Analyzing the data inductively, the researcher identified "recurring patterns or common themes" to present a "rich, descriptive account of the findings" (Merriam, 2002, pp. 6-7) and thereby address a critical gap in the current knowledge base. Designed for community college scholars and practitioners, perhaps the study will lead to improved

practice in developmental education and to enhanced student learning. Perhaps, too, it will help teachers foster creative thinking in developmental students.

Qualitative Research Design

According to Merriam (2002), "The key to understanding qualitative research lies with the idea that meaning is socially constructed by individuals in interaction with their world" (p. 3). Whereas positivists conducting quantitative research believe that reality is a "fixed, single, agreed upon, or measurable phenomenon," constructionists engaging in qualitative research maintain that "multiple constructions or interpretations of reality" exist in a state of continuous change (Merriam, pp. 3-4). The goal of qualitative research is to study the particular meanings that participants construct within a specific setting (Merriam, p. 4). As Hatch (2002) explains, "Qualitative researchers try to understand the perspectives of their participants or informants" (p. 48). In seeking understanding, researchers conducting qualitative studies may espouse an interpretive, critical, or postmodern philosophical stance (Merriam, p. 4). While advocating for critical change in the teaching of developmental education, the author of the study did not criticize developmental instructors' approaches to basic skills instruction. Instead, she endeavored to understand their perceptions and practices, thereby gaining insight into the meanings that practitioners assign to creativity.

Interpretive qualitative research designs, like that employed in this study, consist of four characteristics (Merriam, 2002, pp. 4-5):

- A primary goal of understanding meaning constructed by people about their world and experiences. Focused on a particular setting, qualitative research involves an

attempt to understand a specific situation. Such an understanding is not necessarily a means to an end but an outcome in itself, providing insight into what the setting means for the individuals in it.

- The researcher as the "*primary instrument* for data collection and analysis" (p. 5). In qualitative designs, the researcher becomes a "human instrument" gathering, managing, analyzing, and interpreting data.

- An inductive investigative process. Unlike positivists, qualitative researchers do not begin their study with an a priori hypothesis that they then test through experimental research. Working from the specific to the general, qualitative researchers gather data to construct themes, hypotheses, and theories. The researchers build theories from observations and understandings garnered in the field.

- A "richly descriptive" final product (p. 5). Through words and pictures, instead of numbers, qualitative researchers communicate what they learn about a particular phenomenon. Such rich descriptions pertain to the investigated setting, the participants, and the specific activities undertaken. Quotations from interviews, field notes, and documents as well as excerpts from videos, electronic communications, and other media enrich qualitative data.

As a human instrument interested in understanding the perceptions and practices of developmental teachers regarding creative thinking at the Kent Campus, the researcher conducted a basic interpretive qualitative study that yielded a richly descriptive end product.

The following research questions guided the investigation:

1. To what extent is creative thinking important for students enrolled in developmental education courses at Florida Community College at Jacksonville's Kent Campus?

2. What are the characteristics of classroom environments that facilitate creative thinking among developmental students?

3. What instructional approaches and methods can teachers employ to foster creative thinking in developmental students?

In pursuing answers to these questions, the researcher inevitably faced yet another: "How long is long enough in the data collection of a qualitative study?" (Merriam, 2002, p. 26). In contrast to quantitative analysis, qualitative studies do not have a definitive end determined by statistical table or survey (Lichtman, 2002, p. 165). Instead, the qualitative research process "seems to reach a logical saturation point" frequently "dictated by time or availability of people to interview or scenes to observe" (Lichtman, p. 165). Engrossed in an iterative and recursive process, "qualitative researchers can always do more" (Hatch, 2002, p. 42). Merriam recommends that the "researcher be submerged or engaged in the data collection phase over a long enough period to ensure in-depth understanding of the phenomenon" (p. 26). Although both the researcher and the respondents were limited in terms of their scheduling, the study nevertheless felt "saturated" as recurring patterns and themes developed over time (Merriam, p. 26). When her research questions had been answered, the researcher determined that she had gathered a sufficient amount of data. As Hatch asserts, "Asking if research questions have been answered provides a way to judge if enough has been done" (p. 42). Ultimately, the researcher recognized the

time to stop collecting data when the same ideas repeatedly emerged and no new information surfaced (Lichtman, p. 165; Merriam, p. 26).

A Basic Interpretive Qualitative Study

Crotty (1998) urges researchers to identify, detail, and justify the research process (p. 6). Consisting of interviews, observations, and document analyses through which researchers endeavor to understand a specific phenomenon, a basic interpretive qualitative approach was well-suited to the study's purpose. The researcher sought an in-depth understanding of teachers' perceptions and practices regarding creative thinking in the developmental classroom. A basic interpretive study enabled her to "uncover and discover" the meanings that teachers had constructed about this phenomenon (Merriam, 2002, p. 19). In addition to interviewing twelve developmental teachers at the Kent Campus, the researcher observed them teach. Just as Hamza and Farrow did in a 2000 study of creativity at a central Texas community college, the researcher focused on the instructors' personality characteristics, classroom environments, and teaching styles that foster students' creativity. Like Hamza and Farrow, she examined the participants' instructional approaches to identify common qualities that might be "helpful to other teachers interested in promoting creative thinking and problem solving in their students" (p. 33). Additionally, she reviewed the college's learning outcomes and assessment forms and course outlines as well as the participants' syllabi to learn about the role of creativity in basic skills instruction at the Kent Campus.

Study Site

To conduct a qualitative study, researchers must locate a context in which their research questions will be effectively answered as well as one to which they will have access (Hatch, 2002, pp. 43-44). As Hatch remarks, "Deciding where to do a study is a key decision" (p. 44). The researcher selected her home institution as the study site. With developmental education courses offered at each of its five campuses, Florida Community College at Jacksonville provided a rich setting for exploring the research questions. The researcher conducted interviews and observations at the college's Kent Campus, which, located in Jacksonville's historic Riverside/Avondale district, facilitated her goal of interviewing twelve faculty members and observing each of their classrooms twice while maintaining a full teaching load.

Instrumentation

As the primary instrument for data collection and analysis, the researcher interviewed and observed developmental instructors to understand their perspectives regarding the role of creative thinking in basic skills instruction. She also conducted document analyses of learning outcomes and assessment forms, course outlines, and syllabi. According to Lincoln and Guba (1985), "The human-as-instrument is inclined toward methods that are extensions of normal human activities: looking, listening, speaking, reading, and the like" (p. 199). The researcher engaged in such activities in a natural setting—that is, in the instructors' offices and classrooms. In search of an in-depth understanding of the investigated phenomenon, she looked through the interpretive

lenses of the participants. Playing a "pivotal role in the qualitative research process," the researcher processed information through her eyes and ears, viewed settings, collected data, and ultimately, constructed realities (Lichtman, 2006, p. 12). Through an iterative process, she balanced data collection with data analysis and interpretation, thereby serving "as the filter through which information" was "gathered, processed, and organized" (Lichtman, pp. 12, 117).

Personal Statement

In this personal statement, the author wishes to clarify her "perspective and relationship to the problem discussed" (Merriam, 2002, p. 23). Informing any study's "chosen methodology" is the researcher's "philosophical stance"—that is, her "view of the human world and social life within that world" (Crotty, 1998, p. 7). Therein lie the study's assumptions and biases. As Crotty compellingly argues, "At every point in our research—in our observing, our interpreting, our reporting, and everything else we do as researchers—we inject a host of assumptions" (p. 17). Researchers form assumptions about human knowledge and inquiry, thus influencing the significance of their research questions, the purpose of their methodologies, and the value of their findings (Crotty, p. 17). A researcher's "experience, knowledge, skill, and background" also strongly shape the outcomes of a study (Lichtman, 2002, p. 12). Only by examining and clarifying these influences can researchers produce studies that readers deem meaningful.

Fryer (2006) writes of her research on creativity, "Because of my awareness that teachers have a profound influence on education, I wanted to find out what British teachers thought about creativity and how this affected their preferred ways of teaching"

(p. 122). Similarly aware of teachers' influence on student learning but also passionately committed to the mission of community colleges, the researcher also sought to explore instructors' perspectives and practices about creativity—yet within the context of developmental education at the Kent Campus. Subscribing to a humanistic-developmental view of learning, the researcher assumes that every human being possesses the capacity for creativity, though to varying degrees. Having taught developmental English courses at a community college for eleven years, the researcher believes in the inherent potential for creativity among all students. While some individuals may exercise their creativity to make major societal contributions, others may use theirs simply to solve everyday problems. Yet all students, including those in developmental courses, can enhance their creative potential, thus becoming more effective problem solvers in both school and the workplace.

As a student of community college leadership, the researcher feels concerned about the high failure and attrition rates among developmental students nationally. Now more than ever, students need to hone their creative thinking skills in preparation for work in the knowledge economy. The author sought to understand developmental teachers' perspectives and practices about this topic and to offer research-based recommendations, gathered from the literature as well as the field, for infusing creative thinking into basic skills instruction.

Individuals make sense of the world through their theoretical perspective, which is deeply embedded in an epistemology (Crotty, 2001, pp. 8-9). Embracing a constructionist epistemology, the researcher believes that human beings construct meaning through their interactions with one another in social settings. Just as the

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participants of the study constructed understandings of the investigated topic within a socio-linguistic context, so also did the researcher construct understandings of the participants whom she studied. She built meaning discursively as well as recursively when describing, analyzing, and interpreting the data. By examining the theoretical perspective and epistemology that undergird research methods and methodology, researchers become cognizant of how they conduct studies and present findings. Through this metacognitive process, researchers can produce "sound research" with "outcomes that merit respect" (Crotty, p. 13). The researcher's humanistic-developmental perspective, coupled with her constructionist epistemology, both defined and delimited the study.

As Merriam (2002) observes, human instruments possess "shortcomings and biases" that influence their research (p. 5). Instead of attempting to eliminate these biases, researchers should recognize, acknowledge, and monitor their influence on the collection and analysis of data (Merriam, p. 5). In this study, the researcher admits to being positively biased in favor of teaching creative thinking in the basic skills curriculum. Thus predisposed, she endeavored to listen to and learn from the participants' perspectives and practices, recording what she found, not what she wished to find.

Data Collection Procedure

Determined by the research questions, the data collection procedure for a qualitative study typically consists of interviews, observations, and/or document analyses. Because "multiple methods enhance the validity of the findings," Merriam (2002) advises that qualitative researchers employ more than one method for collecting data (p. 12). To

improve the study's trustworthiness, the researcher triangulated the data by conducting interviews, observations, and document analyses. Fieldwork combined with close readings of learning outcomes and assessment forms, course outlines, and syllabi enabled the researcher to understand the role of creativity in basic skills instruction at the Kent Campus.

Florida Community College at Jacksonville offers three developmental reading courses, two developmental writing courses, and two developmental math courses. To obtain an adequate sample size, the researcher investigated those courses that experience the highest enrollment. During the Fall 2006 and Spring 2007 semesters at FCCJ, REA 0010 (Introduction to Reading Techniques), ENC 0021 (Introduction to English), and MAT 0024 (Elementary Algebra) experienced the highest enrollments of the various developmental courses that were offered in the respective disciplines (Martin, 2007). However, because significantly fewer students are required to take a developmental reading course than are a writing or math one, the researcher investigated both REA 0010 and REA 0008 (Reading Skills) to attain a sufficient sample size.

Interviews

Crotty (1998) advises that researchers explain the kinds of interviews that they plan to conduct, the interviewing techniques that they will use, and the setting in which the interviews will occur (p. 6). The researcher interviewed twelve developmental faculty members at the Kent Campus during the Fall 2007 semester. To learn about the respondents' thoughts and feelings regarding the investigated topic, she engaged them in purposeful conversations directed by a set of questions (Lichtman, 2006, p. 116). As

Lichtman comments, interviews represent "one of the most important techniques for gathering data in any kind of qualitative research" (p. 127). On the continuum from highly structured to unstructured interviews (Merriam, 2002, p. 13), the inquirer conducted semistructured, also known as guided, interviews consisting of structured questions while allowing for a naturally flowing conversation (Lichtman, p. 118; Merriam, p. 13). In terms of the research protocol, the investigator interviewed each participant after the first observation and before the second one. Although the general structure of the interviews was the same for all respondents, the interviewer varied the questions as the conversations evolved, thus allowing the respondents to tell their own stories (Lichtman, p. 118).

To arrange the interviews, the researcher contacted prospective participants via email. Upon obtaining the participants' consent, she scheduled an initial classroom observation followed by a one-hour individual interview at a mutually convenient time in the interviewees' offices or classrooms. In addition to taking notes, the interviewer used a digital recorder to ensure that she obtained an accurate account of the discussants' comments. Seeking answers to the three major research questions in the study, the researcher raised many other questions during the interviews (see Appendices A and B).

Observations

While interviews provide a "secondhand account" of the investigated phenomenon, field observations allow for "a firsthand encounter" (Merriam, 2002, p. 13). Just as Crotty (1998) recommends that researchers clarify their interviewing methods, so also does he advise that they explicate the type of observations used as well as the nature

of participation (pp. 6-7). The researcher observed the participants teach in their natural setting—the developmental classroom. During the observations, she investigated the instructors' personality characteristics, classroom environments, as well as teaching approaches and methods. As a traditional observer, the investigator sought to understand the classroom dynamics without becoming an active participant. To acquire a thorough understanding of the investigated phenomenon, she visited each participant's class twice, once before the interview and once after it. The first observation provided the researcher with additional questions for the interview. The second observation permitted her to explore the participants' instructional practices in greater depth. Developmental class sessions varied from 100-minute to four-hour periods. The researcher visited the classes for a minimum of sixty minutes per observation and observed sessions taught at various times throughout the school day, including both day and night classes. In the role of the traditional observer, the researcher endeavored to remain unobtrusive, thereby filtering the classrooms' sights, sounds, communications, interactions, and dynamics. Guided by the study's research questions, the investigator recorded field notes about the investigated phenomenon.

Document Analyses

In addition to fieldwork, the researcher analyzed the college's learning outcomes and assessment forms and course outlines, obtained electronically, as well as the participants' syllabi, eleven of which were procured from personal requests and one from an instructor's Web site. The researcher analyzed the course descriptions, outcomes, and

objectives on the aforementioned documents, which provided a valuable basis of comparison with data gathered from the interviews and observations.

Participants

Because "qualitative inquiry seeks to understand the meaning of a phenomenon from the perspectives of the participants," researchers should select a sample "from which the most can be learned" (Merriam, 2002, p. 12). As Lincoln and Guba (1985) note, the purpose of naturalistic inquiry is to "maximize information, not facilitate generalization" (p. 202). The author of the study, therefore, chose a purposeful sample of participants who could provide rich information about the investigated phenomenon. The participants shared one principal characteristic: They taught developmental courses at FCCJ's Kent Campus. To obtain diverse perspectives that other community college educators might find relevant in their contexts, the researcher sought four faculty members from each developmental discipline—reading (REA 0008 and REA 0010), writing (ENC 0021), and math (MAT 0024). To enhance the study's generalizability (or transferability), she also selected both full- and part-time faculty with varying years of experience in the developmental classroom. Patton's concept of stratified purposeful samples (1990) proved helpful in choosing participants who "represent[ed] particular subgroups of interest," specifically, developmental faculty from different disciplines and with different instructional classifications regarding full-time or part-time teaching (Hatch, 2002, p. 98). These selection criteria enabled the author to engage various participants in the study and thus to provide a context applicable to other community college instructors. In Chapter Four, the author provided brief biographies of the twelve

participants in terms of their academic backgrounds and teaching experiences. The

information in these biographies came primarily from the interviews and the participant

demographic profile forms distributed prior to the interviews (see Appendix C for a copy

of the Participant Demographic Profile Form).

Data Analysis

Through field study, the researcher attempted to understand the participants'

perspectives and practices regarding creative thinking in developmental education.

While the interviews and documents provided insights into the informants' perspectives,

the observations shed light on their practices. As Merriam (2002) notes, "In qualitative

research, data analysis is *simultaneous* with data collection" (p. 14). Lichtman (2006)

similarly explains that the qualitative research process "moves back and forth between

data gathering/collection and data analysis" (p. 15). The investigator began analyzing the

data—that is, the interviews, observations, and documents—upon gathering them.

Anticipating the need to manage large quantities of verbal data, she carefully maintained

Microsoft Word files whose content she sorted, organized, and classified. Although

skillful data management can facilitate analysis, the researcher acknowledges that no

software program can derive the various themes that cut across the data (Merriam, p. 21).

This "highly idiosyncratic and intuitive" task must be performed by the researcher

(Merriam, p. 21). As Lichtman asserts, "The hard work of sifting, sorting, coding,

organizing, and extracting" (p. 166) belongs to the researcher who not only must state

that she will identify themes in the data but also must illustrate what the term "themes"

means, how they develop, and how they will be analyzed and interpreted (Crotty, 1998, p. 7).

In an interpretive qualitative study, the emergent themes refer to major concepts that the researcher identifies as recurring in the data. Through an inductive process, the researcher searched for said themes by identifying, coding, and categorizing concepts (Lichtman, 2006, pp. 164-165; Lincoln & Guba, 1985, p. 203). Qualitative data analysis is a "process for 'making sense' of field data" in a manner that is at once holistic and systematic (Lichtman, p. 161; Lincoln & Guba, p. 202). In any qualitative study, the researcher must ultimately make sense of a large amount of data (Lichtman, p. 14). Immersed in quotations from the interviews, episodes from the observations, as well as excerpts and references from the document analyses—that is, in myriad specifics—the researcher gradually formed generalizations leading to interpretations about the investigated phenomenon (Merriam, 2002, pp. 15, 22). For each interview, field observation, and document, the researcher created codes among which she looked for recurring patterns and related themes. Next, she constructed major categories of which some codes became subcategories (Lichtman, pp. 164-165). She then assembled the data into themes to address the central research questions. Offering an interpretation in the "form of words rather than numbers" (Merriam, p. 15), the investigator developed "rich, thick descriptions" designed to "persuade the reader of the trustworthiness of the findings" (p. 15). In doing so, she hoped to make a worthy contribution to both the knowledge base and practice of developmental education in community colleges.

The Establishment of Trustworthiness

Ensuring the trustworthiness of a qualitative study is particularly important in an applied field like education where "practitioners intervene in people's lives" (Merriam, 2002, p. 18). Researchers, therefore, must consider carefully their study's design and rigor (Merriam, p. 19). While the criteria for a conventional study's trustworthiness include internal validity, external validity, reliability, and objectivity, Lincoln and Guba (1985) propose alternatives that better fit a naturalistic approach—namely, credibility, transferability, dependability, and confirmability (pp. 218-219). To enhance the inquiry's credibility—the naturalistic parallel to internal validity, the researcher employed a triangulation strategy encompassing interviews, observations, and document analyses (Lincoln & Guba, p. 219; Merriam, p. 25). Through a triangulated approach, she checked what she learned from the interviews against what she observed in the field and read in various documents. Additionally, she ensured credibility by using member checks in which the participants commented on her interpretation of the data gleaned from interviews (Merriam, p. 26). Indeed, Lincoln and Guba regard member checks as "the most crucial technique for establishing credibility" (p. 314). By reviewing the inquirer's tentative findings, the participants were able to validate her interpretations of their perspectives.

As with other qualitative studies, the small, non-random samples of this investigation rendered statistical generalization of the findings impossible (Merriam, 2002, p. 28). The goal of the study, however, was not to discover truth for many but rather for a small, purposive sample in one particular academic context. Although statistical generalization was not possible, generalizability (or transferability) might be,

for individuals can transfer what they learn from one specific setting to other contexts (Lincoln & Guba, 1985, p. 316; Merriam, p. 28). As Merriam remarks, "The general lies in the particular; what we learn in a particular situation we can transfer to similar situations subsequently encountered" (p. 28). Through a process known as reader or user generalizability, community college scholars and practitioners can determine for themselves the "extent to which findings" from this study "can be applied to their context" (Merriam, pp. 28-29). On a case-by-case basis, readers can decide which aspects of the study apply to their educational settings and which do not. Incumbent upon the researcher was the need to provide "rich, thick description" as a strategy for enhancing the study's generalizability. Lincoln and Guba maintain that the researcher is responsible for providing "the *data base* that makes transferability judgments possible on the part of potential appliers" (p. 316). The researcher endeavored to facilitate generalizability by interviewing diverse instructors; observing classrooms at different times throughout the school day; and reading multiple course outlines and syllabi.

Also concerned about the study's dependability, which is akin to the conventional concept of reliability (Lincoln & Guba, 1985, p. 219), the researcher ensured that the results made sense in light of the collected data by basing analysis on quotations of the participants' words and references to their practices (Merriam, 2002, p. 27). If the researcher carefully wove together the threads of data collection and analysis, readers will be more likely to deem the study trustworthy. Lastly, by maintaining a journal in which she recorded her reflections about her observations, interactions, insights, and methods, the researcher enhanced the study's confirmability as well as other aspects of its trustworthiness (Lincoln & Guba, 327-328).

Limitations

Although the inquirer employed several strategies to enhance the study's trustworthiness, some limitations in its research design nevertheless existed. Despite attempting to vary aspects of the design, such as the selection of courses, participants, and observation times, the researcher did not achieve maximum variation (Merriam, 2002, pp. 29, 31)—typically regarded as "the sampling mode of choice" (Lincoln & Guba, 1985, p. 201). The researcher's own teaching schedule, for example, did not permit her to interview and observe instructors from multiple campuses. Thus, while the study exhibited diversity and variation in the times of the field visits, it was limited to one of the college's campuses. Some readers of the study may therefore not be able to readily generalize the findings to their own particular situations and academic contexts. Were time and scheduling not a limitation, the study might have become applicable to more individuals and educational settings.

Having chosen the study site based on considerations of time and resources, the researcher also acknowledges the potential limitation that results when one attempts to "balance the sometimes-conflicting roles of researcher and educator" in the same academic setting (Hatch, 2002, p. 47). As an institutional "insider," the researcher risked not being able to observe phenomena with the "eyes of a researcher"—that is, to see the phenomena afresh from the participants' perspectives (Hatch, p. 47). To address this limitation, the researcher examined the phenomena through the lens of basic interpretive qualitative inquiry whose goal is to describe, analyze, and interpret others' perspectives and practices, not to affirm one's own. At once an insider and an outsider, the researcher strove to listen, watch, and learn through a qualitative research design and methodology.

Summary

Qualitative research is ultimately about people, about their perspectives and experiences regarding a particular phenomenon in a particular context. In qualitative research, "It is important to understand the perspectives of those involved, uncover the complexity of human behavior in context, and present a holistic interpretation of what is happening" (Merriam, 2002, p. 25). To that end, the researcher described, analyzed, and interpreted developmental instructors' perceptions and practices concerning the fostering of creativity among developmental students at Florida Community College at Jacksonville's Kent Campus. To enhance the study's trustworthiness, the inquirer triangulated her research methods by conducting interviews, observations, and document analyses; additionally, she engaged the participants in member checks of the interviews.

As a qualitative researcher, she anticipated a voluminous amount of information from which she was to construct meaning. Through a "continuous and simultaneous" process of collecting and analyzing data (Lincoln & Guba, 1985, p. 335), she sought answers to her research questions. Providing rich, thick descriptions of her findings, the investigator addressed the current gap in the knowledge base about creativity's role in developmental education. The researcher hopes that the study, whose findings she presents in Chapter Four, will be helpful to community college educators.

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

Introduction

As Grubb et al. (1999), McGrath and Spear (1987), and Moore (2005) have observed in the literature, a central problem in community colleges' developmental education programs concerns the over-emphasis on basic skills instruction to the possible exclusion of higher order thinking. Although the ability to read, write, and compute establishes an indispensable foundation for future academic success, basic skills instruction alone does not teach students how to analyze, synthesize, and evaluate ideas—all of which are imperative in the current knowledge economy where creative thinking constitutes a primary form of capital. The purpose of this study, therefore, was to synthesize creativity research and developmental education by investigating the significance of creative thinking in developmental courses at Florida Community College at Jacksonville's Kent Campus.

To fulfill the study's purpose, the researcher employed a qualitative research design and methodology through which she explored the perspectives and practices of twelve participants selected through stratified purposeful sampling. Representing different disciplines (reading, writing, and math), the participants varied in their instructional classification (full-time versus part-time) and developmental teaching experience. Having designed a basic interpretive qualitative study, the researcher, as a human instrument, sought to understand the meaning that the participants assigned to the investigated phenomenon. She endeavored to enhance the trustworthiness of the study findings by triangulating the data collection through interviews, observations, and

document analyses and by obtaining member checks of the interviews from the participants. As Hatch (2002) comments, "When interviews are used in conjunction with observation, they provide ways to explore more deeply the participants' perspectives on actions observed by researchers" (p. 91). Together, the interviews and observations produced a more thorough understanding of the importance of creative thinking in developmental courses at the Kent Campus than either method would have alone.

Triangulated with interviews and observations, documents, which represent a form of unobtrusive data, serve as "powerful indicators of the value systems operating within institutions" (Hatch, 2002, pp. 117, 119). Because documents "can tell their own story," they offer a valuable point of comparison with data gathered from the field (Hatch, p. 119). The documents informing this study included FCCJ's learning outcomes and assessment forms and course outlines, which the researcher located on the college's website, as well as the participants' syllabi, procured primarily from personal requests. Quotations from the interviews, observations, and documents formed the basis for data analysis.

The following research questions guided the inquiry:

- To what extent is creative thinking important for students enrolled in developmental education courses at Florida Community College at Jacksonville's Kent Campus?

- What are the characteristics of classroom environments that facilitate creative thinking among developmental students?

- What instructional approaches and methods can teachers employ to foster creative thinking in developmental students?

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When inductively coding and analyzing the data, the researcher identified recurring patterns and emergent themes that provided answers to the aforementioned questions. As Hatch (2002) asserts, however, "It is not an exaggeration to say that no qualitative analysis is ever complete," for the researcher can always collect more data, explore additional levels of meaning, and search for other stories (pp. 149-150). Despite having completed the data collection and analysis processes, the researcher humbly acknowledges that the study findings represent the beginning of a new discourse that will ideally generate future research.

Chapter Four comprises the following sections: a description of the Kent Campus; a demographic profile of the Kent Campus's students; brief biographies of the participants; the study findings presented according to the research questions; and a summary. The discussion of the research questions entails various themes and sub-themes presented in the rich, thick descriptions characteristic of qualitative analysis. To protect the privacy and confidentiality of the study participants, the researcher assigned them fictitious names; she also used pseudonyms to refer to students observed in the field.

Description of the Kent Campus

With five campuses and seven centers, Florida Community College at Jacksonville is a multi-campus comprehensive community college that serves approximately 64,000 students annually ("About FCCJ," 2008). Located in Jacksonville's historic Riverside/Avondale district, the Kent Campus, which offers university transfer, workforce, and continuing education programs, is FCCJ's inaugural site. The history of this tranquil, tree-lined campus dates back to 1966 when it was founded as the

Cumberland Campus on the grounds of 100 former World War II military housing units ("Kent Campus: History," 2008). Rebuilt in 1979 as a collection of adjoining brick buildings, the campus was re-named in honor of Fred H. Kent, the first chairman of the college's district board of trustees ("Kent Campus: History").

On the Kent Campus's website, administrators, faculty, and staff express their commitment to "honoring the past" while "preparing for the future" in a "global economy and knowledge-based society" ("Kent Campus: Vision, Values and Goals," 2008). Campus leaders further indicate that "innovation and creativity" rank among their core values: "We seek to infuse innovative and creative practices in our work and learning environment based on the most up-to-date knowledge available" ("Kent Campus: Vision, Values and Goals"). The campus's value for innovation and creativity reflects the college-wide goal of preparing "students for distinctive success, and as outstanding citizens, in the global knowledge economy." Informing this institutional goal is the underlying vision that students will become "skilled in communication, critical and creative thinking, and the use of technology" ("President's Office: College Mission, Values and Goals," 2008). The vision, values, and goals statements of the Kent Campus and the broader college community reveal the importance of innovative, creative thinking to both academic and professional success in the current economy.

A Demographic Profile of the Kent Campus's Students

Data obtained from Stearns (2008), an FCCJ research analyst, provided a demographic profile of the Kent Campus's students. In the 2006-2007 academic year, including the fall, spring, and summer terms, 10,500 students attended the Kent Campus

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(Stearns, "Unduplicated College Credit and College Prep Students at Kent Campus").

This figure consisted of unduplicated college-credit and college-preparatory (or

developmental) students enrolled at the campus. As Table 1 illustrates, the largest racial

group at the Kent Campus consisted of whites (55.7%), followed by blacks (25.6%) and

Hispanics (5.2%). Over 8% of students, however, did not report their race (Stearns, "Kent

Campus College Credit and College Prep Students").

Table 1: Kent Campus Students' Races

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Race	Percentage
Asian/Pacific Islander	4.6%
Black	25.6%
Hispanic	5.2%
American Indian or Alaskan Native	.3%
White	55.7%
Not reported	8.5%

The Kent Campus's students, moreover, ranged in age from 16 to over 65, with the

largest cohorts consisting of 18 to 24 year olds (49.9%) and 25 to 34 year olds (27.8%,

Stearns, "Kent Campus College Credit and College Prep Students"), as displayed in

Table 2:

Table 2: Kent Campus Students' Ages

Age	Percentage
16-17	1.8%
18-24	49.9%
25-34	27.8%
35-44	12.8%
45-54	5.9%
55-64	1.5%
65+	.2%

Lastly, a significantly higher percentage of females (64%) attended the Kent Campus in 2006-2007 than males (35.9%) did (Stearns, "Kent Campus College Credit and College Prep Students").

The participants offered additional insights into the Kent Campus's students. Professor Davis, who prefers the term "college-prep" to "developmental," commented,

A lot of our prep students have been out of the classroom. They're not all coming straight from high school. A lot of them haven't been in school for 15 or 20 years. They need a brush-up, and there are other students that are just really, truly under-prepared.

As Professor Davis observed, the Kent Campus students vary in age and academic preparedness. Whereas some learners need only a light review of the basics, others require in-depth remediation. Professor Smith noted that many are "first-generation

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college students" who come from "more humble beginnings." As the first individuals in their families to attend college, they are often academically under-prepared for college-level course work. Professor Scott remarked that because many of her students work to support families, they have considerable "time management" and "financial obligations." As Professor Adams attested, "Nowadays, students are working forty to eighty hours a week, but still they have kids, they're married, they're taking six classes. They have way too much on their plates." With varying racial, generational, and academic backgrounds as well as familial and work-related responsibilities, the developmental students at the Kent Campus comprise a diverse group.

Brief Biographies of the Participants

Just as the students differed demographically, so also did the participants vary in race, age, gender, and instructional status (full-time versus part-time teaching). Brief biographies of the twelve participants in this study provide insights into their academic backgrounds and teaching experiences. The information in the biographies came from the Participant Demographic Profile Form (see Appendix C) as well as from the interviews. The initial interview item, "Please tell me a little about yourself in terms of your teaching background and interests," served as the source for much of the biographical data. To protect the participants' privacy and confidentiality, the researcher assigned them fictitious names.

REA 0008 and REA 0010 Participants

Professor Davis

In the 51 to 62 age group, Professor Davis is a white female who has taught at FCCJ for twenty-four years, the past eighteen of which have been full-time. In addition to reading, Professor Davis teaches English, student life skills, and business. Ranking her favorite courses as REA 0008 (Reading Skills), SLS 0001 (Foundations of College Success), and ENC 0021 (Introduction to Composition B), she remarked during the interview, "I've always been very interested in developmental education." After beginning her teaching career in the adult high school program at FCCJ, she transferred to the communications department. A certified cooperative learning trainer, she has completed numerous workshops and courses on developmental education. Also a certified developmental educator, she is currently pursuing an Ed.S. in developmental education.

Professor Jones

In the 51 to 62 age group, Professor Jones is a white male who has taught developmental reading courses part-time at FCCJ for nearly twelve years. For twenty-six years, he has taught at the elementary level and currently teaches third-grade students full-time at a public school. Reflecting on his early educational experiences, Professor Jones stated that he failed the first grade three times and eventually dropped out of high school. While serving in the military, he enrolled at FCCJ, and through the support of his instructors, discovered his calling as a teacher. Professor Jones, who teaches the three courses in the developmental reading program, ranked the ones he most enjoys as REA 0010 (Introduction to Reading Techniques), REA 0008, and REA 0006 (Basic Reading

Skills). Regarding training that he has taken specifically for developmental education, Professor Jones noted that he receives "ongoing professional development education via Duval County schools."

Professor Miller

In the 51 to 62 age group, Professor Miller is a white female who has taught for over thirty-five years in the Duval County public schools. She currently teaches in an Exceptional Student Education (ESE) program delivered via the telephone for high school students "who are desperately ill and under doctor's orders not to physically attend school." For the past ten years, moreover, Professor Miller has taught part-time in the developmental reading program at FCCJ. She teaches the three developmental reading courses and ranked the ones that she most enjoys as follows: REA 0010, REA 0006, and REA 0008. In terms of professional development related to developmental education, Professor Miller shared that she holds a master's degree in reading with special training in the diagnosis of reading disabilities.

Professor Smith

In the 51 to 62 age group, Professor Smith is an African American female who began her career in the public elementary school system and has taught developmental reading at FCCJ for fourteen years. After considerable reflection earlier in life, she chose to enter the educational field because she believed it would enable her to "have the biggest impact" on others and to "do the most good" professionally. As a full-time instructor, Professor Smith teaches all levels of developmental reading as well as SLS 0001 and SLS 1103 (Strategies for Success in College, Career and Life)—the college's freshman-year experience courses. She ranked the courses that she most enjoys teaching

in the following manner: REA 0010, REA 0008, and REA 0006. Regarding professional development related to developmental education, Professor Smith has completed courses and training at three universities.

ENC 0021 Participants

Professor Johnson

In the 36 to 50 age group, Professor Johnson is a white female who has taught both developmental and college-level English at FCCJ since 1998. Professor Johnson, who teaches full-time at the college, ranked the classes that she most enjoys as follows: ENC 0021, ENC 1101 (English Composition I), and ENC 0001 (Introduction to Composition A). While pursuing her master's degree, she held a teaching assistantship and taught developmental writing in a computerized classroom. Before working at FCCJ, she taught at community colleges in two other states. With fifteen years of experience in developmental education, Professor Johnson has completed training in human relations and the college's student life skills program; taken a practicum in teaching; and participated in a student success workshop.

Professor Reid

In the 36 to 50 age group, Professor Reid is a white female who teaches developmental and college-level English full-time at FCCJ. Professor Reid, who indicated that she has completed FCCJ's student life skills training session in terms of professional development specifically for developmental education, has taught developmental students for seven of her fifteen years of employment at the college. She, moreover, ranked ENC 0021, followed by ENC 1101, LIT 2000 (Introduction to

Literature: Writing About Fiction), and ENC 1102 (Writing About Non-fiction), as her favorite courses to teach.

Professor Scott

In the 51 to 62 age group, Professor Scott is a white female who has taught developmental English, specifically, ENC 0021, part-time for two and a half of her eight years of service at FCCJ. Prior to working at the college, she taught in high schools and in a business college. She also sold securities and investments for ten years. In terms of professional development related to developmental education, Professor Scott has completed postgraduate courses in reading and writing.

Professor Watson

In the 51 to 62 age group, Professor Watson is a female who chose not to specify her race by writing "no thank you" in the racial category on the participant demographic profile form. After working in marketing and sales for twenty-five years, Professor Watson returned to college to pursue a second career as an English instructor. A part-time instructor, Professor Watson has taught developmental English and student life skills courses at FCCJ for one year, although she has worked at the college in other capacities for four years. Ranking ENC 0021 and SLS 0001 as her favorite courses to teach, she has completed the college's student life skills training session to enhance her knowledge of developmental education.

MAT 0024 Participants

Professor Adams

In the 25 to 35 age group, Professor Adams, a full-time instructor, is an African American male with fifteen years of experience in teaching developmental math, five of which have been at FCCJ. Professor Adams traces his passion for math to his adolescence when he began tutoring his mother who had returned to college after a twenty-five year hiatus. As his mother's grades improved from C's and D's to straight A's, his "curiosity about math grew." He exclaimed, "I've always had a love for math ever since I was able to help my mom." Since that time, his motto has been to "help the world love math" as much as he does. Of the eight math courses that Professor Adams teaches, MAT 0024 (Elementary Algebra), STA 2023 (Elementary Statistics), and MAC 1105 (College Algebra) are his favorites. In terms of professional development related to developmental education, he has completed the college's student life skills training session; courses about the philosophy of education, curriculum development, tests and measurements, and math education; as well as training in Blackboard and the software program CourseCompass.

Professor Carson

In the 25 to 35 age group, Professor Carson is a white female with approximately ten years of experience in teaching developmental math at FCCJ. A full-time instructor, Professor Carson ranked MAT 1033 (Intermediate Algebra), MAC 1105, and MAC 1140 (Precalculus Algebra) as her favorites of the six courses that she routinely teaches. In addition to teaching math at FCCJ, she has tutored in the college's learning centers and taught at the elementary, middle, and high school levels. Currently pursuing her Ph.D. in

math education, Professor Carson is also enrolled in the Online Professor Certificate Program through Florida Community College University (FCCU), the college's professional development office, for she believes that a "good teacher remains a student."

Professor Hart

In the 36 to 50 age group, Professor Hart is a female who classifies herself as "other—white." While teaching math at another college located in Jacksonville, she worked as a part-time instructor at FCCJ for approximately eight years. For the past four years, she has taught math and statistics full-time at the Kent Campus. Of the six courses that she regularly teaches, she ranked STA 2023, MAT 0024, and MGF 1106 (Topics in College Mathematics) as her favorites. With fourteen years of experience in teaching developmental students, Professor Hart has attended several conferences related to developmental education.

Professor Roberts

In the 36 to 50 age group, Professor Roberts is an African American male with 19 years of full-time experience in teaching developmental math at FCCJ. Since middle school, he has been tutoring students in math. During his first year in graduate school, Professor Roberts became the math lab coordinator at his university, and during his second year, he helped to manage a lab program for "at-risk students—students who were economically at a disadvantage and were taking prep courses." Through the lab environment, Professor Roberts "became more sensitive to developmental students" who often experienced "math anxiety" as well as "poor time management and note-taking skills." Of the ten math courses that Professor Roberts teaches, he ranked his favorites as MAT 0024, MAC 2233 (Calculus for Business and Social Sciences), and MAC 1105.

Professor Roberts did not respond to the question about professional development on the participant demographic profile form.

Study Findings

Introduction

During the Fall 2007 semester, the researcher investigated the role of creative thinking in developmental education courses at FCCJ's Kent Campus. Through triangulated data collection, she conducted interviews, observations, and document analyses of twelve participants who provided insights into the study's central research questions. From the interviews, the researcher explored the participants' perspectives about creative thinking; from the observations, she learned about their practices in the developmental classroom; and from the document analyses, which consisted of FCCJ's learning outcomes and assessment forms and course outlines as well as the participants' syllabi, she examined the courses' objectives and learning outcomes. When analyzing the data inductively, the researcher engaged in "a systematic search for meaning" (Hatch, 2002, p. 148) from which numerous themes emerged, thus enabling her to address the research questions. To present a rich, thick description of the findings, she organized this section of Chapter Four according to the guiding research questions. Gathered from multiple sources, the data for each research question comprise various themes and sub-themes concerning the investigated phenomenon. Although college-wide documents contain bibliographic citations, quotations and references from the interviews,

observations, and syllabi do not because of the assurance of confidentiality to the study participants.

Research Question One

Introduction

Through interviews, observations, and document analyses, the researcher sought the participants' perspectives about research question one: To what extent is creative thinking important for students enrolled in developmental education courses at Florida Community College at Jacksonville's Kent Campus? Before inquiring about the role of creative thinking, she asked the participants to discuss their instructional goals, thereby establishing a context for the investigation. Upon learning about their goals, she engaged the informants in a conversation about the definition of creativity, the significance of creative thinking in developmental courses, and the creative potential of developmental learners. The organization of this section reflects the themes that emerged during the study, including the following:

- The role of developmental education at the Kent Campus

- The objectives and outcomes of FCCJ's developmental courses

- The participants' instructional goals

- The informants' definitions of creativity

- The relationship between confidence and creativity

- The influence of the K-12 educational system on students' creativity

- The relationship between students' perceptions of the learning task and creativity

- The importance of creative thinking in developmental courses

- The creative potential of developmental students.

As the data coding and analysis unveiled, the participants varied significantly in their assessment of the significance of creative thinking in developmental education courses: Some informants considered this goal to be peripheral to the emphasis on basic literacy skills, another deemed it optional, and still others regarded it as imperative. Despite their varying views about the role of creative thinking in the developmental classroom, the respondents overwhelmingly concurred that their students possess the capacity for creativity.

The Role of Developmental Education at the Kent Campus

Several participants view developmental education at the Kent Campus as a vehicle for closing the gaps in students' knowledge of basic literacy skills. Professor Jones reflected, "I think the state and the college have come to recognize so many gaps between public education and the college side." As McCabe (2000) reports in the literature, only 42% of students graduate from United States high schools with the required skills for completing college-credit course work (p. vii). Professor Hart likewise noted that "these days, unfortunately, we have many students, who, when they come to college, don't have a good background, so they need to take the developmental courses." Offering a socio-economic perspective about the benefits of developmental education, Professor Jones opined, "The state recognizes that to get people off welfare and to make them more successful . . . , we have to close those gaps. That's what we're doing here; we're just closing in the gaps." After similarly observing that "a lot of students just come into your classes with educational gaps in their learning," Professor Adams concluded that "we as

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educators have to find out where the gaps are for each student and fill in those gaps so that the student can understand the whole concept." Likening developmental education to a "bridge" between high school and college-credit courses, Professor Jones speculated that "if you put them in a regular class right now, they're going to fail" primarily because of insufficient study skills and a poor sense of self-esteem. He asserted that because of developmental education, "everybody has a chance" to succeed both academically and professionally. Designed to close the educational gaps of under-prepared students, developmental education appears to play a significant role at the Kent Campus.

The Objectives and Outcomes of FCCJ's Developmental Courses

To gain insights into the objectives and outcomes of FCCJ's developmental courses, the researcher reviewed the learning outcomes and assessment forms as well as course outlines for each disciplinary area. Analyses of these documents revealed that although the principal instructional goal remains the development of basic literacy skills, the promotion of higher order thinking, particularly critical thinking, also factors prominently into developmental curricula.

REA 0008 and REA 0010.

The catalogue description on the course outline for REA 0008 (Reading Skills) reads as follows:

> This fundamental reading course develops vocabulary, comprehension, learning strategies and study skills presented through a wide range of interdisciplinary readings. In order to complete this course successfully, students must satisfy the course requirements and achieve a passing score on the exit level test. ("REA 0008: Reading Skills," 2007, p. 1)

The second in a sequence of three developmental reading courses within the communications discipline, REA 0008 addresses such topics as reading strategies, vocabulary development, comprehension of paragraphs and brief passages, reading rate efficiency, and the use of "higher order thinking skills based on short selections" (p. 4). The adjective *fundamental* in the catalogue course description reveals a primarily skills-oriented focus on the development of basic reading and study strategies. The purpose statement under "Course Objectives" on the course outline provides additional evidence of REA 0008's skills orientation: "The purpose of this course is to develop basic reading skills" (p. 4). However, reference to the cultivation of higher order cognitive skills, particularly to critical thinking as an intellectual competency, appears in Section Four (Intellectual Competencies) and Section Five (Learning Outcomes and Method of Assessment) of the learning outcomes and assessment form as well as under the list of course topics on the course outline.

Section Four of FCCJ's learning outcomes and assessment form for each developmental course specifies the following options regarding intellectual competencies:

- Reading
- Speaking
- Critical analysis
- Quantitative skills
- Scientific method of inquiry
- Writing
- Listening

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- Information literacy

- Ethical judgment

- Working collaboratively

Check marks appear in the boxes next to competencies deemed appropriate for a particular course. REA 0008 entails the following intellectual competencies:

- Reading

- Critical analysis

- Writing

- Listening

- Information literacy

- Ethical judgment

- Working collaboratively

In addition to the communications competencies of reading, writing, and listening, REA 0008 encompasses the development of information literacy, ethical judgment, and collaborative work. Although the course learning outcomes and assessment form also defines critical analysis as a competency, it does not explicitly address the promotion of creative thinking.

Section Five of the learning outcomes and assessment form for REA 0008 itemizes a variety of learning outcomes, such as demonstration of an enhanced vocabulary; recognition of stated and implied main ideas; identification of supporting details and the author's tone; recognition of organizational patterns and transitions; the ability to make logical inferences; the detection of authorial bias; among others. Methods of assessment for these learning outcomes include examinations, oral presentations, cooperative

projects, journal writing, web-based activities, electronic discussions, and "skill-specific tasks."

Additionally, one of the learning outcomes reads as follows: "Students will demonstrate higher order thinking skills in discussion and on response questions for reading selections." Assessed in the same manner as the other learning outcomes, this one suggests a focus on the development of higher order cognition. Constituting 15 of the 60 course contact hours, or 25% of instructional time, the use of "higher order thinking skills based on short selections" involves activities associated with critical thinking:

- Making inferences

- Drawing conclusions

- Distinguishing between fact and opinion

- Detecting tone and bias

- Recognizing purpose and point of view ("REA 0008: Reading Skills," 2007, p. 4).

In the literature, Gong (2005, p. 40) as well as Yang and Lin (2004, p. 36) note the following aspects of critical thinking: questioning premises, identifying assumptions, making inferences, reasoning analytically, interpreting, and evaluating—skills cultivated in REA 0008. Although an analysis of the learning outcomes and assessment form and the college course outline revealed that REA 0008 focuses predominantly on the development of basic reading skills, the fostering of higher order thinking, especially critical thinking, also appears to be a significant instructional objective.

Following REA 0008 in the developmental reading sequence, REA 0010 (Introduction to Reading Techniques)

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is designed to enhance basic reading skills and to develop higher-level vocabulary

and comprehension skills, textbook reading techniques and learning strategies

needed for success in college. In order to complete this course successfully,

students must satisfy the course requirements and achieve a passing score on the

exit level test. ("REA 0010: Introduction to Reading Techniques," 2007, p. 1)

The catalogue course description of REA 0010 suggests a dual focus on both "basic

reading skills" and "higher-level" ones pertaining to vocabulary and comprehension. Like

the description for REA 0008, that for REA 0010 emphasizes fulfillment of course

requirements and a satisfactory score on an exit exam as the criteria for successful course

completion. In addition to encouraging students to read for "personal satisfaction as well

as academic and intellectual growth," REA 0010 contains a purpose statement that

involves helping learners to "improve reading skills in order to prepare for the demands

of college courses" (p. 4). REA 0010 places an increasing emphasis on reading for both

personal enrichment and cognitive enhancement.

Although many of the topics covered in REA 0010 parallel those in REA 0008, subtle

differences exist. Both courses explore vocabulary development, comprehension, and

reading efficiency, but REA 0010 introduces a focus on test-taking skills. Whereas the

REA 0008 course outline includes a recommendation of 15 contact hours for the

development of higher order thinking skills, the REA 0010 outline suggests that 20 of 60

instructional hours, or 30% of the course, be devoted to the promotion of "critical reading

skills." Similar to the list of higher order thinking skills on the REA 0008 outline, that of

critical reading skills on the REA 0010 outline entails the following:

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- Author's tone

- Author's purpose

- Detection of bias

- Making of inferences

- Forming of judgments

- Development of conclusions

- The distinction between fact and opinion

- The recognition of valid and invalid arguments ("REA 0010: Introduction to Reading Techniques," 2007, pp. 4-5).

While allotting an additional 5% of instructional time to the cultivation of critical reading skills, REA 0010 includes the same intellectual competencies as REA 0008.

The learning outcomes and recommended methods of assessment for the two courses, moreover, are similar. Just as references to higher order thinking and critical analysis recur throughout the REA 0008 course materials, so also do they in the REA 0010 documents. One of the learning outcomes on the learning outcomes and assessment form for REA 0010, for example, reads, "Students will use higher order thinking skills in discussions, on response questions and in other academic textbook materials." Like the REA 0008 course documents, those for REA 0010 appear to define higher order thinking in terms of critical thinking as opposed to creative thinking. In fact, neither the REA 0008 nor the REA 0010 materials contain direct references to creative thinking.

ENC 0021.

Like REA 0008 and REA 0010, ENC 0021 (Introduction to Composition B) is a "college prep" (or developmental) course taught within the communications discipline. The catalogue course description for ENC 0021 reads as follows:

> ENC 0021 is an introductory course in composition which provides students the necessary information to gain greater proficiency in basic writing skills. As a result of carefully planned learning experiences, students should be able to write clear, adequately developed, logically organized paragraphs as well as an optional brief essay which conform to the conventions of standard American English. Students must pass both the course and two state exit tests in order to proceed to ENC 1101. ("ENC 0021: Introduction to Composition B," 2007, p. 1)

As an "introductory" writing course, ENC 0021 emphasizes the development of "basic writing skills"—namely, the ability to write clear and effective sentences and paragraphs. To complete ENC 0021 successfully, students must pass both the course work and a state exit exam, which consists of a grammar test and a paragraph test.

Providing further evidence of an emphasis on basic skills, the learning outcomes and assessment form delineates the following learning outcomes:

- Understanding and using "the conceptual and organizational skills" necessary for paragraph writing

- Understanding and using standard American English word choice, grammar, spelling, capitalization, punctuation, and sentence structure

- Recognizing and using the "basic conceptual and organizational skills" essential to essay writing

- Understanding and using technological skills requisite for successful college writing.

Assessed through writing assignments, graded homework, classroom exercises, and two state exit exams, the learning outcomes primarily concern basic skills.

Like the developmental reading courses, ENC 0021 includes critical analysis—in addition to reading, writing, listening, and ethical judgment—as one of its intellectual competencies. Terms like "logically organized" and "conceptual and organizational skills" in the course documents suggest an underlying focus on critical thinking skills. Twenty-eight of the 60 contact hours, or 47% of instructional time, are allocated for the development of conceptual and organizational skills involving paragraph planning, paragraph writing, and in-class, timed writing. The term *creative thinking*, however, does not appear on either the learning outcomes and assessment form or the college course outline for ENC 0021.

MAT 0024.

Taught within the mathematics discipline, MAT 0024 (Elementary Algebra) is designated as a college-prep (or developmental) math course that, according to the catalogue description on the college credit course outline,

> is designed for students who have had little or no algebra. The major topics in this course are sets, real numbers and their properties, exponents and polynomials, linear equations and linear inequalities, as well as an introduction to applications, factoring, rational expressions, radicals (square roots), and graphing in two variables. Satisfactory completion of this course requires passing the course and the state exit examination. ("MAT 0024: Elementary Algebra," 2007, p. 1)

Involving an exit exam, MAT 0024 emphasizes basic skills acquisition for academically under-prepared students—those with "little or no algebra" background.

On the learning outcomes and assessment form for MAT 0024 (2003) appear numerous learning outcomes divided into two categories: those learning outcomes reflecting what the "successful student should develop" and those indicating what the "successful student has reliably demonstrated" regarding "basic knowledge of facts, concepts of algebra, and understanding of the application of mathematical principles to other disciplines through real-world applications." Whereas the former set of outcomes concerns a set of attitudes, dispositions, and thinking habits conducive to success in math, the latter pertains to basic skills acquisition.

The first category of learning outcomes states that students should cultivate an "appreciation of mathematics," a "positive attitude" toward the subject, and "confidence in their abilities to learn and use mathematics." To demonstrate their mastery of these learning outcomes, students experience such assessments as homework, instructor observation, class discussions, cooperative learning activities, computer activities, quizzes, and tests. Of particular significance is the inclusion of "critical thinking skills" as a learning outcome to be assessed through "solving problems on homework" in addition to the aforementioned methods. Just as the demonstration of higher order thinking skills is a learning outcome in REA 0008 and REA 0010, so also is the development of critical thinking skills in MAT 0024. In fact, "critical analysis," like quantitative skills, reading, speaking, writing, listening, and collaborative work, constitutes an intellectual competency in the course. The term *creative thinking*, however, does not appear on the course documents for MAT 0024.

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Requiring the demonstration of "basic knowledge," the second category of learning outcomes for MAT 0024 includes numerous items, some of which follow:

- Understanding the language and operations on sets

- Performing operations on rational numbers (adding, subtracting, multiplying, and dividing)

- Simplifying algebraic expressions

- Factoring completely

- Distinguishing between linear and quadratic equations.

According to the learning outcomes and assessment form for MAT 0024, students must master 30 mathematical skills, reflected under the list of course topics on the course outline. The assessment of these learning outcomes involves the methods used to measure the first category of learning outcomes plus a satisfactory score on the state exit exam.

When triangulated with interviews and observations, document analyses provided insights into the role of creative thinking in developmental education at FCCJ's Kent Campus. As analyses of the college's learning outcomes and assessment form and course outlines revealed, the investigated courses consist primarily of a basic skills orientation. The documents further indicated that the development of critical thinking skills constitutes a significant learning outcome in developmental reading, writing, and math. The term *creative thinking*, however, did not appear on any of the course documents and thus appears not to be a principal instructional objective.

The Participants' Instructional Goals

   To explore more deeply the importance of creative thinking for students enrolled in developmental education courses at FCCJ's Kent Campus, the researcher conducted interviews, observations, and document analyses of the informants' syllabi. In the field, the researcher began by investigating the participants' instructional goals, thereby establishing a context for subsequent questions about creative thinking. Several sub-themes emerged from the respondents' emphasis on the following instructional goals:

- A mastery of basic skills

- Preparation for the Florida state exit exams

- Preparation for subsequent courses

- The promotion of student life skills

- An awareness of learning styles and preferences

- The promotion of active learning, effective study strategies, and responsibility

- An appreciation of the discipline

- The development of a positive attitude toward developmental courses

- The development of confidence and self-esteem

- The cultivation of higher order thinking

- The integration of instructional technology through FCCJ's Sirius initiative.

As the study unveiled, the participants' goals varied widely, from teaching students basic literacy skills to equipping them with higher order thinking skills. In addition to a mastery of the basics, the informants recurrently discussed the significance of students' becoming aware of their diverse learning styles and preferences as well as developing confidence in their learning abilities.

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A mastery of basic skills.

Data analysis revealed the instruction of basic literacy skills as the principal goal for many participants, several of whom emphasized the connection between reading and learning. During the interview, Professor Davis lamented that the majority of her students do not exercise their basic reading skills:

> The other day I asked my students about reading, and most of them don't like to read. They're non-readers. There were only two people in all three of the classes I have who have ever read a book from cover to cover. They watch a lot of videos; they know stories via television, but they don't know what it is to sit down and read a book.

Concerned about her students' reading habits, Professor Davis has established the goal of teaching them how to read both for pleasure and knowledge. She declared, "There's still a lot to be said for sitting down and reading a book and knowing how to use a library and knowing how to do research the old-fashioned way." The learning outcomes statement on Professor Davis's REA 0008 syllabus reveals an emphasis on "literal" and "basic" reading skills:

- Demonstrate knowledge of literal comprehension skills

- Demonstrate knowledge of basic inferential comprehension skills

- Demonstrate mastery of basic study skills

- Identify the meanings for given basic vocabulary words.

Similarly, Professor Miller remarked about her students' reading abilities, "I don't feel I go in there and teach them anything they probably haven't been exposed to at some time, somewhere, but they've lost contact with it." She added that because many students have

not "read for weeks, months, years," they require a "re-hashing of material" so that they can return to "the table of education." Without reading remediation, students cannot "go forward in their studies," according to Professor Miller. As Professor Adams asserted, "No matter what class you go to, if you can't read and comprehend what you're reading, that's a problem." He explained that he emphasizes the importance of reading comprehension in his math courses by informing students, "Math is not just numbers. Math is symbols. Math is terms. Math is expressions." Clearly, the promotion of basic reading skills represents a central goal in several participants' developmental courses.

During the interview, Professor Adams explained that his main instructional goal is to instill in students "a desire to want to learn." He added, "Once I get past the desire to want to learn, then my next goal for my classes would be to learn the basics." After the students had factored $3x^2 + 6x + 4x + 8$ by using the grouping method during the second observation, one learner inquired, "Will there be trick questions on the exit exam?" Professor Adams responded, "Once you get to intermediate and college algebra, we'll play some tricks with you all, but at this level, we don't play tricks. We just focus on the basics," revealing the instructional emphasis in his developmental math course.

Like Professor Adams, Professor Carson values the mastery of basic skills through repeated practice of course concepts. During the interview, she attributed the high demand for developmental math at the Kent Campus to the absence of "a lot of drill and skill" at the K-12 level. She acknowledged that "a lot of people shun upon" this approach, for they dislike the idea of children learning "through automaticity or just through rote rigor, practice." She contended, however, that the skill-and-drill approach is "a very important component in mathematics because it is just not a passive subject."

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According to Professor Carson, students must actively "practice" the "minor components that make up the big idea" of math. As a student, she experienced "the drill and skill," "the rote," "the practice"—approaches that she believes benefit her developmental math students.

The math participants' course documents also reveal a focus on the acquisition of basic skills. On their syllabi, Professors Carson and Roberts offer the following suggestions regarding "Methods to Achieve Success":

- Practice! Practice! Practice! Mathematics is not a spectator sport. You should do as much work as possible—not as little as you can get away with.

- Complete the online practice exercises.

Professors Carson and Roberts advise students about the importance of repeated, hands-on practice in math. On his syllabus, Professor Adams also emphasizes the value of practice: "Mathematics is a skill, and like all skills must be practiced [for students] to be successful." Similarly, Professor Hart maintained that students must "practice a lot" to perform "better and better" in math courses. Comparing math to a foreign language, Professor Hart reiterated that students must "practice" frequently to become fluent in both.

During the observations of her ENC 0021 class, Professor Reid also focused on the mastery of basic skills as she reviewed sentence structure and sentence errors. Displaying a Word file on a document projector, she defined and illustrated the four sentence types:

Simple sentence—a group of words that contains a subject and a verb and expresses a complete thought.

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Example: The dog chased the cat.

Complex sentence—main clause and a subordinate clause

Example: Because the dog was hungry, the dog chased the cat.

Compound sentence—main clause + main clause

Example: The dog was hungry, so the dog chased the cat.

Compound-complex sentence—main clause + main clause + subordinate clause

Example: Because the dog was hungry, the dog chased the cat, and the cat hissed at it.

"Why do you think it is important to have different sentences?" Professor Reid asked in class. After listening to a few students' replies, she explained, "If you use the same sentence structure all the time, you will bore the reader to sleep." She added reassuringly, "You already know how to use them [the four sentence types]. The only thing you have to do now is label them." Upon discussing such sentence errors as fragments, comma splices, and fused sentences, she offered strategies for correcting them. Throughout both observations, Professor Reid focused on helping her students acquire knowledge of fundamental English language skills.

Like other participants, Professor Watson emphasized a mastery of the basics. In the first session, she wrote the following objectives on the board: "Review/midterm review and *An Inconvenient Truth*." To prepare her students for an upcoming midterm exam, Professor Watson reviewed several grammatical topics, including subject-verb identification, subject-verb agreement, adjectives, adverbs, irregular verbs, pronoun case, and point of view. Focusing on pronoun case and irregular verbs, she placed the following sentence on the board: "Jason and me hung the picture on the wall." After

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teaching the students about the use of the subjective pronoun *I* versus the objective

pronoun *me*, she asked whether the verb in the previous example should remain as *hung*

or be changed to *hanged*. She then explained the distinction between the verbs *hung* and

hanged before challenging students to remember that the past tense of the irregular verb

bring is *brought*, not *brang* or *brung*. Throughout much of the session, Professor Watson

concentrated on helping her students develop their knowledge of basic English language

skills. After administering and reviewing a quiz on the aforementioned concepts, she

exclaimed, "I think you guys have earned a movie." At that time, Professor Watson

played Al Gore's *An Inconvenient Truth* to reward the students for their diligence in class

and to engage them in a dialogue about global warming.

Professor Johnson similarly emphasized the basics. Under "Course Description"

on her ENC 0021 syllabus, she notes that students will acquire the ability to "write clear,

well-organized, adequately supported paragraphs" through a "study of the basic rules of

grammar and practice in writing paragraphs that emphasize the use of logical

development and various modes of exposition." By learning "basic" English language

and composition skills, students will enhance their writing, she posits. During the

interview, she explained that she employs a metaphor in which she refers to ENC 0021 as

"a class of baggage" to illustrate the cumulative nature of basic skills acquisition. While

enrolled in the course, the students "pick up different things at various ports, and they

have to put those things in their bags and take those bags along with them to the next

port." She cautions the students not to conclude, "Oh, now I'm done with that. I can

forget all of that, or I can send that back home." Rather, they will need to fill their bags—

their repertoire of basic English language skills—with new knowledge while retaining the

old. As she observed, "Because this is a class in which students have come in with a variety of errors in writing, I think there is a good amount of 'We have to get some basic structure down.'" Throughout the "class of baggage," Professor Johnson instills in her students knowledge of basic English grammar and sentence structure. During a group activity about punctuation, a student asked, "So some of this is baggage?" when referring to the use of commas in non-restrictive clauses. Responding affirmatively, Professor Johnson reminded the students to carry their "baggage" from one chapter to another, like the luggage of a traveler on an extended journey.

During the first observation, moreover, Professor Johnson reviewed pronoun case to prepare her students for an upcoming exam. As she began the review, she informed the students, "We debunked the theory that you can make pronoun choices by sound. For the most part, our concern will be about whether to use subjective or objective case." To that end, she displayed the rules regarding the subjective case on the document projector:

Subjective Case—Use subjective case

1. *When it is the subject of a clause.*

    <u>I</u> went to the store.

    The girls and <u>she</u> went to the store.

    <u>They</u> left because <u>they</u> were tired.

    Is <u>he</u> the man who called last night?

    <u>He</u> arrived after <u>they</u> did.

After recommending that students keep a note card with examples of subjective pronouns, she exclaimed, "Ultimately, you need to memorize these," and then she displayed a second rule and set of examples regarding the subjective case:

2. *When it follows a linking verb.*

It is <u>I</u> whom you awoke at one in the morning.

The person on the other side of the door was <u>he</u>.

Encouraging her students to memorize the grammatical rules and apply them in their writing, Professor Johnson focused on the basic conventions of standard American English.

Several of the participants reported that they consider basic communications skills to be essential to students' success in the workforce. In the syllabi for both REA 0008 and REA 0010, Professor Jones requires his students to read and sign "a professional contract" in which he explicates his role, the students' role, the importance of maintaining a positive attitude toward learning, and the policies on sick and personal days as well as on cell phones and pagers. In the section labeled "My Role in the Contract," Professor Jones writes,

> My role will be to help you practice and master important reading and writing and thinking and learning skills. I will try to present these communication skills clearly and to give you interesting and worthwhile practice materials. I will conduct this as a skills course—not a lecture course where you could borrow a classmate's notes afterwards. Typically, several skills will be explained briefly in [each] class meeting, and then you will . . . spend most of the remaining class time in practicing those skills, making them your own. You will be learning in the best possible way: through doing.

In addition to emphasizing reading and writing, Professor Jones teaches thinking and learning skills not through lecture but rather through hands-on practice similar to that described by the math participants.

Under "My Role in the Contract," Professor Jones raises the question "Why learn these skills?" to which he responds,

> Consider that America is no longer an industrial society where many people work on farms or in factories. Instead, most jobs now involve providing services or processing information. More than ever, communication skills are the tools of our trade. This course will be concerned directly with helping you learn and strengthen the communication skills that will be vital in the new millennium.

Describing communication skills as the "tools" of today's "trade," Professor Jones references the shift from a manufacturing to a knowledge-based economy, discussed in the literature by McCabe (2000), Seltzer and Bentley (1999), and Zeszokarski (2001). On her syllabus, Professor Reid likewise reinforces the importance of such skills by asserting, "Communicating well is an essential skill in our world today. Every day people judge us on how well we communicate, be it verbally or in writing." Professor Jones regards developmental reading courses as being instrumental to preparing students for careers in the current marketplace. He maintains that by learning basic communications skills, students will acquire the tools necessary for professional success in the current social milieu.

Similarly, Professor Scott strives to help her students develop basic communications skills. As she commented, "I would hope that I could put them on the proper path to where they would learn to become better speakers [and] better writers,"

thereby establishing "the foundation they need to continue in their academic careers and to perform well in the business world where each will be working, where most are already working." Professor Scott endeavors to help her students acquire speaking and writing skills that will serve as a foundation for success in their future courses and careers. For example, after engaging students in a read-aloud activity of their paragraphs about a writing prop during the second observation, Professor Scott spent the remainder of the class session emphasizing such basic grammar skills as subject-verb agreement; pronoun case, pronoun reference, and pronoun agreement; as well as misplaced and dangling modifiers. Like many other participants, she focused on the instruction of basic literacy skills as an essential instructional goal.

Preparation for the Florida state exit exams.

To pass a developmental course at FCCJ, students not only must satisfactorily complete the required course work but also pass a state exit exam. Thus, some of the participants defined a central course goal as helping their students to pass the course work and the exit exam. When asked to articulate the goals that she has established for her students, Professor Scott replied, "It is my responsibility to try to help them know how to pass both state exit tests." After lecturing about a strategy for recognizing implied main ideas in a reading passage, Professor Miller remarked, "It's all about the test," thus revealing her goal of preparing students for the exit exam. During the interview, Professor Miller emphasized, "I want them, of course, to get through the course, to get through the state exit test, pass it, and do well in all of their academic courses." Similarly, after reviewing the procedures for factoring during the first observation, Professor

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Roberts declared, "The goal for you is to do well so that you pass the course and the exit exam." Indeed, several participants concentrated on preparing their students for the exit exam.

Preparation for subsequent courses.

The participants also indicated that they strive to prepare students for college-credit courses and other academic challenges. Professor Davis stated, "My goal is to prepare them for what they need to be prepared for to go on and be successful in their programs." In priming her students for future courses, Professor Smith remarked, "What we're trying to do is track them and see how well they do in subsequent classes. That to me would be the tell-all, how well you do in other courses." Professor Smith regards the ultimate measure of developmental students' success as their performance in subsequent courses. In a similar vein, Professor Jones asserted, "As much as possible, I try to make a reading-writing connection to help them beyond this class when they walk out." While the students worked in groups during the second observation, Professor Jones shared a story with the researcher about one of his former students who, after learning about transitional devices in REA 0010, was able to help her daughter integrate transitions when writing. He exclaimed, "That's the creative part—when students take what they learn in the class and apply it outside the class." According to Professor Jones, students who apply their learning from a developmental course to other contexts demonstrate creativity. Preparing students for subsequent college courses and other academic challenges represents a primary instructional goal for some participants.

The promotion of student life skills.

Additionally, the promotion of student life skills emerged as a major instructional goal. Professor Davis reported that she endeavors to help her students develop academic and life skills. As she observed,

> Many of our college prep students don't know anything about who they are. They
> don't know how to study, they don't what to study, they don't know what's
> available to them, they don't know how to use it. . . . They don't understand how
> they learn. They don't know anything about a style of learning, their preference
> for learning.

According to Professor Davis, many developmental students do not understand their personalities, learning styles, and learning preferences. They also lack effective study habits as well as knowledge of campus and community resources for enhancing their success. Without insight into themselves, they do not know "how to maximize the talents they have" and "how to compensate for the talents that they don't have." One of her central goals, therefore, is to explore the aforementioned issues in her developmental reading and student life skills courses.

An awareness of learning styles and preferences.

Focusing on student life skills, many participants addressed the importance of recognizing and responding to diverse learning styles. During the first observation, Professor Smith explained that several of the course's reading selections are accompanied by short films intended to help visual learners with their comprehension. On the board she wrote the following definitions of three major learning styles: "visual—eye smart; auditory—ear smart; and kinesthetic—action smart." During the second observation, she

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played the 1969 film version of Shirley Jackson's short story "The Lottery." As the

students watched the film, she repeated key phrases and sentences, perhaps to help aural

learners with their comprehension skills. She also reminded the students that they would

have to answer questions about the film in their journals, thereby engaging read/write

learners. Similarly, Professor Miller discussed diverse learning styles with her students.

After mentioning a learning styles inventory that they had completed earlier in the

semester, she pointed out that some students learn visually, some aurally, others

kinesthetically, and still others multi-modally. In like manner, Professor Reid noted, "I

take into account the different modalities of learning. If I write something on the board,

I'm also talking out loud at the same time," thus appealing to both visual and aural

learners. Also attentive to the needs of her many kinesthetic learners, she challenges them

"to create something themselves," for example, by constructing original sentences during

a lesson on sentence types. Additionally, Professor Watson invites a campus counselor to

give a presentation in her courses about the "different ways of learning." After garnering

information about her students' learning styles, she suggests strategies for helping them

study.

To heighten her students' awareness of their learning styles, Professor Scott

administers Fleming's VARK Learning Styles Inventory early in the semester. Upon

completing a questionnaire, students learn about how they prefer to transmit and receive

information. The VARK reveals whether students are visual, aural, read/write,

kinesthetic, or multimodal learners (Baldwin, 2007, pp. 49-50). According to Professor

Scott, students often exclaim, "Well, no wonder I had so much trouble! No wonder I

didn't understand!" The inventory helps them to realize that in some courses, their

learning styles might differ from their instructors' teaching styles. Recognizing that "each individual learns differently," Professor Scott supplements the textbook with "an assortment of vehicles" consisting of informational handouts, practice exercises, quizzes, and references to numerous websites that she compiles in a folder called "The General Tool Box." According to Professor Scott, some of the recommended websites involve games, songs, and crossword puzzles that offer "different ways to learn the material if one does not already know the material." To enhance their English language skills, the students can also use the software programs My Skills Tutor and Writing Tutor IV throughout the course. Professor Scott noted, "What appeals to one does not necessarily appeal to all," so she administers the VARK inventory to heighten students' awareness of the various resources that will complement their learning styles.

Other participants also expressed sensitivity to their students' diverse learning styles. Professor Johnson observed, "Everybody is coming from a different place and has a different learning style." As Professor Adams maintained, "You have so many different types of learners that the more different things that you do in class, the more students that you'll reach." Therefore, he presents material in "several different ways in order to reach more than just one student." During the interview, Professor Johnson explained that her approach to the teaching of prepositions exemplifies her awareness of the various learning styles. For auditory learners, she elicits the class's participation in singing from a list of the prepositions set to the tune of "Yankee Doodle." For visual learners, she points out a comprehensive list of prepositions in the textbook. For both visual and kinesthetic learners, she shares a colleague's mnemonic device titled "Imagine a Plane in the Clouds" with a computerized animation of an airplane traveling *through* a cloud, *over* a

cloud, *under* a cloud, and the like. Certainly, promoting students' awareness of diverse learning styles constitutes a major instructional goal for many participants.

The promotion of active learning, effective study strategies, and responsibility.

Additionally, some informants established the goal of teaching their students to become active learners, to develop effective study strategies, and to assume responsibility for their learning. According to Professor Davis, many developmental students are "unrealistic in terms of study time"; therefore, she teaches them that for every hour spent in class, they should plan on studying two hours outside class. She also discussed the importance of active learning, which she defined as "a hands-on approach to learning" in which students attend class, participate, and become involved in the discussions, ultimately "learning something for the love of learning it." By encouraging her students to become active learners as opposed to passive ones who approach class thinking to themselves, "Ah, well, whatever you say," Professor Davis strives to help them succeed.

Professor Adams likewise invites active student participation in his classes. When only a few students responded to his question "How many terms do you need to do grouping?" he exclaimed, "Come on. It's early. Lord knows I need full participation." Concerned about his students' study strategies, he commented, "I see some people taking notes and some people not taking notes. You got to take notes. That's very important when you go home." Throughout both sessions, he emphasized not only essential math skills but also effective listening and note taking strategies. When explaining long division, for example, he announced, "I want everyone to repeat after me, 'The divisor times the quotient plus the remainder equals the dividend.'" He then directed the students to "write that down, exactly how we just said it." Additionally, Professor Adams urged

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the students to listen to both him and their classmates "who might say something that will help you." By emphasizing study strategies, he endeavored to promote student success.

The participants' syllabi further reveal a commitment to teaching students how to assume responsibility for their learning. Under a section on her syllabus labeled "More Helpful Tips," Professor Carson encourages students to visit the campus learning center, form study groups, and use online resources. Placing the responsibility for learning with the students, she asserts, "If you want to succeed, THEN you will!" Including a quotation from Elaine Maxwell on his syllabus, Professor Adams also attributes student success to the assumption of responsibility for one's learning: "Whether I fail or succeed shall be no man's doing but my own. I am the force . . . My choice; my responsibility; win or lose, only I hold the key to my destiny." Through their syllabi and class lessons, the participants communicate their goal of teaching students about not only basic skills but also active learning, effective study strategies, and responsibility.

An appreciation of the discipline.

In addition to addressing strategies for academic success, some participants expressed the goal of inspiring students to appreciate a specific discipline. The welcoming message on Professor Reid's syllabus illustrates her enthusiasm for writing:

> Welcome to my class. I love writing and I hope by the time we are done this
> semester you at least feel capable of writing well. My goal is for us to enjoy
> ourselves in the process of improving your writing skills.

With these prefatory remarks, Professor Reid conveys her desire to create an enjoyable learning experience for students while helping them to enhance their writing abilities. During the interview, Professor Johnson similarly remarked, "The primary goal . . . is

that they see that the subject area can be fun." Explaining that she wants her students to become "better writers" and "better thinkers," Professor Johnson communicates that "it can be fun to learn; it can be fun to practice; it can be fun to engage and learn from one another."

That Professor Johnson makes learning enjoyable for her students was evident during both observations. To capture and maintain the students' attention, she appropriated different voices—some low and deep, others high and soft. Like a performer on stage, she spellbound her audience. Coffee mug in hand, she laughed and joked with her students. Wide-eyed with intrigue, a student in the back row asked during the first observation, "Is all your classes like this?"

"*Is* all your classes like this?" Professor Johnson repeated, a tone of mild censure in her voice. She then corrected the student's grammar by kindly but firmly replying, "*Are* all your classes like this?" as she informed him that she would not answer his question until he asked it properly. When he did so, she inquired, "Like what?"

"This much fun," he answered.

"Oh, no," Professor Johnson responded with a twinkle in her eye. "The fun ends the day after the mid-term." As the students giggled at her witty rejoinder, she asserted, "All learning should be fun. I wouldn't be here if I weren't having fun too." Through her wry sense of humor and lively repartee with the students, Professor Johnson makes learning a positive, enjoyable experience, as did other participants.

The development of a positive attitude toward developmental courses.

Committed to helping students appreciate a specific discipline, the informants acknowledged the resentment that some learners feel toward taking developmental

classes. At the beginning of each semester, many of Professor Miller's students feel angry and disappointed that they must take a developmental reading course. A central goal for Professor Miller and other instructors at the Kent Campus, therefore, is to help their students develop positive attitudes toward learning and toward being enrolled in a developmental course. In the words of Professor Smith,

> Well, you have to, first of all, realize that those learners resent being there. They have a built-in resentment. . . . They say, "I know how to read," and so you have to disarm that from the very beginning by telling the learner when they come to class, "This class is not trying to teach you how to read. You know how to read. . . . Those tests you took [the college placement tests administered in the campus testing and assessment center to assess a student's knowledge of reading, writing, and math and thus place the student in the appropriate developmental or college-credit courses] indicated that you have some comprehension problems. I'm here to help you with your comprehension problems, not to teach you to read because you already know how to read."

At the beginning of each semester, Professor Smith defuses her students' hostility toward taking a developmental reading course by clarifying its purpose—to help them improve their comprehension skills, not to teach them how to read. Likewise, Professor Miller informed her students during the first observation that "we're not here because we can't read; we're here to make it [the reading process] work better." During the interview, Professor Miller's description of the course goals that she communicates to her students mirrored Professor Smith's: "I'm not teaching you how to read. You all can read. We're teaching you how to be better comprehenders through imaging and fluency and all of

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this." As Professor Smith emphasized in her reading class, "The most important thing is comprehension; that's the ultimate goal of reading." During the second observation of Professor Smith's class, furthermore, she informed her students that "every exercise we do here is based on comprehension." According to the participants, students must develop positive attitudes toward reading and learning to become effective readers.

A relationship appears to exist between students' resentment toward developmental courses and a lack of confidence in their learning abilities. Professor Davis reflected on her students' apprehension about beginning college at the developmental level:

> You know the single mother who hasn't been in school for 20 years is scared to death when she walks into that classroom. The older student is scared to death. The younger student might not be so scared, but they're defensive. You can tell that they're still apprehensive.

From Professor Davis's perspective, although older developmental students sometimes appear timid, younger ones might seem defensive. Fearing failure, both generational groups are apprehensive about taking a developmental course. Professor Miller indicated that her students often feel insecure "because they are in a world where everyone is better than them in reading." She, therefore, works diligently to help her students enhance their confidence as readers. Some of her REA 0006 students express considerable frustration at the beginning of the course. As Professor Miller attested,

> They come in, bent over, no confidence, cocky sometimes, abrasive . . . defense mechanisms. . . . They start softening up. I just take all the abuse from them. I say, "I know you can do this, so stop it," and they do. They make mistakes, and they

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get a little better, and they start quieting down. They start sitting up straight. This

is the truth.

Professor Miller remarked that as the students successfully complete REA 0006 and

move onto REA 0008 and eventually REA 0010, they acquire confidence in their reading

and learning abilities, thus feeling less resentful toward taking developmental courses.

The development of confidence and self-esteem.

Encouraging students to develop confidence and self-esteem in their academic

abilities constitutes a primary goal for many participants. When asked what goals she has

for her students, Professor Davis responded, "My biggest goal is for them to come out

with something more than what they came in with." She further noted that "college-prep

students aren't the most motivated students. Many of them have low self-esteem; they

struggle; they have a lot of baggage." Consequently, she strives to help her students

"develop the confidence" and "raise their self-esteem." Likewise, Professor Watson

declared, "I want them to be self-confident. I want them to be self-sufficient. I want them

to dare to dare and dare to succeed, and I don't want them to be afraid of failure." In a

similar vein, Professor Roberts endeavors to help his students "experience some type of

success," which "builds confidence that later helps with retention." Elaborating, he

explained,

My goals are not only to teach the concept well enough for them to know it but to

put them in a position where they experience some success, more so than feeling

as if it's too overwhelming or fearing failure.

Professor Roberts strives to help his students learn various math concepts and overcome

the fear of failure. When students fail particular tests, he motivates them to "look at the

positive components and assess and evaluate what could be done differently in order for them to do better." Professor Reid maintained that she wants her students to become "comfortable with writing" and to understand "the importance of the written word." Confident in her developmental students' ability to succeed, she teaches them that "anyone can learn to write." As she exclaimed, "What I want them to get out of the class is not the A, B, or C but the realization that they are capable of doing this," and she delights in "watching the light bulbs go off" as students attain this realization.

Many participants create comfortable learning environments in which learners feel safe enough to ask questions and risk making mistakes. Professor Hart explained that her goal is for students to "feel free to ask as many questions as they can." She added, "I just want them to feel comfortable in my class." She further remarked that "sometimes they are really insecure when they come to class" and therefore do not ask questions. "Most of the time," she observed, "they are afraid of math because of something that had happened to them before," such as a "bad experience" in a previous course. Professor Adams also reported, "Some students are just so afraid of mathematics that it's just amazing. I don't know what happened in their lives for them to see a word problem and just totally freeze up, hyperventilating." Because so many of Professor Hart's developmental math students "think that they can't do it," she attempts to persuade them that they can succeed—that "they just have to try." Professor Hart speculated that, unfortunately, some of her students may not have had "that person to tell them that they could do it" earlier in their lives. To build her students' confidence, she frequently informs them,

It is impossible that everybody knows everything. Nobody is good at every

different subject, but you can get better at any subject that you want to. If you feel

that you are not good at math, if you try, you can be better and better. You can do

it.

With a similar outlook on learning, Professor Adams frequently tells his students, "I

don't know everything, but I guarantee you, we can learn it together, whatever it is."

Recognizing the relationship between students' confidence and their willingness to ask

questions, Professor Hart often repeats in class, "Every question is a good question. As

long as you have a question, just ask." In addition to encouraging her students to raise

questions, she assures them that "it's okay to make a mistake," for by doing so, they will

learn.

Throughout the study, the participants repeatedly emphasized the relationship

between confidence and learning. Professor Smith, for example, indicated that she would

like for her students to become "independent, competent learners—learners who have

confidence in themselves." Professor Miller likewise endeavors to cultivate

independence, competence, and confidence in her students. During the second

observation, she defined a few of the week's vocabulary words, including the term

subversive. Reflecting on her youth in the sixties, she referred to the subversive actions of

political activists. She explained, however, that she would not review the majority of the

vocabulary terms as she had done in the previous weeks, for she wanted her students to

become empowered with the ability to define the words for themselves. "Over and

above" her goal of helping students pass the course and the exit test, Professor Miller

wants them to develop a "sense of confidence in what they can do."

Many participants reported that developmental education courses provide a forum in which students can increase their confidence about their knowledge and learning. Professor Miller declared, "I know that you know what I mean when I say that the sense of confidence in seeking further education . . . you can't put a price on it. It's powerful; it's very powerful." According to Professor Miller, those who pursue a higher education attain a confidence level that cannot be quantified. "One of my goals," she explained, is "to give them a sense of confidence. They've been told, 'You're low in this; you're low in that. You need help here.'" Students, therefore, often enter developmental classes "with their chins down." Professor Miller exclaimed, "I want them to leave with their chins up and their shoulders back—and they do."

Like Professor Miller, Professor Carson views higher education as a vehicle for enhancing one's confidence. "First and foremost," she responded, "the goals that I have for my students are that they become confident through solidifying their knowledge base." She suggested that students increase their confidence upon acquiring knowledge of basic literacy skills. As she reiterated, "Confidence, with any factor, is built and strengthened through the knowledge base." For math in particular, Professor Carson maintained that students' confidence levels represent the "biggest part of succeeding." Thus, she strives to develop student-teacher relationships in which students feel "comfortable" asking questions to become "independent" learners. As Professor Carson emphasized in class, "Half the battle is just knowing what you don't know." Throughout both observations, her students felt comfortable asking questions to increase their knowledge of elementary algebra.

The participants recurrently addressed the significance of enhancing students' confidence levels. During the interview, Professor Jones, who teaches full-time at an elementary school and part-time at FCCJ, remarked, "If you don't make the children and adults feel good about themselves in reading, it's hard for them to become better readers." From Professor Jones' perspective, a teacher, whether of children or adults, must help students develop positive images of themselves as readers for them to become more proficient at reading. Employing a simile to express her view about students' confidence levels, Professor Scott commented,

> The more reinforcement they can receive each time we're together in our environment, it's like a really good trampoline, a strong base. They know that they might jump up and down on it, but they're not going to fall through.

By fostering a supportive learning environment, Professor Scott attempts to make her students feel comfortable in the knowledge that although they might experience up and down moments when learning, they will not fail.

In her developmental reading courses, Professor Smith "seize[s] every moment to instill" in her students a sense of confidence about their abilities to read and learn effectively. She does not require students to read aloud in class; rather, she gives them the choice to do so. As she reviewed a comprehension activity of several short passages during the first observation, she announced, "You can read or you can just answer the question. It's your choice." When asked why she offers students this choice, she replied, "That's all about making the learner feel good about themselves, making the learner feel like they're bringing something to the table . . . , also making the learner know it's okay if it's not perfect." By giving her students a choice in class, Professor Smith strives to help

them gain self-confidence—a quality that numerous participants deemed essential to developmental students' success.

The cultivation of higher order thinking.

In addition to helping students become increasingly confident, some informants defined the promotion of higher order thinking as one of their core instructional goals. Recollecting her experiences as a college student, Professor Davis stated,

> I don't know about you, but there were a lot of courses I had in undergraduate school where my grade depended on a mid-term and a comprehensive final, and that was it. It didn't matter if I could apply that learning. . . . I spent a lot of time memorizing things and trying to cram in things.

She then asked rhetorically, "And did I remember any of it later on? Some of it." The most enjoyable learning experiences, however, were those in which she could apply the concepts that she learned to other contexts. As she attested, "What I really enjoyed—and what I call the 'creative teacher'—is a teacher who showed me how I could apply what I learned to the outside world as well." Helping her students to "apply what they learn in class to their everyday lives" now constitutes one of her course goals, for as she explained, "if they can't apply what they learn, to me, that's not learning." Professor Davis added, "Yes, I can make them memorize a bunch of stuff and spit it back on a test, regurgitate it, do all of that, but for the most part, they're not going to remember it." Referencing Bloom's Taxonomy of Educational Objectives, she emphasized that she wants her students to "get beyond that knowledge level." As she exclaimed, "I want to get them to higher order thinking skills. I want to get them to analysis, synthesis, and evaluation." By applying their learning to other situations, Professor Davis's students

demonstrate their attainment of higher order cognition, the cultivation of which is central to her teaching.

Some of the participants specified the promotion of critical thinking skills in particular as one of their major course goals. Professor Scott indicated that each week she discusses with her students "what critical thinking means" because many of them "think of everything as being on the surface" when, in fact, "everything is not on the surface." Likewise, Professor Davis reported that she includes activities involving inductive and deductive reasoning to "try to teach critical thinking skills." She added, "We do a lot of critical thinking exercises to get them to think about how they think." To promote critical thinking, she engages her class in games based on the popular television show *CSI*. As she illustrated,

> "You're a CSI, and you get to the scene. What kinds of things do you start looking for?" Sometimes I lay out things for them. I've laid things out on the table or around the room, and I'll say, "Okay, here's the crime scene. I want you to go around the room and see what you can find." I hide things here and there to see who will pick up on what.

By encouraging students to develop their powers of observation, Professor Davis prepares them for research-based writing assignments in her reading and student life skills courses.

Throughout the semester in her REA 0008 and REA 0010 courses, Professor Miller delivers mini-lectures that also reveal a focus on the development of critical thinking skills. During the first week of class, she lectures about "how to become a better reader and thinker." In subsequent weeks, she discusses reading and learning styles;

reading strategies; vocabulary as the "key to success"; metacognition; locus of control and efficacy; attribution theory; comprehension and retention; fluency and imaging; as well as test-taking strategies—all of which potentially promote critical thinking.

The integration of instructional technology through FCCJ's Sirius initiative.

The study further revealed that the integration of instructional technology in courses, particularly through FCCJ's Sirius initiative, represents a significant instructional goal and institutional value. Each of the twelve participants incorporated discipline-specific, web-based software into their courses. Additionally, many of the participants taught in or near a computer lab, thus providing students with ready access to technical resources for achieving course learning outcomes.

> Reflecting on the Kent Campus student population, Professor Davis observed,
> You think about the students in our classes, the ones who come from high
> school . . . They've never known a world without television. They've never
> known a world without computers. They've never known a world without video
> games or cell phones or CDs. Those things are reality today, so students today are
> more accustomed to having instant gratification.

As Nexters, the students to whom Professor Davis refers belong to a generational cohort of individuals born between 1980 and the present (Baldwin, 2007, p. 130). Having grown up with technology, they often expect learning to be not only informative but also entertaining. Professor Johnson observed, "Because technology has changed . . . because of our instant gratification in society," instructors must compete for students' "various distractions," including television, the computer, video games, cell phones, CDs, and the like. Professor Roberts posited that "it's not as much that the students themselves have

changed" since the advent of multimedia technology but that the way that instructors

"communicate" and "deliver the material had to change." He declared, "If you're

teaching to a generation that has access to information quickly and you are simply

standing in class delivering it from a book/chalkboard perspective, you'll lose that

group," which is accustomed to experiencing "multiple deliveries" involving visual,

auditory, and kinesthetic stimulation "at one time." From Professor Roberts' perspective,

many Kent Campus students do not feel engaged by the "traditional chalk or whiteboard

lecture."

 FCCJ appears to have responded to the educational needs of the Nexters through

Sirius, an initiative involving the development of "highly creative, interactive, low-cost

courses" that can be delivered in a face-to-face, hybrid, or web-based format ("Sirius: A

Turnkey Solution," 2007). One of the courses in the study—Professor Davis's hybrid

REA 0008 in which students meet once a week on campus and fulfill the rest of their

required contact hours online via the course management system Blackboard—was

designated as a "Sirius" course. The word *creative* recurs frequently in an FCCJ brochure

about the Sirius project, described therein as a reflection of the "college's commitment to

creative, interactive learning and excellent teaching" ("Sirius: A Turnkey Solution").

According to the brochure, Sirius courses also entail asynchronous discussions that

"require interactivity among students and foster higher order creative thinking." Like

other Sirius courses taught at the college, Professor Davis's REA 0008 course consists of

resources developed by a team of FCCJ faculty, including a textbook, CD-Rom, and

online components available through Blackboard. The brochure reveals the institution's

value of "creative, interactive learning" facilitated by instructional technology for contemporary students.

The Informants' Definitions of "Creativity"

Having inquired first about the participants' instructional goals, the researcher established a context for addressing research question one, which concerns the importance of creative thinking in developmental courses. When asked to define *creativity*, particularly within an educational context, the respondents offered many insights supported by the literature. Angelo and Cross (1993), Fishkin (1999), Fleith (2000), Jones (1972), and Petrowski (2000) all refer to creativity as a term whose meaning resists scholarly consensus. Recognizing the multi-faceted nature of creativity, Professor Roberts posited, "However we define *creativity*, [we should] take into consideration different perspectives." He suggested that "we need to move away from having one definition to having one word with multiple definitions." Whereas some participants focused on creativity among students, others addressed the concept in terms of teachers. Professor Roberts explained that he views creativity from "two perspectives"—from "a student's perspective" on the one hand and from "the standpoint of teaching" on the other hand. He defined the former as "getting the students to begin to explore new ideas and new approaches to a concept that they may be familiar with" and the latter as "finding different ways or methods of delivering the material." Professor Roberts's distinction between the student's and teacher's perspectives regarding creativity parallels Jeffrey and Craft's differentiation (2004) of "teaching for creativity" from "creative teaching" (p. 84). Because creative teaching often promotes creative thinking, Jeffrey and Craft conclude that attempts to distinguish the two may "have

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dichotomized an integrated practice" (p. 77). Perhaps the two perspectives, when integrated, provide more insight into the elusive nature of creativity than when separated, as the interviews and observations seemed to suggest.

Creativity among teachers.

Several participants observed that creative teachers captivate and maintain their students' interest in sundry ways. Defining creativity as a quality possessed by teachers, Professor Davis commented, "I think creativity is not being afraid to come into the classroom and sometimes just make an absolute fool of yourself if you have to to get the point across. I wear weird hats sometimes; I do weird costumes." Elaborating, she exclaimed, "I want to get their attention, and whatever it is I have to do to get their attention are the creative things that I do, whether it's coming in and making balloons or wearing hats, wearing costumes." According to Professor Adams, a teacher dedicated to promoting creative thinking among students must ask, "How can I creatively teach these students this concept?" Professor Hart asserted that because "each group of students is different," teachers must vary their methods accordingly. "If I can just find a way to capture their attention," she added, "then they will start to listen." Professor Watson defined creativity as the ability to "reach someone in a way they've never been reached before so they actually respond." Like other participants, she viewed creativity in terms of a teacher's use of various approaches and methods to "pique" students' "interest" in learning.

Creativity among students.

When reflecting on creativity among students, the respondents discussed the application of prior knowledge to the solution of new problems. From Professor Adams'

perspective, creative thinking occurs when students discover strategies for learning

"material in their own way." Professor Reid exclaimed, "I truly believe that creativity

means using your brain—thinking for yourself, applying old ideas in new ways."

According to Professor Reid, creativity entails independent thinking in which individuals

utilize existing knowledge in unique manners. "When I think of *creative thinking*,"

Professor Carson responded, "I think of all the different ways that something can be

processed and turned around and translated or applied." She added, "When I first hear"

the term *creative thinking*, "I don't think of arts and crafts"; rather, "I think of 'How can

we try to push the students' buttons? How can we try to make them interested or learn or

develop or just connect or use prior knowledge and apply it . . . in their life?'" Professor

Carson suggested that creative thinking represents students' ability to use previous

learning to understand new concepts and then to apply the knowledge in their personal

lives.

Some participants, furthermore, correlated creativity with higher order thinking.

During the interview, Professor Jones referred to "creative students" and "higher level

students" interchangeably, thereby connecting creativity with higher order cognition.

Similarly, Professor Miller replied, "I think creativity is an upper-level skill"; she further

observed, "When you get to interpretation and application and understanding of the

material you're reading, then you're there." Thus, Professor Miller associated the ability

to understand, apply, and interpret knowledge with creative thinking. As she explained,

"You can't really say, 'Okay, I'm going to be creative.' You need the skills to get there."

In particular, Professor Miller relates creativity to analytical skills, implying that to think

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creatively students must "learn to analyze a little better." Elaborating on this point, she noted,

> You have to be taught to think into the system. They aren't taught to think so much. They haven't been given that leeway. In fact, I was just doing something today—I used the term *analyze this*.
>
> > I said, "Do you know what I mean by *analyze*?"
> >
> > "No, Professor Miller."
> >
> > "Well, let me tell you. Think of what you're saying. Think of the product you're talking about. Just put it into parts, and talk about each part. You will begin to see that something will come out of that that will make it congeal."
>
> Analyzing is one thing that I think brings you to that point where you can be creative.

Through this example, Professor Miller explained that when analyzing an idea or product, students should focus on its parts and discuss each one as a more holistic understanding begins to "congeal"—a word that suggests the act of synthesis.

During the interview, Professor Smith reported that she associates creativity with both analysis and synthesis:

> I always look at it in terms of analysis and synthesis. Everything to me is putting it together and breaking it apart. When I think about *creativity*, that's what comes to my mind. You have to break it down and be able to pull it back together. And so for me, it's analysis and synthesis. Those are the two that I focus on when I'm

in the classroom as an educator and as a learner myself. I have to see it in pieces

and then pull it back together and spin the whole.

From Professor Smith's perspective, creativity entails analysis, or the process of breaking information down into pieces, and synthesis, or that of pulling the pieces into a whole new understanding. A review of the literature also revealed creativity's intricate relationship with analytical and synthetic thinking (Angelo & Cross, 1993; Fogarty & McTighe, 1993; Fryer, 2006; Scholl, 2005).

Other participants elucidated the meaning of the term *creativity* when responding to the interview question "When a teacher teaches for *creativity*, what do students learn?" In Professor Jones's words, "They learn how to think" and "not just recall information." As Professor Watson replied, "They're going to learn more than just nouns and verbs and how to make a sentence. They're going to learn life skills." Contrasting creative thinking with rote memorization, Professor Jones pointed out, "They're just not giving you something off the shoulder that was rote memory. They're thinking, and they're expanding." He later emphasized that students who think creatively "go deeper—they go a lot, a lot deeper." On the Teaching Goals Inventory, Angelo and Cross (1993, pp. 18-23) likewise differentiate higher order cognition, which entails critical and creative thinking, from basic academic skills, which involve the recall of facts, as Professor Jones had noted.

Professor Miller provided additional insights into the nature of creativity when she observed that it manifests itself in many forms:

You don't have to be an artist producing a painting on canvas; you can be creative in your thoughts. "Oh, I'm having a problem with this at work. We can't figure

this out. Hmmm . . . maybe we could do this. I wonder if my boss would want to

know about that." Having the confidence to do it . . . that's creativity. It can be on

the street; it can be on your job; it can be in the artist's studio. It's all creativity.

It's just the way people view it. You've heard people say, "Oh, he's such a

creative person." What they mean is "He'll figure out a solution to this problem

because I can't." That is a form of creativity also.

Individuals need not be artists to be creative, reasoned Professor Miller. In the literature,

Csikszentmihalyi (1996) distinguishes between the "small-c" form of personal creativity

and the "big-C" type of socio-cultural creativity (p. 26). The "small-c" acts of creativity

to which Professor Miller refers, though seemingly mundane, nevertheless reflect the

thinking of individuals confident enough to solve problems.

The participants further illuminated the nature of creativity by citing evidence of

it in their students' work. Professor Davis considers her students' "ability to insert

humor" as well as their "ability to express themselves in writing creatively" as a

demonstration of their creativity. She also indicated that students' collaboration on a

group project in which they choose an original topic and develop a novel presentation

further evidences their creative thinking. Students' active participation and cooperative

interactions in class provide additional signs of their creativity, according to Professor

Davis. Professor Johnson reported that her students occasionally manifest creative

thinking in their topic choices on writing exams. "Every once in a while," she noted, "a

student will take one of the basic exit exam topics" in a unique direction, thereby

experiencing "an aha moment"—one in which the student thinks "outside the box." An

individual's ability to include specific, concrete details when developing a paper likewise

illustrates creative thinking, according to Professor Johnson. From the informants'

perspectives, creativity involves a student's use of prior learning and higher order

thinking to solve new problems in unique ways.

The well-known expression "thinking outside the box."

When asked to define *creativity*, many participants invoked the well-known

expression "thinking outside the box." About the definition of creativity, Professor Jones

acknowledged, "Well, it's a cliché, but thinking out of the box, coming right out of that

box because most of us are in that box and we're secure in that box. It's more of a

multiple-choice world in that box." According to Professor Jones, creative thinking does

not occur inside a prescribed format with a set of preconceived answer choices. The

creative students whom he has taught often "ask questions at a higher level," such as

"Why? Why did he do that? Why did the author write that?" He lamented, however, that

"there are very few people who come out of that box thinking." Appropriating the same

expression, Professor Watson exclaimed, "My goal is their [the students'] success—to

get them outside that pesky box." Professor Watson's comment suggests that she

associates success with the ability to think "outside the box"—that is, to think

creatively—and that she strives to help her students do so. She further explained, "I reach

out of the box if they're having a problem" with understanding a particular concept.

When her students struggled with distinguishing among the homonyms *there*, *their*, and

they're, for example, she searched for an online resource and discovered a piece adapted

from "The Three Little Pigs." Though designed for third graders, the resource

"imprinted" on her students the uses of *there* for location, *their* as a possessive pronoun,

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and *they're* as a contraction. When referring to "the box," the participants implied that both students and teachers must learn to think creatively.

Like other respondents, Professor Johnson invoked the expression "thinking outside the box" when asked to define *creativity*. "In a nutshell," she reflected, "I would perceive *creativity* as thinking outside the box." As she elaborated,

> Then you have to decide what the box is. You have to decide if it's a square box, or a rectangular box, or if it's cardboard, or if it's one of the nice, neat plastic bins that you can put everything in.

Symbolic of the boundaries in which students have previously learned, the "box" does not appear in a one-size-fits-all design, offered Professor Johnson. She, therefore, maintained, "You have to think about what individual perceptions of their learning situations have been in the past," for students' prior educational experiences influence their present propensities for creativity. Throughout the study, numerous participants defined *creativity* in terms of the familiar expression "thinking outside the box."

Creativity as resourcefulness.

Another finding that emerged during the investigation involved the participants' association of creativity with resourcefulness. About her students, Professor Smith declared, "They demonstrate their creativity in the progress they make throughout the course." She challenged the perception that developmental reading courses are "easy" by noting the numerous competencies and state directives that students must satisfy to complete said courses successfully. "The odds are against a lot of these learners," she contended, "because they're first generation." Many students, moreover, must also balance school with work and family responsibilities. She reasoned,

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When you are in a developmental course and you don't want to be there and you get up and you come to school every day and you find a way to get there and participate in your own learning, that's creative.

Those learners who possess "stick-to-it-ness" often succeed, as illustrated by one of her students whom she observed walking from Orange Park, Florida, to the Kent Campus early one morning. When Professor Smith pulled over in her car to offer her student a ride, she learned that he had been walking ten miles one way to the campus because attending college "was that important to him and his future." Professor Smith considers such determination to be "very creative." She further remarked that her students' "creativity comes through to me best by them being there every day and doing quality work" while surmounting numerous personal obstacles.

In associating creativity with resourcefulness, other instructors echoed Professor Smith's observations. As Professor Davis contended, "Any student that's had to go through what half of my developmental students have had to go through to even survive, you have to admire them for it. The fact that they're even here you have to admire." According to Professor Davis, many developmental students "have seen more and been through more in their short lifetimes than we'll ever be in our entire lifetimes." She asserted that although "a lot of people have the attitude that college prep students don't know anything," such perceptions are "far, far, far from the truth." Among the "most resourceful students in terms of, not necessarily their life on the college campus, but in the real world," developmental learners are "much more creative than we give them credit for," insisted Professor Davis. She further explained that out of necessity, they have learned to think creatively to solve many problems in their personal lives.

Some participants suggested that the ability to think creatively and to act resourcefully represents a survival strategy. According to Professor Roberts,

> At times we tend to forget how creative these students are because they had to survive with the skills at the level they were. You have students in basic math that can't add, subtract, multiple, or divide extremely well, but they will find creative ways to meet that need, satisfy that need as far as budgeting money, paying bills, writing checks, things of that nature.

Lacking basic arithmetic skills, some developmental learners have discovered creative means by which to subsist. Expounding upon this point, Professor Roberts exclaimed, "I think the students themselves have always found creative means or methods for taking care of their deficiencies." Though often less savvy in terms of "book preparation and book knowledge," developmental students "could teach some of our other students a thing or two," Professor Davis asserted. "Creativity to me," she clarified, "is a lot of resourcefulness," which she defined as "learning more than one way to do something." From Professor Davis's perspective, creative students understand that multiple approaches to solving a problem or accomplishing a task often exist.

Like Professor Davis, other informants observed that instructors could foster creative thinking by showing students different approaches for solving particular problems. "Even now," Professor Carson attested, "I'm learning different ways to do the same old thing." Professor Adams shared that he advises his students, "If you only know how to do a problem one way and for some reason you get it wrong, you have to have a Plan B and a Plan C." Professor Carson described creative thinking as "continual open-mindedness" about "how to get to the ultimate goal" of discovering "a conclusion or a

solution" to a problem. She added that, unfortunately, in most of her developmental courses, she cannot devote time to the exploration of alternative problem-solving methods, for her students need intensive instruction in basic math skills. As Professor Carson and other participants noted, creativity is manifested in resourcefulness, open-mindedness, and a willingness to explore alternative solutions to both personal and academic problems.

The Relationship Between Confidence and Creativity

Just as the study unveiled the participants' perspectives regarding the relationship between confidence and student success, so also did it uncover a correlation between confidence and creativity. Students who think creatively, explained Professor Reid, have learned how "to come up with answers for themselves." As she asserted, "If we taught them how to think, they would know how to approach and solve all kinds of problems." Experiencing a "huge fear of how to approach problems," many students lack the self-confidence to think creatively, according to Professor Reid, whose conviction other participants shared. In Professor Miller's words,

> I think the ability to be creative . . . you almost have to be given permission, some of these kids today. If that answer is not printed on that page, they don't know what to do. "Think. Can you think? Can you be creative? Give me something. I won't judge you. Throw it back to me." That involves the confidence of knowing that you can do it . . . you can be creative, and someone is not going to squash you for it.

Professor Miller claimed that many students, fearing negative feedback from their teachers, lack the confidence to think creatively. Without having received a set of

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answers from which to choose, some students struggle to respond to their instructors'

questions. Creativity, according to Professor Miller, coincides with confidence in one's

ability to conceive independent, original thoughts. In the first two developmental reading

courses at FCCJ, "you can't expect them to be creative," she qualified. She further

remarked, "They've never been told before that they're creative; that's why they're there,

half of them." Although educators and other community college stakeholders often

associate students' lack of basic literacy skills with the need for developmental education

at the post-secondary level, Professor Miller offered an alternative perspective when she

posited that learners who have not cultivated creative thinking skills might also require

such courses.

Professor Watson likewise observed that many of her developmental students

"have never been told" that they have the "tools" and the "talent" to write creatively. "If

they'd been told that, they wouldn't be in remedial classes," she added, as if echoing

Professor Miller's contention. Based on her experience in the developmental classroom,

Professor Miller concluded, "The more leeway I give to the students—'It won't be right,

and it won't be wrong. It will just be yours'—the more I get." As she explained, she

receives a higher quality of work when she gives her students more latitude with their

thinking, particularly on their summary-response reports.

To become creative thinkers, developmental students must first develop

confidence in their knowledge of basic skills, contributed Professor Carson. As she

declared, "In order for a student to be a creative thinker, we really have to have that

knowledge base—and a solid knowledge base." Additionally, she remarked, "You would

have to be confident in what you know and what you don't know." When

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metacognitively aware of their knowledge and learning styles, students gain the confidence necessary for creative thinking, Professor Carson explained. Creative thinking, she elaborated, emerges when students feel confident in "how they learned what they learned" and remain "open-minded about learning and practicing or getting to a certain conclusion" through more than "one way."

Professor Reid observed that despite being "weak in certain skills," most developmental students are not "weak mentally." Rather, she added, they are "afraid of not being good enough or they're bad test takers, but I don't think they are at all mentally deficient. I actually hold them to the same standards that I hold all my students to." Encouraging her students about their writing potential, she informs them, "You have the ability to make sure that you are seen as an intelligent, well-educated individual, capable of sharing your thoughts and ideas clearly and creatively. It takes time and practice, but you can do it." In this statement, Professor Reid emphasized two essential qualities of writing: clarity and creativity. Given sufficient practice opportunities, students, she believes, can become confident, clear, and creative writers.

Likewise enthusiastic about her students' capacity for creative thinking, Professor Davis noted, "There's that creative spark in all of those young people. Sometimes they need a little encouragement—that's all," reinforcing the prevailing belief among several participants that the expression of creativity is related to one's confidence level. According to Professor Reid, many developmental students lack the confidence—not the capacity—for creative problem solving. By learning to ask such questions as "Is there another way that I can get to this answer?" and "Is there another way that I can approach

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this problem?" developmental students can hone their creative thinking—an ability that, in Professor Reid's words, has been "lost in our public educational system."

The Influence of the K-12 Educational System on Students' Creativity

Several respondents discussed the influence of the K-12 educational system on students' creativity. Professor Miller attributed her observation that "creativity is in deficit" among high school graduates taking developmental courses at the community college to the public school system where "they are not being allowed to be creative." In like manner, Professor Hart contended, "I think we have to look at our system of education for our elementary schools," where "something is lacking," beginning at the primary level and continuing to "middle school, then high school." Professor Hart posited that creative thinking should "start" in elementary school, for when students "come to college, they should have something to bring with them." Professor Jones suggested that the systemic problems at the K-12 level are related to an over-emphasis on standardized testing. As he asserted, "Our educational system is very rigid; we are a multiple-choice society," referring to the widespread use of standardized exams in public schools.

Just as Andreasen (2006), Bunting (2006), Ediger (2001), and Moore (2003) have observed in the literature, Professor Miller speculated that standardized testing has hindered students' ability to cultivate creative thinking skills. Extemporaneously playing the role of a public school teacher during the interview, she exclaimed, "This is my course. This is what you must do. These are the standards, and we have to get it done in this amount of time." Then offering the student's perspective, she retorted, "Oh, but what about the blah, blah, blah?" After the makeshift role playing activity, she turned to the researcher and stated,

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You know, the FCAT [Florida Comprehensive Assessment Test]. You have to

think in a box. Heaven forbid you're brilliant, and you go off on a tangent

somewhere because you won't pass. It's teaching the kids to think within a box.

Like many other participants in the study, Professor Miller appropriated the familiar

idiom "thinking in a box" to describe a lack of creativity. About such thinking she

exclaimed, "That's the one thing I have to teach them to go forward and not to do";

instead, she wishes for them to "be creative." According to some participants, K-12

educators, restricted to teaching within standardized testing environments, often

discourage students from thinking creatively.

The Relationship Between Students' Perceptions of the Learning Task and Creativity

Additionally, some participants discussed the relationship between students'

perceptions of the learning task and creativity. Professor Watson reasoned that when

students enjoy what they are learning, they are more likely to think creatively, for they

become engaged in the task at hand. Professor Adams likewise remarked, "I feel that

every student has the ability to learn creatively," whether in math, reading, writing, or

another subject. He then clarified, "I think creative thinking can be achieved by students

in subject areas that they enjoy," adding that students who either "enjoy" or "feel

comfortable" in particular disciplines are more likely to think creatively than those who

dislike or fear the subject matter. As he reiterated, "Every student has the ability to be

creative," yet most "cannot be creative in a subject that they either don't like or don't

really know too much about." According to Professor Adams, students' ability to be

creative emerges from both a positive attitude toward a particular subject and thorough

knowledge about it. In math, Professor Adams maintained that a student who feels

"horrified" by the subject matter cannot "think outside the box" until she surmounts the "brick wall" in front of her. In English, Professor Watson observed, "If they find something that they like to write about, they let their barriers down, and they actually write a very good paragraph." Forgetting that they are fulfilling an assignment, students become engaged in the writing process, and "instead of looking at it as a chore, they begin to look at it as something that they can explore." The respondents contended that creative thinkers often perceive the subject matter in question positively, immersing themselves in exploration and play, as Starko (2005) likewise notes in the literature.

The Importance of Creative Thinking in Developmental Courses

The participants' responses to the central research question regarding the importance of teaching creative thinking skills in developmental courses at the Kent Campus varied significantly. From some participants' perspectives, although students' creativity may be relevant within boundaries established by the teacher, the cultivation of creative thinking represents a peripheral goal to the acquisition of basic skills, which constitute a prerequisite for higher order cognition. From another viewpoint, the promotion of creative thinking in developmental courses is not a peripheral but rather an optional instructional goal. From still other respondents' points of view, fostering creative thinking is essential to developmental students' success.

Creative thinking within established boundaries.

Several participants suggested that students' creativity is most productive when expressed within boundaries established by the teacher. According to Professor Jones, who maintained that his students benefit from well-organized, carefully planned learning experiences, "With the developmental class, you have to have structure. These folks need

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a lot of structure and a lot of predictability." Professor Reid commented, "I let them know that there is room for creativity, but it has to come within a framework." She reiterated, "All their writing is done within a framework" that consists of a paragraph with a clear introduction, body, and conclusion comprising a minimum of eight sentences. Professor Reid's students can exercise their creativity in terms of paragraph development provided that they write within the prescribed organizational framework.

During the interview, Professor Roberts revealed, "The more I think about it, creativity has its strengths—and there are a lot of weaknesses" too. He explained that if teachers allow students to "explore without limiting the direction," whether in math or English, students "can create bad habits," much like a "bowler or golfer," who after playing incorrectly for a lengthy period, struggles to learn the game correctly. As Professor Roberts observed, "You can pick up bad habits, and those bad habits at some point hinder you from becoming more successful at bowling or golf." Through this analogy, he implied that developmental math students can also acquire habits that are counterproductive to their success. Associating creative thinking with an exploratory process, he questioned, "If you have them [the students] explore with limited knowledge, are they really exploring?" With this rhetorical question, Professor Roberts suggested that creative thinking among developmental students should occur within limitations determined by the instructor.

Professor Johnson constructs boundaries within which her students can exercise creativity in terms of their diction while adhering to the basic rules of standard American English. When writing a descriptive paragraph, for example, students can "use their

imaginations" to "engage with metaphors and similes." She recalled an exercise that she used when the walls in her classroom were beige.

"What color would you say the walls are?" she would ask the students, who typically replied, "beige."

"What color is that? I don't understand that," she responded, prompting the students to choose specific, concrete words. The students would then suggest, "Well, it's beige like French vanilla cappuccino, or it's beige like desert sand." By searching their "minds' eyes," the students conjured up "different pictures of beige," thus revealing the role of "individual interpretation" in the writing process. Through this activity, Professor Johnson explained that she encouraged her students "to be creative." She emphasized, however, that she does not recommend that students be "creative" about punctuation. As she contended, "It's incredibly important at this stage in the game"—namely, in developmental writing courses—"that they learn correct punctuation." While nurturing her students' creativity in terms of diction, Professor Johnson requires them to observe the conventions of standard American English in their papers. From her perspective as well as from those of other participants, creativity should transpire within a clearly established set of boundaries.

Basic skills acquisition as a prerequisite for creative thinking.

Many of the informants further suggested that the acquisition of basic literacy skills represents an essential prerequisite for creative thinking. Professor Reid lamented that "the fundamentals of course subjects are not being taught the way they used to be." She added that memorization plays a vital role in a student's mastery of basic skills. According to Professor Reid, some students did not learn the fundamentals in previous

grades because they were not paying attention, whereas others may have had teachers who failed to teach effectively. She contended that once students "know the important things without having to stop and think, 'Do I need a comma here or do I need to conjugate this verb?'" they can focus on the more creative aspects of their writing. Consequently, she emphasizes grammar more intensively than composition throughout the first half of her developmental writing courses. From Professor Reid's perspective, basic skills acquisition is a necessary precursor to the ability to think creatively.

Other respondents also view developmental courses as a prerequisite for creative thinking. "At the developmental level," Professor Roberts attested, students "haven't developed enough math, a strong enough math background" to think creatively when solving problems. He reasoned that because "the developmental courses, for the most part, are to put in place skills," teachers should provide students with a "foundation" for future courses. Professor Hart remarked that "for MAT 0024, really there is not a creative way to solve a problem because the problems have a certain procedure." Thus, Professor Roberts recommended that developmental teachers "simply teach" students "how to perform the task." He suggested that later, in subsequent courses, math teachers "could find ways to make it [the process of learning math] more enjoyable." At that point, both the students and the teacher can become "more creative," noted Professor Roberts.

Other participants likewise consider the acquisition of basic skills a requirement for creative thinking. Speaking rhetorically, Professor Jones commented,

> Do you need your basic skills? Yes, some students need that, and they're not
> ready for the creativity yet. They may not be until they get four or five classes

down the road. I do think the basic skills are essential because they have to have some kind of foundation.

Like other participants, Professor Jones believes that basics skills serve as a necessary "foundation" for creativity. Professor Miller asserted, "I think it's bloody difficult to be creative when you don't have the foundation to even know how to classify your thoughts." To think creatively, she added, students must have learned to ask such questions as "Why am I doing this? What is the process here? Why is this working? Oh, this is great; let me use this, or this isn't working." From Professor Miller's perspective, "metacognition and thinking about thinking"—abilities honed in developmental reading courses—constitute a critical "stepping stone to being creative."

Professor Adams also contended that students must acquire knowledge of the basics before thinking creatively in a particular subject. He suggested that a "direct relationship" exists between students' mastery of the fundamentals in math and their readiness for creative thinking. As he emphasized, "Students cannot be creative in their thinking until they learn the concepts." To explain the relationship between basic skills and creative thinking, Professor Adams drew an analogy:

> It's kind of like giving me some wood and telling me to be creative in building this house, and I don't know the first thing about building a house. I may try to be creative in my mind and visualize something that's creative, but as far as me actually doing it, I can't be creative with it until I take some intro classes on building and architecture and structure. Once I get those basics in me, then I can be creative.

Through this analogy, Professor Adams illustrated his belief that an individual cannot build a house creatively until he learns about construction and architecture, nor can a student think creatively until he acquires the fundamentals of a particular discipline.

Several participants maintained that upon having mastered the basics, students could potentially cultivate their creative thinking skills. Professor Hart remarked that at "a higher level of math, there are sometimes ways, a creative way, to do the problem," and she deemed the promotion of creative thinking skills to be "very important" in advanced math courses. Professor Roberts maintained that in "upper-level math courses, it's entirely different because you want students to become more creative, but their critical thinking must drive their creativity." He added, "We can't develop new ideas or come up with new theorems or axioms in mathematics without being creative but applying some type of logic to the approach which we're taking." Integral to the development of new theorems and axioms in math, creative thinking—from Professor Roberts's perspective—must co-exist with critical thinking and represents an essential skill set for upper-level math students who have already mastered the basics.

In a similar vein, Professor Carson contended that by mastering the basics, students can prepare to think creatively. She reasoned that students "need to go through basic problem-solving procedures over and over and over" through a skill-and-drill approach in math. As students learn to ask "What is the goal? What am I doing? Are there different ways to get there? Can I get there by doing this? Can I not do it?" while studying basic skills math, they lay pathways for creative thinking in the future. Professor Carson affirmed the importance of "practicing, practicing, practicing," which helps students build "their security and/or confidence . . . on the little concepts that make up the

bigger picture." As she emphasized, "There is no doubt around the fact that you must practice and work hard" to "build your foundation and strengthen your mind muscle." According to Professor Carson, once students understand "what they need to know or need to do" in math, they can begin exploring such thoughts as "Well, maybe I can do this, or maybe I can do this. I know I can apply this here. Perhaps I can go this route." The mastery of the basics, Professor Carson posited, "will foster creative thinking."

Professor Carson discussed the difficulty of promoting creative thinking at the developmental level. When asked about the relevance of creativity in math, she offered a quantitative response, ranking creative thinking as a 7 on a 1 to 10 scale, with 1 being insignificant and 10 being significant. As she clarified, "The creative thinkers are the ones who will help make the best of our world" by thinking "outside of the box" and "dar[ing] to question authority . . . or to come up with a new method, whether it be good or bad," for solving a problem. She added, "Unfortunately, I don't feel like a traditional math class necessarily fosters creative thinking. That's sad, and it's terrible." She explained that from her experience as both a student and a teacher, creative thinking has not been "very well fostered" in math courses. Although she conceded that "fostering creative thinking is possible and it's done in many ways," she maintained that "it's hard at the developmental level to see the forest for the trees . . . when you're teaching these very basic ideas that should have already been done." Elaborating, she remarked, "I feel that we have to get these basic skills down before we can do applications that are more significant in the real world." From Professor Carson's perspective, students must master the basics prior to being able to think creatively about math applications, particularly

those outside an academic context. Several other participants in the math discipline

shared her view.

The promotion of creative thinking as an optional goal.

From one participant's perspective, the promotion of creative thinking in

developmental courses represents an optional, though not an essential, instructional goal.

About creativity, Professor Miller exclaimed,

> It's like the icing on the cake. It's like the silver lining to the cloud. Yes, you can
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> be a good reader and you can discern this and you can learn the strategies and you
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> can get through your courses, but who wants pound cake when you can have
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> Italian icing on the cake? So to me that is a lovely thing to leave the class with. If
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> you can give that student not just everything they're supposed to have but
>
> more . . . to me, that's the more part. Just because you make it through the class
>
> and pass that exit test doesn't mean that you're any more of a thinker on the
>
> creative level, but I think that perhaps some of the things I've done have instilled
>
> that in my students, and now I'm glad to know I'm doing it.

Professor Miller analogized the teaching of creative thinking to positive images

embedded in familiar expressions like "the icing on the cake" and the "silver lining to the

cloud." Such analogies imply that the promotion of creative thinking is an additional,

though not essential, course objective in a basic skills course. She acknowledged that a

student's successful completion of the course and the exit exam does not indicate that he

has become a creative thinker. According to Professor Miller, the ability to think

creatively is a "lovely" learning outcome—one that represents "the more part" as students

progress beyond the basics. By participating in the study, furthermore, she became aware

of strategies that she has employed to enhance creative thinking among her developmental students.

The promotion of creative thinking as an essential goal.

Whereas some instructors perceived the cultivation of creative thinking skills as being a peripheral or an optional instructional goal in developmental courses, others deemed it essential. Professor Smith posited that "a developmental course is a prime course for creative and critical thinking because most of our students, they don't come here with it, so it has to be developed in a classroom." Because many developmental learners have not previously cultivated their abilities to think creatively and critically, "the developmental classroom is fertile ground" for doing so, she reasoned. Similarly, in response to the question about the role of creative thinking in developmental education, Professor Davis stated, "I think it's key." She later remarked, "It's important to developmental education classrooms." As she elaborated, "We're talking in our prep classes about preparing them. The more creative a thinker you are, the better prepared you are to go on into the college program." Designed to prepare students for college-level work, developmental courses play an important role in equipping students with the creative thinking skills essential to their future academic success, explained Professor Davis. Professor Johnson also contended that creative thinking is "incredibly important." Recognizing that many students struggle to write specifically and concretely, she begins her developmental English course with a descriptive paper to help students "move past the 'what it is' to the 'what it can be' so that they learn to "see the possibilities" when composing. Professor Watson likewise maintained that the ability to think creatively is "very important" for developmental writing students. She added, though, that creative

thinking "won't be limited to what they write; it will pass over into other parts of their lives," implying that the ability to think creatively is important not only in writing but also in life.

Professor Scott asserted, "I think creativity in the developmental classroom is even more important than creativity in an advanced, like an honors, course." Reflecting on creativity in terms of an instructor's pedagogy, Professor Scott added, "I think without creativity, without using something in addition to just a book . . ., there is going to be very little interest on the part of the students." Similarly, Professor Adams asserted, "The creative thinking aspect, I think, is very important in the classroom because it helps the students retain the information longer." He then remarked, "That's ultimately what we want them to do. We want to teach them a topic that they can then relate to other aspects of their life." According to Professor Adams, by "putting a swing" or "a real-life aspect" on the way that they present material, instructors can encourage students to learn not simply for the duration of the course but for "five, ten years down the line." Professor Scott contended that to "whet the appetite"—that is, to help students "want to learn" and ultimately to think creatively, teachers "must use as many tools as we possibly can muster," including mini-lessons on grammar, read-aloud activities, and web-based exercises in her developmental writing courses.

About the significance of creative thinking skills for students enrolled in developmental courses at FCCJ's Kent Campus, Professor Jones responded, "I think it's important because I think our society now is slowly moving away from that multiple-choice world." Similarly, Professor Reid opined, "If we're talking about creativity in terms of creative thinking, I think it's terribly important," for "thinking is the basis of

writing." Indeed, "the most important part of writing is the thinking aspect," maintained Professor Reid. During the second observation, Professor Jones showed the researcher a book that he uses as a supplemental resource in his developmental reading courses. Although author Melissa Forney (2001) designed *Razzle Dazzle Writing: Achieving Excellence Through 50 Target Skills* as an instructional guide for teachers of third through eighth graders, Professor Jones finds it helpful for his community college students.

One subheading in the book reads, "Creativity and Creative Writing." According to Forney (2001), "All writing we teach to children should be considered *creative writing*. There is not one genre designated for beauty and . . . another for lifeless, unimaginative writing" (p. 5). Forney suggests that regardless of the genre, writing should reflect the author's originality, imagination, and creativity. Elsewhere in the text, she regrets that "more emphasis is being put on assessment scores than on learning writing as personal expression and creativity" (p. 3). She, therefore, provides instructors with activities for teaching "target skills" that foster "razzle dazzle, beauty, depth, and maturity" in student writing (p. 3). Professor Jones's use of Forney's book as a supplement in his developmental reading courses suggests that he too recognizes the importance of creativity to the writing process. Other participants likewise perceived creative thinking skills as being significant for developmental students.

The Creative Potential of Developmental Students

Although the participants' perspectives about the importance of creative thinking in developmental courses varied considerably, they overwhelmingly concurred that developmental students possess the ability to think creatively. Professor Reid asserted, "I

don't think they have any road block to being creative." Similarly, Professor Watson contended, "I don't think there should be limits" regarding the creative potential of developmental students. As Professor Johnson declared, "I think that they can learn anything." Professor Hart likewise exclaimed, "Oh, yeah, they are able. They are really able to think creatively if they just use the concepts that they learned and practice because maybe MAT 0024 is just the beginning of it for some students." According to Professor Hart, developmental math represents a springboard into higher level courses where students can continue cultivating their creative thinking skills.

The informants enthusiastically commented upon their students' creative potential while acknowledging the challenges of fully realizing it within developmental courses. As Professor Miller admitted about the students in her reading classes, "They're not there at first; nobody's there at first." She added, "As far as them reaching that creativity level, I don't know if I send them all out of there being creative. But they're successful, and it's paving the way, I think, for creativity because they have the foundation now." Professor Miller suggested that upon completing their developmental reading requirements, students have obtained the "foundation" for acquiring creative thinking skills. In like manner, Professor Scott remarked, "It seems to me that for the first half of the semester, they're not terribly creative. They get better. They seem to improve as we go along." Although students "do improve" by the end of the semester, Professor Scott stated, "As far as [their] being terribly creative, no, I haven't seen that." She posited that if ENC 0021 were taught over two semesters rather than one, students might become "much more creative."

Expressing enthusiasm about her students' creative potential, Professor Smith proclaimed, "It's absolutely stunning . . . It's stunning the quality of the work that these students are able to do based on providing them with the right environment." Throughout the interview, she repeatedly used the word *stunning* to describe her students' capacity for creativity. On one occasion, she was so inspired by her students' creative Power Point presentation on a reading lesson that she invited her associate dean to observe the class. Praising her students for their creativity, she declared, "It's so powerful until it takes your breath away." Like other respondents, Professor Smith strongly believes in her students' capacity for creative thinking.

Summary

Organized thematically, this section of the study findings contains the participants' perspectives about research question one: To what extent is creative thinking important for students enrolled in developmental education courses at Florida Community College at Jacksonville's Kent Campus? Throughout the coding and analysis of data collected triangularly, several themes surfaced, ultimately revealing the informants' instructional goals, their definitions of creativity, their varying perceptions about the importance of creative thinking in developmental education, and their conviction that developmental students possess the ability to think creatively. Although some participants maintained that the promotion of creative thinking in the developmental classroom is peripheral to the teaching of basic skills, others considered teaching for creativity to be either optional or essential to their students' academic and professional futures.

Research Question Two

Introduction

In addition to exploring the importance of creative thinking in developmental courses at FCCJ's Kent Campus, the researcher investigated the participants' perceptions regarding research question two: What are the characteristics of classroom environments that facilitate creative thinking among developmental students? Data collected during the interviews proved especially helpful in addressing this question. During the coding and analysis process, two contrasting themes emerged: on the one hand, classroom conditions that hinder the development of students' creativity, and on the other hand, classroom conditions that promote the development of students' creativity. The researcher organized the study findings in this section accordingly.

Classroom Conditions That Hinder the Development of Students' Creativity

The participants described numerous classroom conditions that hinder the development of students' creativity, including the following:

- Skill-and-drill learning environments

- A traditional, lecture-based classroom with a subject orientation

- Negativity from the instructor and/or the students

- A lack of the necessary materials and resources.

Skill-and-drill learning environments.

Professor Smith characterizes a classroom environment that stifles student creativity as "skill and drill." She vehemently claimed,

Anyone that's using a skills-based methodology, that's going to kill them [i.e., the students]. That's going to absolutely kill them. Skill and drill will kill them; that

would kill their enthusiasm. That would just kill them. What I've always believed

in, and that's why the constructivist philosophy is so important to me, is . . . [that]

it's about making connections. I show my students how to make connections from

text to text, from course to course, and from course to world. I help them to see

how all of this works together. And when they're in a strategic-based classroom,

this is what occurs. The skill and drill classroom . . . it's going to kill them.

When asked to describe the learning activities that would occur in a "skill and drill"

classroom, Professor Smith replied, "worksheets" with a "strictly mastery learning"

approach. She offered the following clarification:

I'm not suggesting that anything is wrong with mastery learning because a lot of

what we do is based on that, but you see, that's what will happen. You're going to

be doing a lot more worksheets. The students are not going to have as much

interaction. They're not going to be working on cooperative learning. You have to

put your students in groups. You have to recognize that you teach to all of their

modalities. You just don't go in there as the all-knowing. . . . You have to honor

the visual learner, the auditory learner, and the kinesthetic learner. You have to

embrace Howard Gardner. You share things like that multiple intelligence theory.

You do all of that, but that drill and kill classroom, that instructor is assuming that

they're coming in there as a blank slate and that everything they're learning, this

is the first time they've heard. They're not valuing their background and the

experience that they bring, and then what happens is they disappear.

According to Professor Smith, although mastery learning based on drill and practice

occupies an important place in developmental education, students also benefit from

interacting with their classmates in cooperative learning groups. Rather than using lecture as their exclusive instructional method, she believes that instructors should appeal to diverse learning styles while honoring students' multiple forms of intelligence. All too often in a "drill-and-kill classroom," instructors neglect students' prior knowledge and experience, Professor Smith contended. In the literature, Grubb et al. (1999, p. 174) likewise differentiate "student- and meaning-centered" teaching from the "deadly drill-and-kill" instruction that, according to Professor Smith, causes students to "disappear."

A traditional, lecture-based classroom with a subject-orientation.

In addition to an excessively skills-oriented classroom, several participants noted that a traditional, lecture-based approach with an over-emphasis on the subject matter could limit the development of creative thinking. Professor Jones posited that teachers who are "subject-oriented" rather than "student-oriented" create environments that restrict the learners' creativity. As Professor Roberts noted, a "traditional classroom" based exclusively on lectures "hinders" the development of creative thinking skills "every day." In such an environment, he added, teachers do not explore their students' "mean[s] or mode[s] of learning." According to Professor Adams,

> The way most instructors were taught, especially instructors that have been teaching for ten, fifteen, twenty years, is that "you come to class, the instructor teaches, gives you an assignment, and you do it—the end. Don't ask questions. Just do it."

Possessing a subject- rather than a student-orientation, many college instructors teach the way that they were taught in terms of a lecture format, maintained Professor Adams. Professor Jones remarked that by "strictly teaching from the textbook" as opposed to

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engaging the students in discussions and building upon their background knowledge, instructors "restrict" their potential for creative thinking.

At the end of the interview, Professor Jones stated,

I wish I would have gotten on the bandwagon sooner with creative ideas, getting away from the textbook. It's just been in the last few years now that I've been really more student-focused than content-focused. . . . Now I do more tutoring, working with the students, sitting down with them. Before, either they got it, or they didn't get it. I did my job; now you do your job. . . . This is college.

Professor Jones indicated that he would like to have incorporated more creativity-enhancing approaches in his teaching repertoire earlier. In recent years, though, he has evolved from a content-focused to a learner-centered teacher who interacts closely with his students, often by tutoring them, as he explained he had done for nearly two hours after class the prior week. According to some participants, a traditional, lecture-based classroom in which teachers focus on the subject matter rather than on the students can reduce opportunities for creative thinking.

Negativity from the instructor and/or the students.

The participants also observed that negativity from the instructor and/or the students can thwart creative growth. Professor Davis commented that the "attitude of the professor" in terms of "resistance to flexibility" and "inaccessibility" might hamper creative thinking. As she clarified, classroom conditions antithetical to the emergence of creativity occur when instructors do not make themselves available to students, do not entertain questions, fail to keep office hours, and offer no guidance or encouragement. Such conditions evoke "fear" among students who soon "dread" attending class. In

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addition to Professor Davis, other participants deemed flexibility on the part of the instructor to be especially important to the promotion of creative thinking among students. Teachers who nurture such thinking remain "flexible," according to Professor Watson, who added, "You've got to be able to turn on a dime," particularly "if you're losing your students." During the interview, Professor Scott attested to having experienced a negative learning situation like that portrayed by Professor Davis. Allowing "no room for any creativity," the instructor of Professor Scott's college history course lectured incessantly and monotonously. "It was his way or no way, and there was not room for any input from anybody," she recalled. Comparing the instructor to a "dictator," Professor Scott asserted that because the students did not have "leeway for more creativity," they "dreaded going to his class, absolutely dreaded it."

Professor Reid also contended that instructors with negative attitudes toward students can restrict opportunities for creative growth. Teachers who do not learn their students' names and those who tell them, "Half of you will be gone by the middle of the semester" negatively influence the learning environment, explained Professor Reid, who concluded that "We need to be sure that the teachers genuinely like working with students." According to Professor Adams, not only can "extremely negative" instructors hinder the development of creativity but so also can "extremely negative" students. As he asserted, a student who "picks out the negative" and "keeps bringing out the negative" rather than perceives "the big picture" or "the positive in whatever assignment we're doing in class" contributes to a learning environment where creativity cannot flourish.

A lack of the necessary materials and resources.

Some participants reported that in addition to negativity, a lack of the necessary materials and resources can stifle students' creativity. Professor Miller observed that "without technology and without decent materials," she would struggle to teach effectively. She added, however, that "the materials and the setting and the technology of this particular campus and community college have made it easier" to help her reading students succeed. Professor Hart noted that to learn effectively, students must have "the right tools in the classroom," such as access to the software program My Math Lab, which she integrates into her developmental math course. If unable to use the necessary resources, students "won't be able to do their work and they won't be successful doing their homework," she added. Thus, from some respondents' perspectives, the appropriate materials and resources are instrumental to the development of creative thinking.

Classroom Conditions That Promote the Development of Students' Creativity

In contrast to the aforementioned factors, the following conditions—according to the informants—can promote the development of students' creativity:

- A constructivist learning environment

- A comfortable, welcoming atmosphere

- Multiple opportunities for interaction through cooperative learning

- The availability of flexible facilities

- The well-planned use of technology

- A decreased emphasis on standardized testing

- A supportive administration.

A constructivist learning environment.

The study revealed that a constructivist learning environment, among other variables, might support the development of students' creativity. As Professor Smith maintained, "We have to respect our students" in part by recognizing that they are not "tabula rasa[s]." With 27 as the median age among students enrolled in FCCJ's college-credit programs ("About FCCJ," 2008), teachers must recognize and respect the knowledge and experiences that learners bring to the classroom, according to Professor Smith. Professor Jones also implied that a constructivist environment facilitates students' learning. For him, teaching entails "bringing in that background knowledge and breaking information down," thereby motivating students to "talk and think." He advised that when drawing on students' background knowledge during class discussions, instructors ask such questions as "What do you think? How do you think that this happened? What do you think the author was thinking?" Professor Smith added that teachers who establish a constructivist learning environment express their "value" of learners by encouraging them to "share aspects of their lives and what they bring to the course," thereby potentially fostering creative thinking.

A comfortable, welcoming atmosphere.

In addition to a constructivist learning environment, some participants indicated that a comfortable, welcoming classroom atmosphere encourages students to think creatively. "Learning is happening, but it's comfortable" and "relaxed," according to Professor Davis, who observed that the teacher who fosters such an environment genuinely enjoys being in class with her students and exudes enthusiasm for their learning. In this type of classroom, students gain confidence in themselves as learners and

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therefore produce creative work, reasoned Professor Smith. Elaborating, she noted that when students feel confident in their abilities, they create original syntheses of class lessons, and "true learning takes place."

Multiple opportunities for interaction through cooperative learning.

In a comfortable, welcoming environment, teachers regularly use cooperative learning to promote student-to-student and student-to-instructor interaction, according to many participants. "I think it's the interactions," responded Professor Jones to the question "What classroom conditions do you think would promote creative thinking among developmental students?" He recommended that teachers engage students in group brainstorming sessions and record their collective thoughts on a flip chart. As they "spin off" one another's ideas, students generate responses to questions that both the teacher and they themselves pose. Through class brainstorming sessions, the students "start thinking" and "digging deeper," added Professor Jones. Similarly, Professor Miller attested, "I insist they network, so that's just one thing I do that I think has enabled them to be better speakers, communicators." She also posited that student-to-student interaction serves as a "stepping stone" to the cultivation of creative thinking skills.

Professor Johnson remarked that "a classroom without students" or "a classroom with one student maybe" would stifle creativity, for "students learn a great deal from each other," particularly "when they get into a really good brainstorming session." She asserted that "being imaginative or being creative is about the individual stepping outside of his or her comfort zone, his or her boxed realm of understanding." From Professor Johnson's point of view, the ability to think creatively depends more on an individual's interactions with others than on the physical learning space, which could just as easily

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have "white walls and white boards and white chairs or dark walls and dark boards and dark chairs."

According to Professor Smith, when provided with "the right environment," students produce "stunning" work—work that exhibits creativity. Throughout the interview, she offered insights into the characteristics that such an environment possesses, including the opportunity for cooperative learning activities, group presentations, and role playing. Each semester Professor Smith's REA 0010 students work in small groups to co-teach a lesson about a topic that they have previously learned in the class. When preparing the lesson, the students explore a concept, break it down, and then put it back together in a presentation. As Professor Smith explained, "I have them pull that lesson back together and use examples and show us things that they found." Her use of the phrase "pull back together" reflects the act of synthesis inherent in creative thinking. While presenting to their classmates, the students think "through the lens of a teacher," noted Professor Smith.

To construct a learning environment that facilitates creative thinking, Professor Jones recommended that teachers examine their attitudes and approaches:

I think the first thing that would have to change is the attitude of the instructor. If you came from the old school, I think it would be difficult for you to change horses. As I walk around some college classes, I notice some professors are sitting behind their desks and teaching from behind their desks. To me, that's not a good sign of a creative teacher, so you're going to have to come from behind the desk and get out there and mingle. You should know your students on a first-name basis and learn how to pull what they're thinking out.

As Professor Jones attested, creative teaching, which in turn promotes creative thinking, necessitates that the teacher interact with the students on an individual basis and draw upon their existing knowledge. Teachers who nurture students' creativity, he added, are more "student-oriented" than "subject-oriented"; the teachers are "just not up front talking" but rather "interacting" with the students. Indeed, numerous respondents remarked that an environment conducive to the development of creativity promotes student-to-student and student-to-instructor interaction through cooperative learning.

The availability of flexible facilities.

Additionally, several participants discussed the availability of flexible facilities as being instrumental to the promotion of creative thinking. Professor Reid explained that she enjoys having tables and chairs that can be easily manipulated to facilitate discussion and cooperative learning. Similarly, Professor Scott pointed out the need for larger classrooms with "one area like an alcove where we could sit at round tables," which "lend themselves well to discussions." When not engaging in discussion, Professor Scott's students "could adjourn to the regular tables or desks." Professor Watson also recommended a large room in which the teacher "can flow in between the students and keep them visually active." The students, according to Professor Watson, also "need to be able to move about" so that they can feel "comfortable writing." Similarly, Professor Hart replied, "I think it will help if we have a large room that they [the students] can move around in very easily." She emphasized that in such an environment, the students can "move around" to "share some ideas" with "another classmate who is not sitting right next to them." Professor Hart also indicated that she enjoys having "big boards" on at least three sides of the classroom so that the students can "write down their problems and

their solutions." She acknowledged, though, that "sometimes it is hard to provide that type of room here."

The informants offered additional insights into the role that facilities play in promoting creative thinking among developmental students. Professor Hart suggested that the physical aspects of a classroom, including the temperature, lighting, noise level, and comfort of the seats "are very important" for promoting creative thinking. Professor Johnson, however, observed that teachers must work with the existing facilities on campus. Recognizing limitations in classroom designs, she stated, "I don't know that I've ever been in a classroom that is perfectly suitable to every single activity we might do." Thus, she has learned to "improvise" and "work around" physical "obstacles." Professor Carson similarly remarked, "I don't think, cosmetically speaking, we have the best of stimuli as far as the conditions of our classrooms in general." Professor Carson noted that such factors as lighting, the color of the walls and carpeting, the availability of computers and other forms of technology, pictures, and wall displays all can provide visual stimuli to promote creative thinking in the developmental classroom. She elaborated that "at the college level, you would like to think we don't need those things," but because many developmental students are not "mature mathematically or even metacognitively, the classroom environment is very important." Professor Carson added, "In an ideal setting at the college level, I wish it didn't have to be. It shouldn't be, but it is significant." Professor Adams also noted that physical features in the room, such as decorations on the wall and computers on which students can explore instructionally relevant websites, might promote creative thinking. The facilities, according to some participants, can influence student learning at the developmental level.

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Both Professors Carson and Johnson, however, contended that people play a more important role in fostering creativity than space does. Upon reflection, Professor Carson concluded, "I think ultimately the facilitator can dominate over any cosmetic outlook on a classroom." Even if teaching in a "dark room with no resources to help stimulate" students, a passionate facilitator, according to Professor Carson, could potentially promote creative thinking. Professor Johnson maintained, "Furniture is just furniture; you can move that around" as if echoing Professor Carson's suggestion that "you can go in there, and you can say, 'Let's make this room whatever we want.'" Professor Johnson proposed that "you need a facilitator and you need students" to foster creativity in the classroom. Perhaps, as the respondents suggested, a classroom conducive to creativity is less about the physical space than the people who occupy it.

The well-planned use of technology.

When asked about the classroom conditions that promote creative thinking, several participants addressed the well-planned use of technology. Professor Smith often requires students to produce a Power Point presentation of a class lesson and therefore requests to teach in a "smart classroom"—a term used at FCCJ's Kent Campus to describe a classroom that contains, at a minimum, an instructor's computer with a projection system, the ability to play video and audio files, and access to the Web. Professor Miller also expressed a desire for "a smart classroom" in which "all the technology is there." Professor Johnson observed that the computer classroom in which she teaches has provided students with a sense of "comfort." Because many of "these students have grown up with technology," she asserted, they feel comfortable in the "familiar" setting of a room full of computers.

Some participants, however, suggested that technology can be both beneficial and detrimental to the promotion of creative thinking. According to Professor Reid, computers can be at once "helpful" and "distracting" in the classroom; thus, she prefers teaching in a non-computerized environment and occasionally reserving a supplemental computer lab in which her students can access online resources. Professor Watson, who regularly teaches in a computerized classroom, shared, "I'd prefer to have the computers taken out of that room except for the overhead and the one I can use because I want them [the students] to have more freedom to move around" for group activities. She added that the students do not use the computers during class time but rather for homework assignments. She also reported that "the constructed desks" in her current classroom limit her students' mobility and thus freedom to engage in cooperative learning activities. She concluded that "absolute structure" in rooms where students cannot manipulate the furniture results in a learning environment that often hinders the development of creative thinking.

Professor Roberts offered a compromise between the conflicting views regarding the use of instructional technology when he advised, "You have to find a happy medium per course, per class," depending on the individual learners' needs. Some students benefit more than others from technology. Because students' access to computers at home varies considerably, Professor Roberts recommended that instructors integrate technology according to their students' needs and resources. To teach students with diverse learning styles and varying degrees of interest in technology, Professor Roberts proposed that the "classroom atmosphere should have an area that contains computers and an area that does

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not have any technology in sight." He added, "It's almost as if you need a blended room"

to establish the ideal conditions for promoting creative thinking.

In the blended learning environment that Professor Roberts envisaged, students

would have access to both a teacher and computers. From his perspective, the teacher

plays an invaluable role in the classroom, despite the increasing presence of instructional

technology. As he asserted, "No one can replace an instructor" who can offer one-to-one

guidance with math problems, yet technology, with its ability to enhance the teacher's

effectiveness and efficiency, can potentially enrich the learning process, reasoned

Professor Roberts. Perhaps, as he suggested, conditions conducive to the promotion of

creative thinking involve the careful, well-planned integration of technology in "blended"

learning environments.

A decreased emphasis on standardized testing.

In addition to the effective use of technology, the participants posited that a

reduced emphasis on standardized tests, such as the Florida state exit exams for

developmental courses, would foster classroom conditions in which students' creativity

could thrive. According to Professor Scott, "For our purpose of trying to teach the

material, we're trying to teach to the test." Professor Reid maintained that students would

benefit from experiencing less emphasis on the exit exam and more on the course

content. As she observed, "We often teach to the test," and doing so can become "stifling

or paralyzing" for some learners.

A supportive administration.

From Professor Miller's perspective, not only can instructional and technological

issues influence the quality of the learning environment, but so also can administrative

ones. A noteworthy finding concerned the importance of a supportive administration for teachers seeking to promote creative thinking among developmental students. Professor Miller expressed her appreciation for the Kent Campus administration:

> The setting of this particular community college is good. The administration is very, very supportive of its professors. They hire good people; they trust these people; they watch over these people; and they support them. They give us guidance—I think the associate dean does every year for the adjuncts that come in, and it's very informative. They're very supportive of us here, and when we need help, there's always someone there to help us. An adjunct is like an outsider coming into the fold, and people are very gracious here.

Speaking from an adjunct instructor's perspective, Professor Miller noted that an administrator who hires, trains, and supports talented faculty facilitates the instructional goal of promoting creative thinking. The administrative dynamics on a community college campus, she explained, can significantly influence the quality of the classroom learning environment.

Summary

In response to research question two, the participants discussed classroom conditions that either can hinder or enhance the development of students' creativity. On the one hand, skill-and-drill classroom environments; traditional, lectured-based approaches with a subject orientation; negativity from the instructor and/or students; and a lack of sufficient instructional resources can limit creative thinking. On the other hand, a constructivist learning environment; a comfortable, welcoming atmosphere; numerous opportunities for interaction via cooperative learning; the availability of flexible facilities;

the well-planned use of technology; a reduced emphasis on standardized testing; and a

supportive administration may promote such thinking among developmental students.

Research Question Three

Introduction

Not only did the researcher investigate the importance of creative thinking and the

classroom learning environments that facilitate its development, but she also explored the

following research question: What instructional approaches and methods can teachers

employ to foster creative thinking in developmental students? Through interviews,

observations, and document analyses, the researcher gained insights into the participants'

personality characteristics, instructional approaches and methods, as well as suggestions

for promoting creative thinking—all of which emerged as significant themes during the

data analysis and thus informed the organization of this section.

Personality Characteristics

Data collected both in the field and through document analyses revealed that

many of the participants possess such personality characteristics as an enthusiasm for

teaching, a positive attitude toward students, and a sense of humor.

Enthusiasm for teaching and a positive attitude toward students.

Several participants demonstrated enthusiasm for teaching and a positive attitude

toward students. Exuding enthusiasm in the classroom, Professor Miller spellbound her

students with a theatrical reading of "The Professor Is a Dropout" to illustrate the

importance of *imaging*, which she defined as the formation of mental pictures of written

words as one reads, and to discuss the relationship between skillful reading and academic

success. As Professor Miller remarked during the interview, "I always like to read to them to show them active reading," thereby modeling fluency. In the aforementioned essay, Johnson (2004) chronicles the educational journey of Guadalupe Quintanilla, who, despite being incorrectly labeled as "seriously retarded, not even teachable" after scoring a 64 on an IQ test in the first grade, ultimately became an assistant professor at the University of Houston, president of her own communications company, and a representative to the United Nations (pp. 423-424). Around the mid-point of each semester, Professor Miller reads this piece, which she describes as "brilliant," to her students. By this time, she commented, many students understand the importance of reading and developmental course work to their education; therefore, they are ready to reflect on the message embedded in Johnson's text. Asking the students to jot down the images that they visualized as she read, she explained that "no right or wrong answer" existed—only their unique responses to the reading.

For the first half of Professor Miller's reading, the students busily copied down mental images evoked by the text, but then they stopped writing and simply listened, captivated by the narrative of human struggle and endurance. Upon finishing the essay, Professor Miller emphatically quoted Quintanilla: "Although I didn't know it at the time, when I was a little girl learning to love to read, I was laying the foundation for academic success" (Johnson, 2004, pp. 427-428). As Professor Miller observed, the essay poignantly addresses the importance of "commitment" and "hard work" in school, particularly in a developmental reading course, which she enthusiastically teaches.

Like Professor Miller, other participants exhibited a passion for teaching. Professor Adams, for example, conveyed enthusiasm in the classroom. After challenging

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students to solve the problem $x - 4 \div x^2 + 3x - 28$, he exclaimed, "When you get it, say 'got it!'" After the students completed the preceding problem, he inquired, "Are you all ready for another one? That was so fun, wasn't it?" Characterizing her teaching style as "enthusiastic," Professor Johnson remarked, "I enjoy what I do," and she added, "I feel energized by the interaction with the students." To make learning enjoyable for her students, she indicated that she experiments with "funny voices and facial expressions and just animation." Also energetic and enthusiastic, Professor Reid observed, "I sometimes sing or shout or use different voices" to engage students in the learning process. Professor Johnson especially relishes appropriating comical voices, like her "cheesy French accent," which she humorously demonstrated during the interview.

Professor Johnson revealed that the "creativity—the silly little voices or the chances where I step outside of myself and look at it from a different perspective"—feels "natural to me" because "it's part of my personality." She suggested that her creativity in the classroom "perhaps might encourage" her students to express themselves creatively as well. Professor Johnson also shared that she believes her "extensive acting background" has significantly influenced her approach to teaching. As she asserted, the Shakespearean notion that "All life is a stage" plays a "huge role" in her classroom. Like other participants, she appeared to delight in teaching and interacting with students.

A sense of humor.

Enthusiastic and positive, the participants expressed a sense of humor when teaching. Enjoying a warm, friendly rapport with her students, Professor Miller jested with a student sitting in the front row: "I see you hanging your head so I won't pick on you." Also observing that several students avoided his gaze in the hopes of not being

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called upon, Professor Roberts joshed, "No matter how many times you put your head down and hold your nose, I'm about to call on you." Professor Miller again expressed her sense of humor by gently chiding a student who had submitted a sheet of paper hastily torn from his spiral notebook: "What did your high school teacher tell you about those holes on the side of the paper?" During the second observation, she humorously exclaimed, "Teachers' ears are their best feature" as a way of re-directing the attention of two students who were socializing during a group activity. Reflecting on her teaching style as she conversed with the researcher during a class break, Professor Miller remarked, "I do try to incorporate a lot of humor in my class because it's my personality." Later, in the interview, she contended that teachers who take "a bit of a comic approach" can "ease a lot of the stress" of being in a developmental class for those students who "already feel tagged." She also asserted that by building a positive rapport with students, a teacher can motivate them to succeed: "I think if a teacher has a rapport with a student and it's good—and I'm sorry, but I think if they like you—they want to please you," and "they try harder." Through her warm personality and infectious sense of humor, she helps students feel comfortable with her and with developmental reading.

Professor Jones also periodically injected humor into his class sessions. After reviewing a particularly challenging set of vocabulary words with the students, he asked, "Did I tell you you're going to have to spell these words on the computer?" The students looked alarm until they detected the instructor's wry tone, and then they burst into laughter. When teaching the concept of implied main ideas, he constructed a humorous hypothetical scenario about the inference he should make if he arrived at the school where he teaches and discovered that the name plate on his mailbox had been removed

and his classroom door had been locked. Laughing, the students chorused, "You've been fired!" While announcing a class break during the second observation, he quipped, "If you go to Dunkin Donuts and there's a long line, just show them your FCCJ ID." Then he jested about the students being stopped by a police officer for speeding back to class from Dunkin Donuts. Grinning, he again recommended that they show the officer their FCCJ ID but humorously added, "You'll probably still get a ticket," evoking laughter in several students.

Other participants also maintained a sense of humor when teaching. To make students feel "at ease," Professor Scott explained, "I try to use a lot of humor." A sense of humor and a spirit of camaraderie permeated her classroom. About a student who had struggled to draft a paper but eventually prevailed, Professor Scott exclaimed, "I think there's a writer inside her trying to get out." When she shouted, "Let her out!" the students chortled. Laughter also rang throughout Professor Carson's class as she made numerous quips. While reviewing the procedures for factoring, she wittily punned, "I already tortured—I mean 'taught'—you." She also joked about the students completing all of their homework the night before their MAT 0024 class. During the lecture on rational expressions, Professor Carson stated, "Here are my hints for how to deal with funky fractions: 1. Factor, factor, factor! and 2. Don't be a home wrecker!" When explaining the second point, she cautioned students, "If you ever see a plus or minus sign, they're married. Don't touch that." Chuckling about this humorous yet helpful hint, the students appeared to grasp the concept. After his students had identified 2 as the greatest common factor in $4x^2$ -18x -10, Professor Adams wrote $2(2x^2 - 9x - 5)$ on the board. Humorously comparing the number 2 outside the parentheses to "the man who knocks on

your front porch door to try to sell you a vacuum cleaner," he noted that like an uninvited guest, this coefficient is trying to get inside the "house." By periodically injecting humor, Professor Adams, like many other participants, maintained students' attention in class.

Instructional Approaches

In addition to the participants' personality characteristics, the researcher observed their instructional approaches, which included the following:

- A skills orientation

- An emphasis on learning strategies

- Personalized instruction

- The use of verbal praise to increase students' confidence

- The use of cooperative learning.

A skills orientation.

In many of the developmental classes that the researcher visited, the professors applied a traditional, skills-oriented approach to instruction. The agenda for the second observation of Professor Jones's class, for example, read as follows:

Today's Skills Focus

- Vocabulary Chapters 9 and 10

- Unit 2 Vocabulary Review

- Reading: Chapter 5, Relationships I

- Vocabulary Placement Test (2nd Attempt)

- Mid-term

The words "skills focus" reveal Professor Jones's instructional emphasis on practices, reviews, and tests. Similarly, Professor Miller employs what she labeled a "workshop"

approach. According to her REA 0010 syllabus, the workshop format involves "participation and practice," particularly with the use of a workbook from which students regularly submit assigned pages. During the interview, she characterized the approach as "very regimented . . . very much a workshop," and she stated that she explains this concept to her students in the following manner:

> Reading is an active process—i.e., work, i.e., workshop. You're coming in here, you're grabbing the book, you're doing the work. You're coming to me; you're showing me the work. You're going into your groups. You're doing the work. You give me your work, I grade it, I comment, we talk about it. You're going into the lab. Again, you are working. If you don't work, it is not going to happen.

Although Professor Miller admitted, "I love a lecture class," she purposefully chooses not to utilize that approach because in developmental reading classes, "it's the work that counts and the effort, elbow grease, knuckle down." She attributed her students' high passing rates on the state exit exam to the workshop approach.

In addition to textbook exercises, Professor Miller's students complete online activities via Blackboard and various software programs like My Skills Tutor in an adjacent computer lab, which she noted "is wonderfully right outside" her classroom. Through a window that separates the two rooms, she monitors her students' progress in the lab. Professor Miller stated that the availability of reading software in the lab is "wonderful because it gives them [the students] instant feedback" about their choices and enables them to work at their own pace.

The agenda for the session during which the researcher conducted the first observation of Professor Miller's class revealed a skills-oriented focus similar to Professor Jones's:

1. Warm ups—2—

2. Vocabulary, p. 82/Sentence check #2/p. 139—Choose 1

3. Exercises

3. Lab

4. Test

Throughout both observations, Professor Miller's students worked individually and cooperatively on exercises from their textbooks; completed additional practices on the computer in the adjacent lab; and then took tests.

Whereas Professor Miller implemented a workshop approach to instruct students in basic skills, Professor Carson employed a lecture format. As Professor Carson remarked, "Even though I would like to consider myself a younger professor, I really like the old school"—a term that she defined as traditional "chalk-and-talk" lecturing. She explained that as she delivers course material, she frequently pauses to give students "think time, reaction time" in which they can ask questions and work problems. Throughout the first session, for example, she reviewed the steps of factoring, which she referred to as "the procedure" or "the logarithm." First, she prompted the students to ask themselves, "What are we doing?" The answer during this unit was "factoring." Secondly, she prompted them to pose the question "What is the first step in factoring?" to which they replied "the GCF." Third, she invited them to ask, "Do I have one [i.e., a GCF]?" Fourth, she routinely inquired about the number of terms in the problem: "Four

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terms, three terms, or two terms?" Lastly, she queried, "Is my leading coefficient a 1?" By repeatedly asking the same questions and engaging students in responding, she reinforced important mathematical concepts. "I don't know if you noticed, but all math is patterns," she explained after repeating the central problem-solving steps. "It is algorithms . . . procedures," she added. "That's why every time I try to sound like a broken record," she noted as she promoted her students' recognition and understanding of fundamental math patterns through drills and repetitions.

Emphasizing the value of worksheets and scratch paper, Professor Adams also exhibited a skills orientation in class. Upon distributing a worksheet, he exclaimed, "I've been on a worksheet kick these last couple of weeks, you all." After he asked the students who their "friend" is in math, they replied, "scratch paper." He remarked, "That's right. Scratch paper is your friend." Later, he urged the class not to try to solve problems without using their scratch paper; in fact, he implored, "Please don't do that." As the students studied the long division of polynomials, Professor Adams emphasized the value of repeated practice: "You've got to study the old in order to understand the new because the more problems you do, the easier it becomes." He maintained that by applying previously learned concepts to new situations, the students would become more adept at problem-solving. Similar to Professor Carson, Professor Adams explained, "In mathematics, it's all about patterns. If you can learn the patterns, you can solve the problems. You've got to see the pattern." According to Professor Adams, repeated practice is pivotal to students' mastery of math. The study revealed that participants in both the communications and math disciplines employed a skills orientation when teaching.

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An emphasis on learning strategies.

In addition to an emphasis on basic skills, a focus on learning strategies emerged in the study. During the interview, Professor Miller explained that she gives a mini-lecture in each class period about a course topic, such as metacognition, the internalization of one's successes and failures, and the importance of vocabulary. She, however, does not lecture at length. During the first observation, she introduced the term *metacognition* and defined it as a process in which learners think about their thinking and reading. As she began the mini-lecture, she observed, "We are slowly developing the ability to look at ourselves and say, 'This is not working for me.'" She clarified, "Developmental reading teaches you how to approach your other subjects." She then related metacognition to attribution theory, noting that "this all ties into what you attribute your successes to." She urged her students to think about their reading and to think about their thinking, and in doing so, to reflect on that to which they attribute their successes and failures. Whereas some individuals internalize responsibility for their successes and failures, others externalize such responsibility, she explained. According to Professor Miller, the most effective learners engage in internalization, which she implored all of her students to embrace. By becoming aware of the terms *metacognition* and *attribution theory*, students, Professor Miller elaborated, can gain greater control over their learning. Expressing a desire for her students to succeed in reading, future college courses, and the workforce, she beckoned them not to become "lambs to the slaughter in any class." In a conversation held with the researcher during a class break, Professor Miller referred to her course as "strategy-driven."

Later, Professor Miller shared a reading strategy for identifying the main idea in various passages. "Class," she began, "if you can find the supporting details, you might be able to work backwards to find the main idea." To illustrate this strategy, she analogized the reading of a text to the creative work undertaken by Michelangelo, who, according to Professor Miller, maintained that he merely chipped away at stone until he exposed the art underneath it. Similarly, by first locating the supporting details in a reading, students can uncover the main idea. After concluding this analogy, she feigned an Italian accent, causing her students to chuckle.

During the second observation, Professor Miller continued to provide strategies for identifying main ideas, particularly implied ones. Early in the session, she discussed the relationship between supporting details and implied main ideas. She assured the students that if they could identify the supporting details in a paragraph or passage, they could also recognize the unstated main idea. According to Professor Miller, an implied main idea is "not stated directly" but rather supported by the various details in a text. As she explained, "Sometimes an author will talk around an idea without stating it." Professor Miller then read a story entitled "Independence" in a lively, animated manner. When finished, she asked the students to express the implied main idea by reflecting upon the supporting details that contribute to it. Professor Miller recommended that students verbalize the main idea after reading a passage on an assessment. By expressing the central point before reading the multiple choice options, students could select the correct answer strategically. Throughout both observations, she emphasized not only basic skills but also learning strategies.

Personalized instruction.

Another theme that surfaced during the study concerned the personalization of instruction. Many of the participants individualized the student-teacher relationship by addressing the students by name, teaching them one-to-one both in class and during office hours, and expressing an interest in their well-being not only as learners but also as human beings. Recalling that a student had suffered from a headache the previous week, Professor Miller asked, "Carrie, are you doing okay? You still got that headache?" While sitting at her desk during the second observation, Professor Miller inquired about a pregnant student's health. During both observations, Professor Miller showed concern for her students academically as well as personally. Professor Scott also demonstrated that she cares about her students. "How are you, Billy?" she asked. "You look much better than you did last week, Tabitha. How are you feeling?" she inquired.

Characterizing her teaching style as "very personal," Professor Reid reported that she knows all of her students' names by the end of the first week of class, and she added that "they know that I know who they are." She explained that she offers her students "a lot of one-on-one attention" in class. During both observations, Professor Reid individualized instruction for her students by circulating throughout the classroom and checking their understanding of course concepts. After asking the students to create a complex sentence with an adjective clause, she visited them at their desks and reviewed their constructions. She praised students who had created correct sentences and assisted those who had made errors. In response to a student's request for more illustrations of the four sentence types, Professor Reid created numerous sentences about the class members, reflecting her knowledge about them as people, not just as students. Recollecting details

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about their hobbies, families, jobs, and course loads, she appeared to possess some personal information about all of her students. Astonished by her instructor's memory, one student inquired, "How do you remember all this stuff about us?" Smiling, Professor Reid continued composing sentences in which her students, like the protagonists in a story, were the subjects:

- Alison plays soccer for Westside.

- Kate has a quiz in her favorite class, and she got the notes off Blackboard.

- Josh didn't go surfing this weekend because he didn't have time.

- Aida and Michael both confessed to having a hard time with compound-complex sentences, and I am going to try to help them if it kills me.

Like Professor Reid, Professor Scott knows each of her students' names and personalizes instruction through a teaching style that she considers "very relaxed, very informal." As she remarked, "My style is to talk to them and to talk with them." At the beginning of each session, Professor Scott engages her students in conversation to "put them at ease for the moment" and "for the class period." She often asks, "Was there anything particularly interesting that happened to anybody this week? Anything they want to share? Anybody's child do something particularly wonderful or terrible?" During the first observation, one student replied, "Well, I got a raise this week." Several other students shouted, "Yea!" Another student inquired, "Was it a good one?" The student who had received the salary increase exclaimed, "It was a good one!" After Professor Scott stated, "We're proud of you," someone else asked, "Are you buying pastries from Edgewood [a local bakery from which Professor Scott regularly buys breakfast items for her students] next week?"

During the interview, Professor Scott provided additional insight into her

personalized approach to instruction:

I think it's just like life; it's not the big things that we will most remember. It's the

little things that may seem insignificant at the moment. It's sitting down in the

classroom around the pastries, Danish pastries, and juice that we've brought and

we're sharing. . . . It's a matter of "Let's sit down over pastries. Let's sit down and

talk. Let's talk. We can listen while we eat, so let's just talk—talk about writing," and

we do for a few minutes.

Comfortable in the relaxed, informal environment that Professor Scott had established,

the students freely conversed for a few minutes as they ate pastries and drank juice before

participating in a read-aloud activity of their paragraphs.

By personalizing her teaching approach, Professor Hart also creates a comfortable

learning environment for her students. Like Professors Reid and Scott, she regularly

addresses her students by name in class. As Professor Hart reported, "I really try to learn

their names very quickly, and then I call them by their names." She also encourages her

students to participate actively in class, especially by solving problems on the white

board. She explained, "I always tell them, 'Just come to the board. Try to do the problem.

Just try it. If you make a mistake, I'll help you.'" Professor Hart encourages her students

to take the risk of solving problems in front of their peers, and she assures them that if

they experience difficulties, she will help them. This practice reflects her belief that "if

the students talk and share their ideas, they learn more." During the second observation,

she randomly called upon a student sitting in the back row to solve the following

problem: $x^2 - x = 30$. When the student explained that she was willing to try but that

she did not know if she had solved the problem correctly, Professor Hart replied, "That's okay. If it is not right, we will help you." With each step of the problem, Professor Hart encouraged the student by exclaiming, "That's right. Perfect. Good for you!"

Though reluctant at the beginning of the semester, students gradually develop the confidence to solve problems on the board, Professor Hart reported. During the first observation, a student arose from his desk and requested permission to write his solution to a problem, which varied from the instructor's, on the board. Asking him to use a red dry erase marker to distinguish his writing from hers, she welcomed him to the board. After he wrote his procedure, she helped him understand an alternative approach, and several other students appeared to benefit from the demonstration as well. "Is there any question?" she asked of the class, checking for comprehension.

When asked to describe her teaching style, Professor Hart replied, "I am a very caring teacher." She further remarked, "I do care for my students, and I really want them to know that I care about them," not only as learners but also as human beings. During both observations, Professor Hart displayed considerable concern for her students. In the first session, for example, she wrote $6x^2 - 5x + 1$ on the board as she announced, "Let's try to do this problem." After a few minutes during which the students worked individually, she asked, "Who can start the problem? Can you start the problem, Matthew?" Individualizing instruction for the students, she frequently called on them by name. "Is that right?" she asked the class after Matthew had proposed a solution. "Do you follow, Jasmine?" she inquired. "Will you continue, James?" she requested of another student. As the students worked on the problem, she moved about the classroom, checking on their individual progress. To one weary student, she asked, "Are you tired?"

The student sleepily nodded "yes." To another student who had missed the previous class session, Professor Hart inquired, "Danielle, can you come to my office since you missed?" Thanking the instructor for having expressed concern, the student scheduled an office visit.

Professor Adams also strives to establish a comfortable learning environment by individualizing instruction for his students. Like Professor Hart, he acknowledged that many students "don't want to come to the board" at the beginning of the semester. Upon sensing his students' reluctance, he speaks to them individually. "Well, I'm doing this for you," he informs them. "I want you to learn. I want you to know that I care about you learning the material." He encourages his students to view the class as "one big, happy family," not as "outsiders." By solving problems on the board, the students help not only themselves but also their classmates, according to Professor Adams. Concerned about his students' understanding of the material, he frequently asked, "Anyone need help?" After he assisted one student individually in the first session, he repeated, "Anyone else need help?" Upon guiding the class through the problem $6x^2$ - 13x - 8 during the second observation, he asked a student to re-trace the steps taken to solve it, again personalizing the instruction.

Like several other participants, Professor Roberts individualized instruction in his class. He reported, "I tell all my classes, 'I'm teaching to the masses as independent individuals,' meaning that every day I'm lecturing to one person even though there are 25 people in here." In class, he tailors his instruction to each individual, for his "teaching style is more or less to be very sensitive to the different needs and personalities and find ways to meet that need and accept that personality." Responsive to his individual

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learners, he exclaimed, "I adjust my teaching style, the delivery, methodology, everything

to fit the group" by experimenting with visual examples, analogies, auditory aids, and

hands-on computer activities. After illustrating the Greatest Common Factoring (GCF)

method during the first observation, Professor Roberts asked, "Are we okay with that

part?" He then inquired, "Does everyone understand?" Concern evident in his voice, he

circulated throughout the room, asking individual students, "Are you with me there?" and

"You okay?" After introducing the division of rational expressions during the second

observation, he pointed to individual students and asked, "You see that?" At the end of

class, he offered students one-to-one help with math, revealing his commitment to

individualizing the learning process.

 Professor Carson likewise personalized her approach to teaching developmental

math. After writing the factoring problem $80x^5y^3z^4$ - $36x^2yz^3$, she asked, "What is the

GCF again? If you were to explain that to a friend, what would you say?" Throughout

both observations, she called on individual students by name to describe how they would

handle a particular factoring problem. During the second observation, she asked one

student, who had previously raised a question about positive versus negative signs, "What

do you think, Isabella?" Professor Carson sang the word "Yea!" when the student

correctly identified the signs in the problem x^2 = x + 42. By periodically stating,

"Please ask me if you don't understand," Professor Carson created an environment in

which students felt comfortable asking questions. In fact, after another student asked a

question about factoring x^3 - x^2 - 30x, Professor Carson exclaimed, "I love it! You got

to ask."

On the Participant Demographic Profile Form, Professor Carson provided additional insight into her personalized approach to teaching:

> By building a genuine relationship with the students, I can better understand where they are coming from. In turn, I know how to counsel, advise, and guide the students. . . . It is the fact that I try to put myself in the students' shoes that allows me to emotionally connect and help the students develop.

Through the student-teacher relationships that she cultivates, Professor Carson learns about her students' academic and personal backgrounds so that she can help them succeed in math. An empathetic instructor, she not only teaches but also mentors her students.

During the interview, Professor Jones characterized his teaching style as being "sensitive" to his students' needs. "I understand," he emphasized, "when they tell me that they don't get something." Professor Jones drew an analogy to illustrate the student's and the teacher's roles in the developmental reading classroom:

> It's kind of like they come in here and you're teaching somebody to write a bicycle and you've got the training wheels on. As they get less wobbly, eventually you take the training wheels off and let them go on their own. That's how I do it with the adults. Then if they have too many falls, you put the training wheels back on. At least they're moving.

In his stacked reading class, which consists of three developmental levels, Professor Jones encourages his students to become increasingly independent in their learning, allowing their progress to determine how much individualized attention he provides.

Indeed, numerous participants, including Professor Jones, personalized instruction in their developmental courses.

The use of verbal praise to increase students' confidence.

While individualizing their instructional approaches, several participants used verbal praise to help students acquire confidence in their learning abilities. Throughout the first observation, Professor Smith praised her students for their efforts in identifying topics, main idea statements, and supporting details by exclaiming, "Well done," "You nailed it," and "Excellent." She also assured the students that "the more practice you have, the better you're going to get," revealing the importance of practice to their reading comprehension. During the second observation, she uttered such expressions as "Good" and "Ooh-ooh" as she delighted in her students' recollection of the details regarding a writing assignment.

Likewise, Professor Davis reinforced her students' efforts with verbal responses and physical gestures. As she began reviewing the previous week's material, she exclaimed, "I thought you did very well last week in terms of topic and main idea." After a student had read a sentence aloud and correctly identified its pattern, Professor Davis cried, "Give that woman a prize!" When another student indicated that he understood a question on an exercise, she smiled and signaled a thumbs-up. Circulating throughout the classroom as the students worked in groups, she told one student, "You did good." To another, she stated, "Very good." To still another, she remarked, "Very good. That's excellent! Excellent!" To the class as a whole, she stated, "You guys are doing very well on this. Very well." As she explained in the interview,

I use a lot of games in class. We always do the rewards system. There's a variety

of prizes and candy for participation and generally encouragement. I try to show

them, "Look how well you did. You can do this." I keep reminding them,

"Failure's not an option."

Throughout both sessions, Professor Davis consistently rewarded her students for their

progress.

By offering words of encouragement, Professor Reid also endeavored to instill a

sense of confidence in her students. Near the end of the first observation, she reflected on

the writing process:

When you write something, your reader only gets what you give them. A writer's

job is incredibly important. Your job is to make people understand you with your

words, and every single one of you can do it. It will take some effort on your part.

Yes, you can. You can do this.

Professor Reid assured her students that through discipline and diligence, they can

succeed as writers.

In like manner, Professor Adams praised his students for their efforts at learning

math. Walking throughout the classroom during the first observation, he checked on the

students' understanding of the problems by kneeling at their computer work stations as he

guided, encouraged, and motivated them to solve the problems. "Keep going!" he urged

one student, adding, "You are almost there. You are almost there." To another student he

cried, "Yep! That's it, man." As the students worked individually on factoring $9z^2 + 12z$

$+ 4$ during the second observation, Professor Adams again visited them at their desks,

offering verbal praise with such statements as "You almost got it," "I like your

determination, my brother," "All right," and "Wow, you all are my first class to get a 100% on the second try." Like a coach, he spurred the students on to working to their full capacity.

To encourage and motivate her students, Professor Carson also used verbal praise. When a student asked a question about the problem $3(x^2 - 9x + 20) = 0$, Professor Carson replied, "Fabulous!" not only reinforcing the individual who asked the question but also encouraging others to do so. She occasionally referred to the students as "algebraists extraordinaire" after they had successfully factored or solved a problem.

Professor Scott, moreover, praised her students as they engaged in read-aloud activities of their paragraphs. Placing an author's chair at the front of the classroom, she asked a student in the first row to read out loud. After the student had finished reading, Professor Scott exclaimed, "Isn't that lovely? Just lovely. Well-done." She then turned to the class and asked, "Why was that so well-written?"

One student responded, "It had a lot of meaning."

"Yes, a lot of points," Professor Scott agreed, "and she gave a lot of evidence." To illustrate the relationship between confidence and student success, Professor Scott explained that she had unobtrusively observed the first writer in the campus learning center. Frustrated, the student, as yet unaware of her instructor's presence, crumpled the first draft into a ball and threw it into a nearby waste can. On the second and third attempts, the student likewise wadded up the drafts and tossed them into the trash can. Then Professor Scott visited the student at the study carrel and told her not to be afraid, for she could successfully write the paper. Feeling somewhat more confident, the student

began writing and within a short time produced "one of the best papers" Professor Scott had received up to that point in the term.

To another student who read his paper aloud, she reassuringly stated, "Take a deep breath. You can do it." When he finished, she praised him: "Nicely done. Good for you! We're proud of you." To still another writer, she commented, "That was very nicely done." Providing verbal praise during the read-aloud activities, Professor Scott endeavored to help her students gain confidence in their ability to write effectively. During the interview, she asserted that "any type of reinforcement" is "extremely important." As she observed, "We show them in every way that we possibly can that they're important, [that] their success is important, and that we recognize all that they're trying to juggle in order to even get to school on any given day." Likening students' daily struggles to a battle with a "tremendous octopus," she stated that she attempts to "point out all the good" that "they are doing." Through verbal praise, the participants endeavored to build their students' confidence levels.

The use of cooperative learning.

In addition to offering verbal praise, many participants encouraged student interaction through cooperative learning groups. A cooperative spirit and a sense of comfort pervaded Professor Hart's classroom as students interacted in small groups when factoring and solving problems. During the first observation, she asked the students to work in groups of three to four on a worksheet that she had distributed. As they began collaborating, she exclaimed, "If you need help, just call me." For the remainder of the session, she circulated among the five groups that had formed, helping students individually and collectively. Additionally, Professor Scott explained that she regularly

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places her students in groups to discuss various writing prompts. After they have exchanged ideas with one another for several minutes, she asks them to write an in-class paper about the discussion topic.

During both observations, Professor Miller also encouraged her students to work in groups. After distributing a handout titled "Composition: Supporting Details," she exclaimed, "You all, this isn't a test. I want you talking and networking." In addition, she asked the students to work in groups on three vocabulary exercises, including a matching activity, a fill-in-the-blank exercise, and a reading passage that served as a final evaluation of their comprehension. Especially when studying vocabulary, the students worked in groups at Professor Miller's behest. As she reported, "I'm teaching them to network, to get help from other students, [to] get another student's number." She informed her students, "The knowledge someone has may help you and vice versa."

Professor Jones maintained that an instructional approach involving student-interaction with significantly "more questioning, more working in groups" and less professorial lecturing promotes the development of creative thinking skills. About the researcher's first observation of his class, Professor Jones commented,

> You noticed today I didn't do too much lecturing but pulling out from that background knowledge. When they take the book home, I consider the book the seed, and they're planting the seed. When they get here, I water it just a little bit. Through conversation, we add a little bit more water and a little bit more sunlight.

Employing a gardening metaphor, Professor Jones explained that he cultivates his students' reading abilities through group discussion and interaction during which he builds upon their prior knowledge and experiences.

At the beginning of class, Professor Jones asked his students, who represented three different developmental reading levels, to form groups in which they were to check their vocabulary homework and make necessary adjustments to their answers. The students collaborated in two large groups, one for REA 0006/0008 and the other for REA 0010. During this introductory activity, Professor Jones moved from one group to the other and then back again, interacting with the students, offering assistance, and encouraging them. He sat down with the groups and talked with them during the review sessions, asking such questions as "Which chapter seemed more difficult of the two?" While he worked with one group, members of the other group read independently and then discussed the exercises. A veteran elementary school teacher, Professor Jones provided insight into his instructional approach: "You train with them to get them to be cooperative. If they're in there fussing, I go in there just like an elementary teacher and fuss at them." Later in the session, the REA 0006/0008 group protested against having to read an especially long story titled "Rowing the Bus" by Paul Logan. Professor Jones immediately addressed the problem by exclaiming, "I don't want to hear this fussing about long stories. When you get to the real college thing, you're going to be reading 50 to 60 pages at a time." The students responded to the gentle but firm reprimand by reading silently.

Professor Jones carefully monitored his students as they worked in groups. "I want to hear you staying on task," he informed a group at one point. To the other he stated, "I want to hear a group response," thus promoting cooperative interaction. Whenever the students gave conflicting answers about vocabulary choices and reading comprehension exercises, Professor Jones engaged them in dialogue, helping them to

achieve consensus about the correct answers. "If you disagree, you have to have what?" inquired Professor Jones. "Discussion," replied the students. In several instances during both observations, he enthusiastically announced, "Now I hear discussion." Whenever he could not review an exercise with a group, he distributed typewritten answer sheets with which the students could check their homework. Although he appeared to move with ease between the groups, he revealed to the researcher at the end of class that he felt "exhausted" from the "juggling."

In her hybrid REA 0008 course, Professor Davis also employed cooperative learning. She remarked, "I use a lot of cooperative learning groups," adding, "I team them with each other so they can look over each other's work [and] ask each other questions." During both observations, she conducted mini-lectures for approximately fifteen minutes prior to engaging the students in cooperative learning activities about the concepts on which she had lectured. After explaining the terms *topic*, *main idea*, and *supporting details*, she informed the students that they were going to "play a game" in which they would identify these concepts in four passages. By using the word "game" to describe the cooperative learning activity, Professor Davis piqued the students' curiosity. Smiling and laughing, she circulated throughout the room, answering questions and encouraging the students as they worked collaboratively. At one point, she exclaimed, "Two or three heads are better than one." When the students answered the questions correctly, she offered them chocolates from a basket that she carried as a reward for their participation.

Like Professor Jones, Professor Davis worked closely with her student groups. Noticing that one group was struggling to understand organizational patterns during the

second observation, she assisted the members until they grasped the concept. She focused on helping them identify the correct "clue words"—that is, the transitional words and expressions in organizational patterns—before checking on another group. As she moved from one group to another, she announced, "If these [patterns] are not clear to you, please don't be afraid to ask why," thereby creating a classroom environment in which the students felt comfortable asking questions. Working in groups of two to five, the students analyzed, questioned, and debated the answers to the questions about organizational patterns. At times, they agreed with one another; at other times, they disagreed, all the while engaging in a lively, animated discussion.

Similar to other participants, Professor Johnson integrated cooperative learning into her classes. In addition to lecture and testing, she noted, "we use group communication" and "discussion" frequently. In the interview, she asserted that "classroom brainstorming sessions" in which students "feed off" one another's ideas promote creative thinking while generating a "fun" learning environment. During the second observation, Professor Johnson engaged her class in a game, much as Professor Davis had done.

"We're going to start off the morning with a scavenger hunt," announced Professor Johnson.

"A scavenger hunt?" asked a surprised student in the back row.

Nodding affirmatively, Professor Johnson explained, "You may use your book to scavenge for the answers, and you may work together." After answering questions about the appropriate use of punctuation, the students were to provide one or more examples to illustrate each of the rules in the scavenger hunt, which included the following:

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- When do I use a comma after an introductory prepositional phrase? Give an example.

- When do I use a colon? Give two examples that illustrate the two different occasions.

- When is a question mark found inside a quotation mark? Give an example.

As the students collaborated on the scavenger hunt, Professor Johnson circulated throughout the classroom, monitoring their progress, talking with them individually, and answering their questions.

Professor Watson also engages her students in group activities, particularly those involving brainstorming. She explained that her students regularly participate in an "exchange" of ideas "because in that way, they're also working together, and they're coming out of their shells." Promoting peer-to-peer interaction, she noted that "as a body, they're a better group," for they feel "more comfortable" when they learn together. In doing so, they also enhance their "social skills." Open to suggestions for writing topics, she informed her students early in the semester, "Give me some ideas. If I like them, we'll use them." When a student proposed that the class write about global warming, Professor Watson decided to show Al Gore's *An Inconvenient Truth*. After participating in a class discussion about the film, the students wrote a three-to-five-paragraph essay about it, elaborating on insights gained from group brainstorming sessions. By employing cooperative learning, Professor Watson and many other participants encouraged student interaction.

Instructional Methods

In addition to the aforementioned instructional approaches, field research revealed that the participants employed the following instructional methods:

- Storytelling

- The use of analogies and allegories

- The use of open-ended writing assignments.

Storytelling.

Storytelling emerged as an effective tool for engaging students in active learning. During the first observation, Professor Smith read aloud Valerian Derlega and Louis Janda's essay "The Masculine Dilemma." To support the authors' point about the differences between men's and women's responses to various life situations, Professor Smith recounted a personal narrative in which her nephew Dustin had been hit in the face with a soccer ball while playing as a goalie during a soccer game. Horrified by the accident, Professor Smith ran onto the field and escorted Dustin to her car. Although her brother later criticized her for being overly protective, she felt as if she had taken appropriate measures to help her nephew. Determined to nurse the child back to health, she treated him to a Happy Meal and a McFlurry at McDonald's. Dramatizing the incident with hand gestures and vocal inflections, Professor Smith mesmerized her students as they leaned forward at their desks, listening and laughing at the histrionics. Through this engaging anecdote, she illustrated the ways in which some women might react differently from men to particular situations. After a few minutes of storytelling, she announced, "Let's get back to 'The Masculine Dilemma.' We digress a lot."

Later in the class session, after providing guidelines about the identification of the topic, main idea statement, and supporting details, Professor Smith narrated a story in response to a reading about lung capacity. She spellbound her students as she recollected how she learned to breathe properly by taking swimming lessons in a city pool. When asked during the interview about her use of storytelling, Professor Smith remarked, "We do that all the time. That's a regular part of our class." By telling stories, she keeps students "actively involved in their learning." As she noted, "When we read something, I use it as a teaching moment." Class readings often prompt Professor Smith to narrate incidents from her past and to teach students from her personal experiences. Indeed, storytelling appeared to serve as a vehicle for engaging students in active learning.

The use of analogies and allegories.

In addition to storytelling, several participants constructed analogies and allegories to illustrate course concepts. During the first observation, for example, Professor Adams explained the terms *binomial* and *trinomial* by analogizing the former to a bicycle and the latter to a tricycle. Just as a bicycle has two wheels, a binomial consists of two terms, and just as a tricycle has three wheels, a trinomial contains three terms. With this analogy, Professor Adams encouraged his students to relate an abstract mathematical concept to a concrete image in their daily lives.

To explain fused sentences during a review of sentence errors, Professor Reid analogized sentence construction to carpentry. After asking if anyone in class had ever laid tile, wood, or carpet, she asserted that the seamless connection of two objects is ideal in carpentry but not in writing. According to Professor Reid, such seamlessness in a sentence leaves readers wondering where one thought ends and another begins. She then

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defined a fused sentence as "two main clauses joined together with no punctuation," and she provided the following example: "Yesterday my family and I went to the game it was so fun to watch the Jaguars win." Unlike pieces of tile, the sentences in this example cannot be seamlessly fused without producing a structural error. Professor Reid recommended that the students correct the fused sentence by separating the two main clauses with a period; joining them with a comma followed by a coordinating conjunction; connecting them with a semicolon; or making one of the main clauses a subordinate one and thereby creating a complex sentence, as in "It was so fun to watch the Jaguars win the game that my family and I went to yesterday."

Also during a review of sentence errors, Professor Scott constructed an analogy to clarify the concept *comma splice*. In response to a student's admission that he did not understand *comma slices*, Professor Scott pronounced the term as a *comma splice*, not a *comma slice*. When another student referred to the concept as a *comma splash*, the instructor also gently corrected her. To help the class grasp this difficult concept, Professor Scott drew an analogy between the juncture of two complete thoughts in a sentence and two roads in a city. She explained that years ago, residents of Jacksonville, Florida, could not travel from one part of the city to another without riding a ferry across the St. Johns River. Not until the Matthews and Hart Bridges were constructed could residents travel via automobile from downtown Jacksonville to other metropolitan areas like Arlington. As she observed, just as travelers reach the juncture of two paths, so also do writers encounter the end of one idea and the beginning of another in their sentences. By placing a comma at this juncture, writers inadvertently create a comma splice. Instead, they must come to a complete stop by using a period, a semicolon, or a comma followed

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by a coordinating conjunction, thereby providing a structurally sound bridge between ideas. Through this analogy, Professor Scott helped her students comprehend comma splices. During the interview, she explained that she uses "analogies to life" to explain concepts with which students struggle. "I think it [the use of analogies] helps them [the students]" by putting "them in touch with reality," she added.

Near the end of the semester, Professor Scott invited the researcher to return for a third classroom observation. On the final day of each ENC 0021 course, she hosts a "graduation ceremony" whose theme revolves around *The Wizard of Oz*. Interpreting the film as an allegory for life, Professor Scott delivered an inspirational message designed to encourage and motivate her developmental writers as they transition into college-credit composition.

Neatly arranged on a table near the entrance to the classroom on the last day of class were two dozen small stuffed lions, each wearing a collar that read "Courage." Assisted by a student, Professor Scott began the ceremony by remarking, "There is much to be said about life that comes from *The Wizard of Oz*." Each of the main characters, she explained, lacked something important. As the students recalled, the Tin Man had no heart, the Scarecrow no brain, Dorothy no home, and the lion no courage. Displaying a Power Point presentation with theme songs and images from the film, Professor Scott exclaimed, "They already had what they needed; they just didn't understand that they did. That's true of you too."

Comparing the students to the Wizard of Oz characters, she asked rhetorically, "What do we most need? We need our focus. We need to reach down inside of ourselves and bring forth what we already have." With the theme song "Over the Rainbow" playing

softly in the background, Professor Scott spoke about the role that motivation plays in a student's ability to earn a college degree: "You have to want it," she asserted, for "if you don't want it, there's not enough help in the world to make it happen." Professor Scott explained that just as the Wizard of Oz characters followed the yellow brick road in pursuit of their desires and dreams, so also must students embrace the path of higher education to attain their personal and professional goals. "You are on the yellow brick road to your life, to the rest of your future," she exclaimed. "Every brick on that path," she added, "has a meaning. Keep walking on your yellow brick road. Don't stop; don't give up." She then stated that the cowardly lion, ever in search of courage, remains her favorite character. Like the lion, many students fear failure; some even fear success. She maintained, however, that each student in her developmental English class possesses the courage to learn.

To symbolize her conviction that the students "have within" them "everything" that they "need to be a success," she presented each with a stuffed lion. Calling on the students individually, she hugged them and wished them well throughout their college careers. "Here's your little lion to help you do what you want to do. Go and be happy," she told one student. To another she stated, "You will be very successful. I'm sure of it." To still another she declared, "Show your daughter how it's done!" Smiling broadly, Professor Scott announced, "Come see your cake before we cut it." On the far right-hand side of the classroom was a sizeable sheet cake whose frosting featured a royal blue sky, emerald green grass, four towering trees, and a yellow brick road decorated with the words "Follow Your Dreams—Congratulations!" Throughout the graduation ceremony, whose theme revolved around *The Wizard of Oz* as an allegory for life, Professor Scott

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inspired her students to believe in their academic abilities and to pursue their professional aspirations. Through the aforementioned analogies and allegories, the participants creatively clarified course concepts.

The use of open-ended writing assignments.

While the participants' figurative language reflected their creativity, their use of open-ended writing assignments appeared to be intended to prompt creative thinking among students. To help learners acquire an "understanding and appreciation for the human condition" through reading, Professor Smith employs a variety of instructional methods, including written assignments and oral reports. As one of the written assignments noted on the course syllabus, a journal requirement provides students with "the opportunity to collect, select, reflect, project, and affect"—that is, to explore and express their thoughts and feelings in response to a list of "30 Quick Writes." Several of the open-ended topics listed seem to prompt creative thinking:

- I wonder . . .

- I imagined . . .

- I began to think . . .

- I wish I could . . .

- I am . . .

- And I remember . . .

Other topics, such as "What I have learned recently about reading," "I realized," and "I can't understand," might stimulate critical thinking. At least one page long, the quick write activities encourage students to hone their creative and critical thinking skills.

In addition to the "30 Quick Writes," Professor Smith requires her students to complete writing assignments from a form titled "Lab Assignment: An Introduction to Critical Thinking." For this writing activity, students read various works of literature, including Tillie Olsen's "I Stand Here Ironing," Shirley Jackson's "The Lottery," and Langston Hughes's "Salvation." The students then answer a variety of comprehension questions regarding the stories' plot, characters, and main ideas. Titled "Found Poetry," the last prompt on the lab assignment sheet appears to foster creative thinking among students. For this writing activity, students "develop a poem from one of the reading selections assigned in this package." During the second observation, Professor Smith asked the students to open their *Introduction to Critical Reading* textbooks as she explained an upcoming writing assignment involving found poetry. According to Professor Smith, a found poem is a comprehension activity in which students write an original poem about the main ideas of a short story or essay that they read. In her class, students can write a found poem in response to works of fiction and non-fiction but not to poetry. The found poem represents the student's synthesis of the plot and theme of an assigned text. Composed in either rhyme or free verse, this assignment enables students to develop an imaginative synopsis of a literary work by exercising both critical and creative thinking. She explained that readers should be able to understand the main point of the author's text after reading a student's found poem.

After clarifying the purpose behind found poetry, Professor Smith shared several models from former students. She enthusiastically read poems in response to Shirley Jackson's "The Lottery," Andre Dubus's "The Fat Girl," Dick Gregory's "Shame," William Faulkner's "A Rose for Emily," Katherine Brush's "Birthday Party," and Eudora

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Welty's "A Worn Path." As she read the poem about Welty's story, Professor Smith mimicked the gait of an elderly woman. Proud of her former students' creativity, she described the models as "stunning." She then exclaimed, "We can find poetry in everything we do. Look outside . . . you can find poetry." Through this assignment, she announced, "You'll find the poet in yourself." Between readings of her former students' poems, she emphasized, "You are extrapolating the key points of the piece and putting them into a poem." She, however, cautioned the students that they "can't write a poem about a poem." While sharing the creative poems, Professor Smith reiterated the importance of reading comprehension: "You have to understand the main point. Not everything is of equal importance." Through found poetry, she endeavors to teach students both basic literacy and higher order thinking skills. Indeed, the open-ended writing assignments in her course seemed to be designed to foster students' creativity.

Instructional Approaches and Methods Suggested for Promoting Creative Thinking

Having investigated the participants' current instructional approaches and methods, the researcher inquired during the interviews about their suggestions for promoting creative thinking. In response to this question, the informants recommended that instructors interested in teaching for creative thinking employ modeling and the use of props in addition to other approaches and methods.

Modeling.

Several respondents discussed modeling as being instrumental to the promotion of creative thinking among students. "Modeling is what's important," Professor Jones asserted, later reiterating, "Modeling is the best thing you can do" to promote creative thinking. Professor Reid also emphasized the value of modeling, particularly through the

use of sample paragraphs and essays. "When I was assigned a paper in college," she explained, "I always wanted to see an example. Once I had an idea of what the professor wanted, I could write the paper. I understand that there are many students like that." Professor Jones suggested that a writing teacher "might even write a paragraph that lacks, say, transitions and then one that has transitions" to help students grasp the importance of incorporating transitional words and expressions in their writing. Later, he remarked, "The more models they see, the better they're going to perform." By modeling creative thinking, teachers can illustrate the skills and habits that they want their students to develop, according to Professor Jones.

Professor Adams related a story about his seventh grade science teacher Mrs. Madison, who modeled a creative instructional technique that he has since emulated. To help her students learn the order of the planets, Mrs. Madison created a humorous acrostic in which she used the name of Professor Adams's best friend: "Madison's Vicious Eyes Make Joshua Stay Up Nights Plenty." Over twenty years later, Professor Adams exclaimed that he still remembers the "order of the planets because of her stepping out of the box and trying to be creative in her thinking." He declared, "It really works; I'm a living witness." Inspired by his teacher's use of an acrostic, he attested that he now creates his own mnemonic devices for students in both his math and physical science courses. As the participants suggested, modeling could serve as a vehicle for promoting creative thinking among students.

The use of props.

In addition to modeling, the use of props to stimulate creative thinking emerged as a suggestion during the study. As Professor Scott recalled, "In college one of my professors used to bring an item, one item, and she'd put it down on her desk, and we all knew that whatever that was was the springboard for the day." According to Professor Scott, the instructor's use of props "made us think about things instead of her just saying, 'Well, write a paragraph or write an essay about this topic.'" Inspired by the memory of her instructor's writing props, Professor Scott exclaimed during the interview, "I should start doing that." As if thinking aloud, she announced that she would ask her own students to write about a figurine that she had recently purchased. Treating the assignment as a fifty-minute timed writing designed to prepare students for the exit exam, she invited them to share their thoughts, feelings, and reactions to a small mint green and gold statue of a little girl frolicking in a pile of leaves. Delighted by the quality of the students' responses to the prop, Professor Scott asked them to read their papers aloud during the second observation.

Although one student respectfully declined to read, another stated that the figurine had reminded her of her honeymoon in Italy. The prop prompted Demetric to recall a psalm by David in the Old Testament and Anna to reflect on her tree-climbing days in childhood. Whereas Rick associated the statue with the peace he felt upon finally accepting the loss of his mother, Ciara recalled a scene from *Peter Pan*. Analogizing the students' diverse responses to the various flavors of ice cream, Professor Scott queried, "Wouldn't it be sad if all we had in the world was vanilla?" She then commented on the students' creativity:

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There is a really creative spirit in each of you, and I think some of you are discovering that for the first time. You see what can happen when you reach down into your soul and bring forth a thought by not only speaking it but writing about it?

By reflecting upon and writing about the prop, the students discovered—perhaps for the first time—their ability to think creatively. Energized by their creativity, Professor Scott announced, "I'll bring something else to class, and we'll see what happens," thus revealing her interest in exploring the use of additional props to promote creative thinking. In a follow-up phone conversation, Professor Scott remarked, "I think it made them reach down inside of themselves and think about something more than what is apparent to the naked eye." She added, "That is the most engrossed I've seen them in class." Engaged by the assignment, the students produced papers that Professor Scott deemed "the best . . . they've ever done." After experimenting with her college instructor's use of props, Professor Scott declared, "I tried it, and it worked!"

Professor Watson also utilizes props in her developmental writing courses. "I want *creative*," she attested during the interview. As she elaborated, "I needed something to inspire me that would inspire the students"; thus, she began using props as writing prompts in class. One of her favorite props is a hammer, which she asks the students to hold for a few moments and then share with others. After about five to ten minutes, she explained, the students become restless, uncertain about the purpose behind the activity. At this point, Professor Watson announces,

All right. Papers and pencils. Timed writing. Tell me whatever you want about this hammer. You can create a story. You can describe how it's made. Whatever

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suits you. Write ten minutes about whatever you want. Free writing. You're the

author.

As a result of this free writing activity, Professor Watson receives "all kinds of great stories," ranging from "how the hammer can be used for stress" to "how it's manufactured." Like Professor Scott, Professor Watson learned about the use of props to stimulate creative thinking from a college instructor. Enthusiastic about this instructional activity, she exclaimed, "It was exciting because I saw the realm of possibilities and the vast difference in approaches." She added that her students "love" writing about props and "look forward" to viewing the various items that she brings to class. In addition to a hammer, Professor Watson has shared an abacus, which she obtained from a campus librarian, and a World War II telegraph key, which she borrowed from a computer specialist. Professor Watson remarked that for some students, a particular prop might serve to "flip the switch," sparking their interest in writing and their potential for creative thinking. In class, she emphasizes that "the reason we're doing this is so that when you get to the exit test, you can write on demand and be comfortable doing it." By introducing various props, she not only engages students in creative thinking but also prepares them for the exit exam.

Additional methods for promoting creative thinking.

In addition to modeling and the use of props, the participants suggested several other instructional methods for enhancing creative thinking. Professor Scott emphasized the importance of integrating a variety of learning activities into the developmental classroom, remarking, "We do things in very few-minute increments to try to keep their interest because if we stay on one track too long, they get bored." A student-oriented

instructor who maintained that "the students come first," Professor Jones stated that teachers should ask the question "Will it benefit the students?" whenever they consider a new or different approach. Toward that end, Professor Jones proposed the idea of a learning community in which a developmental reading teacher would collaborate with a developmental writing teacher to help students understand the reading-writing connection. In addition to learning communities, Professor Davis currently incorporates field trips and service learning in her teaching. She has taken her developmental students to the campus child care center to read to pre-school children, especially around holidays such as Halloween and Christmas. She has also accompanied her students to a nearby nursing home so that they could read letters for elderly residents with failing eyesight. Professor Adams, furthermore, suggested that role playing "would be something interesting in math." Excited about experimenting with this approach, he exclaimed, "I may use that next semester the first week of class." He indicated that he might "have some scripts written out, let students read them, and then we all talk about them." The aforementioned instructional approaches and methods, like others suggested by the participants, might serve to promote creative thinking among developmental students.

Summary

When reflecting on strategies for promoting creative thinking among developmental students, Professor Adams encapsulated many of the practices and perspectives of the other participants when he asserted,

> We have to figure out where those educational gaps are. We have to fill in the educational gaps. We have to encourage them. We have to smile. We have to pull them to the side and let them know we care. We have to give them extra practice.

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We have to use the computers. We have to sometimes make a phone call to the

house and say, "Hey, I haven't seen you in a week. What's going on? Are you

okay? Do I need to e-mail you something or mail you something?"

According to Professor Adams, upon determining where students' educational gaps lie,

developmental instructors must endeavor to close them by encouraging students through

verbal praise, individualizing instruction, and providing additional practice opportunities

for the mastery of basic skills, particularly via computers.

Through triangulated data collection, the researcher explored the participants'

personality characteristics, instructional approaches and methods, as well as suggestions

for fostering creative thinking among developmental students. Enthusiastic about

teaching, many informants exhibited a sense of humor while personalizing instruction. In

addition to praising students verbally and encouraging peer interaction through

cooperative learning activities, some participants employed storytelling, figurative

language, and open-ended writing assignments as instructional tools. Lastly, to promote

creative thinking, the respondents recommended modeling, the use of props, and

additional methods, including learning communities, field trips, service learning, and role

playing.

Summary of the Study Findings

Through triangulated data collection designed to enhance the study's

trustworthiness, the researcher conducted interviews, observations, and document

analyses of twelve participants who shared their perspectives and practices regarding the

investigated phenomenon. The themes and sub-themes that emerged during the data

coding and analysis provided insights into the importance of creative thinking in developmental courses at FCCJ's Kent Campus; the characteristics of classroom environments that facilitate the development of creativity; and the instructional approaches and methods that teachers can employ to foster such thinking. Organized according to the central research questions, this section presented the study's findings through the rich, thick descriptions distinctive of qualitative analysis.

Summary

Guided by the underlying purpose of integrating creativity research and developmental education, the researcher conducted a basic interpretive qualitative study at Florida Community College at Jacksonville's Kent Campus. In Chapter Four, she described the Kent Campus, provided a demographic profile of the students, offered brief biographies of the participants, and presented the study findings. Through interviews, observations, and document analyses, she sought to understand the perspectives and practices of twelve participants regarding the importance of creative thinking in developmental courses. By triangulating the data collection and obtaining member checks of the interviews from the participants, the researcher endeavored to enhance the study's trustworthiness.

During the data coding and analysis, several themes and sub-themes surfaced in response to the following research questions:

- To what extent is creative thinking important for students enrolled in developmental education courses at Florida Community College at Jacksonville's Kent Campus?

- What are the characteristics of classroom environments that facilitate creative thinking among developmental students?

- What instructional approaches and methods can teachers employ to foster creative thinking in developmental students?

Varying considerably in their responses to the first research question, some respondents assessed the promotion of creative thinking as being a peripheral instructional goal; another considered it optional; and still others regarded it as essential. Despite their differences in opinion about the importance of fostering creative thinking skills, the participants fervently maintained that developmental students possess creative potential.

When asked about the second research question, which concerns the characteristics of classroom environments that facilitate creative thinking, the informants contrasted negative and positive factors. Whereas the former encompasses skill-and-drill learning, a lecture format with a subject orientation, negativity from the instructor and/or the students, and a lack of adequate resources, the latter entails a constructivist learning environment, a comfortable atmosphere, multiple interactions via cooperative learning, access to flexible facilitates, the well-planned use of technology, less standardized testing, and a supportive administration.

Regarding the third research question about the instructional approaches and methods that foster creative thinking, numerous participants exhibited enthusiasm, a positive attitude toward students, and a sense of humor while personalizing instruction, praising students verbally, and employing cooperative learning. Additionally, some participants used storytelling, figurative language, and open-ended writing assignments as instructional methods. Lastly, to facilitate creative thinking, the respondents suggested

that developmental educators experiment with modeling, classroom props, learning communities, field trips, service learning, and role playing. Having presented the data analysis and findings in Chapter Four, the researcher concludes in Chapter Five with a discussion of the study's implications as well as recommendations for future practice and research.

CHAPTER FIVE:

CONCLUSIONS AND RECOMMENDATIONS

Introduction

Each year a significant number of students graduate from high school unprepared for college and thus require remediation in reading, writing, and/or mathematics. The need for remedial, or developmental, education at the post-secondary level remains a persistent—and controversial—challenge (Roueche, Ely, & Roueche, 2001b; Roueche & Roueche, 1999; Roueche & Snow, 1977). As Maddox (2002) observes, "The major responsibility for educating most under-prepared students takes place at the community college level." A central criticism regarding the delivery of developmental education involves its focus on basic skills instruction to the relative neglect of higher order thinking (Grubb et al., 1999; McGrath & Spear, 1987; Moore, 2005). Certainly, the basic literacy skills that students acquire in the nation's community college developmental education programs represent a critical foundation for future academic and professional success. In a global, knowledge-based economy driven by intellectual and creative capital, however, students must know more than how to read, write, and calculate; they must also learn how to think critically and creatively. Upon surveying the literature, the researcher discovered a considerable gap in the current knowledge base about the role of creative thinking in developmental education. To address this gap, she designed a basic interpretive qualitative study whose purpose was to integrate creativity research and developmental education. Located in the historic Riverside/Avondale district of

Jacksonville, Florida, the Kent Campus of Florida Community College at Jacksonville served as the study site.

The researcher conducted interviews, observations, and document analyses to explore the perspectives and practices of twelve participants regarding the importance of creative thinking in developmental education courses. Selected through stratified purposeful sampling, the participants were developmental instructors who varied in their demographics, instructional classification (full-time versus part-time), and developmental teaching experience. As a human instrument, the researcher sought to understand the participants' perceptions of the investigated phenomenon and to present the study findings in the rich, thick description characteristic of qualitative analysis. Despite the attempt to enhance the trustworthiness of the findings through triangulated data collection and member checks of the interviews, limitations in the research design nonetheless occurred. Having selected her home institution as the study site based on considerations of time and resources, the researcher did not achieve maximum variation in the sampling mode. Because the investigation was limited to research conducted at one campus over one semester, some readers may not be able to readily generalize the findings to their particular educational settings. By examining the phenomenon through the lens of basic interpretive qualitative inquiry in which she described, analyzed, and interpreted the participants' perspectives, the investigator endeavored to address the additional limitation of being both a researcher and an educator at the same institution.

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The following research questions informed the inquiry:

- To what extent is creative thinking important for students enrolled in developmental education courses at Florida Community College at Jacksonville's Kent Campus?

- What are the characteristics of classroom environments that facilitate creative thinking among developmental students?

- What instructional approaches and methods can teachers employ to foster creative thinking in developmental students?

While coding and analyzing the data, the researcher identified recurrent patterns and emergent themes that generated answers to the foregoing questions.

Chapter Five, with which the investigation concludes, consists of the following sections: a summary of the study findings, conclusions, implications, as well as recommendations for practice and future research.

Summary of the Study Findings

To establish a context for the first research question, which addresses the importance of creative thinking, the inquirer engaged the participants in a discussion of their instructional goals. Although the respondents articulated numerous goals, an overarching focus on developing basic skills, promoting awareness of diverse learning styles, and increasing students' confidence in their learning abilities recurred throughout the investigation. When asked to define the term *creative thinking*, many participants appropriated the well-known expression "thinking outside the box" to signify a student's ability to apply prior learning to solving new problems in unique ways. Some informants

deemed the promotion of creative thinking to be a peripheral instructional goal in developmental courses, another considered the goal to be optional, and still others essential. Despite their differing opinions about the relevance of this instructional goal, the respondents emphatically agreed that developmental students possess the capacity for creative thinking.

Regarding the second research question, the participants contrasted learning conditions that hinder the development of students' creativity with those that promote it. On the one hand, the informants contended that such factors as skill-and-drill classroom environments; traditional, lectured-based approaches with a subject orientation; negativity from the instructor and/or students; and a lack of sufficient instructional resources can restrict creative thinking. On the other hand, the respondents maintained that the following variables can foster such thinking: a constructivist learning environment; a comfortable atmosphere; numerous opportunities for interaction through cooperative learning; the availability of flexible facilities; the well-planned use of technology; a reduced emphasis on standardized exams; and a supportive administration.

Finally, in terms of the third research question, the investigator explored the participants' personality characteristics, instructional approaches and methods, as well as suggestions for facilitating creative thinking among developmental students. Exhibiting enthusiasm, a positive attitude toward students, and an infectious sense of humor, numerous participants individualized instruction, praised students verbally, and engaged them in cooperative learning activities. Several informants also employed storytelling, figurative language, and open-ended writing assignments as instructional methods. To foster creative thinking, furthermore, the participants recommended that instructors

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explore modeling, the use of classroom props, learning communities, field trips, service learning, and role playing. The study findings provided the basis for conclusions drawn by the researcher.

Conclusions

Analyses of interviews, observations, and documents confirmed that the instruction of basic literacy skills was the participants' primary goal. Given the inherent purpose of developmental education, this finding came as no surprise. Regardless of their disciplines, the participants characterized the acquisition of the basics as the "foundation" for student success. The informants often emphasized the importance of repeated practice to the mastery of basic skills, as reflected in the message that reads "Practice! Practice! Practice!" under "Methods to Achieve Success" on Professors Carson's and Roberts's syllabi. Promoting awareness of diverse learning styles and helping students to develop confidence also emerged as salient instructional goals.

Data analysis further revealed that the development of higher order thinking skills appeared to be a greater institutional than instructional priority at the Kent Campus. Although Professors Davis and Miller discussed the cultivation of higher order thinking as one of their instructional goals, the majority of the participants did not address this theme. From the interviews and observations, the researcher concluded that most participants have not prioritized the promotion of higher order thinking in their developmental courses. Offering a basis of comparison with data collected in the field, document analyses of FCCJ's learning outcomes and assessment forms as well as course outlines indicated that the development of critical thinking skills constitutes a written

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learning outcome in developmental reading, writing, and math. The absence of the term *creative thinking* on these documents suggests that its cultivation does not currently represent a targeted outcome. On other college documents, however, the terms *innovation*, *creativity*, and *creative thinking* appear frequently. Recurring on FCCJ's website, on the Kent Campus's website, and in a brochure about the college's Sirius course development initiative, references to creativity unveil an institutional value for innovative teaching, learning, and thinking in the global, knowledge-based economy. Perhaps, though, this value has not yet filtered into the curriculum and instruction of the Kent Campus's developmental education program whose historic mission has concerned the enhancement of basic literacy skills.

Although most participants did not specify the development of creativity as an instructional goal, they nevertheless elucidated the meaning of this complex construct. According to several respondents, the word *creativity* refers to an individual's application of previous knowledge to the solution of new problems. In contrast to the rote memorization characteristic of basic literacy, creativity involves analysis and synthesis— forms of higher order thinking. The recurring association of creativity with the well-known expression "thinking outside the box" revealed the participants' value of this quality in both teachers and students. The informants, moreover, reported that many of their developmental students, while under-prepared for college, demonstrate creativity through resourcefulness, or the ability to generate effective solutions to daily problems. Confronted with daunting challenges, the students have, out of necessity, honed their problem solving and creative thinking abilities. Despite being resourceful in their personal lives, many developmental students have not learned to think critically and

creatively within an academic context. Although educators and other community college stakeholders often correlate a lack of basic skills with the need for developmental education, Professors Miller and Watson presented an alternative perspective when they suggested that students who have not previously learned to think creatively may require remediation as well. Just as a gap in basic literacy skills typically results in the need for developmental education, so also might a weakness in higher order thinking skills. Perhaps a deficit in the latter skill set coincides with a deficiency in the former.

The participants varied widely in their assessment of the importance of creative thinking in developmental courses. As Davies (2006) concludes, "Teachers' attitudes towards the place of creativity in schools are mixed" (p. 52). From many respondents' perspectives, the promotion of creative thinking constitutes a peripheral instructional goal in courses focused predominantly on fundamental literacy skills. These informants maintained that the acquisition of such skills represents a necessary prerequisite for creative thinking. In other words, to think creatively, students must first have mastered basic skills in reading, writing, and/or math; otherwise, their attempts to produce creative work will result in the merely novel and imaginative, not the productive and useful. For a process or product to be considered "creative," all of these qualities must co-exist (Bleakley, 2004, p. 466; "Creative," 1989/2007). Csikszentmihalyi (1996), Gardner (1993), and Lovitts (2005) have observed that an intricate relationship exists between an individual's knowledge and her ability to make valuable contributions to a particular domain. In a related manner, the study participants maintained that without the fundamental knowledge of a specific discipline, students' forays into creativity belie mere flights of fancy. Until learners master the basics in reading, writing, and math, the

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promotion of creative thinking will remain a peripheral instructional goal for many participants.

By contrast, other participants regarded the fostering of creative thinking skills as being imperative in developmental courses. Professor Smith, for example, described the "developmental classroom" as "fertile ground" for the cultivation of "creative and critical thinking." Classifying the promotion of creative thinking as "key," Professor Davis reasoned that the more creatively students can think, the better prepared they will become for college-credit courses. Echoing Professors Smith and Davis, Professor Johnson contended that creative thinking is "incredibly important"; Professor Watson deemed it "very important" and Professor Reid "terribly important."

As Angelo and Cross's Teaching Goals Inventory (1993) reveals, instructors' goals can range from instilling basic academic success skills to fostering higher order thinking. Whereas the participants consistently evaluated the former goal as essential, they offered mixed responses to the latter. Though seemingly contradictory, the teaching of both basic and higher order skills may in fact be complementary instructional goals, especially within the current social milieu. Dedicated to developing students' cognitive, affective, and social potential through a holistic approach to instruction and student services, developmental education does not provide an end in itself but rather a means to an end—that of preparing students for subsequent courses and the workplace. Nor should the acquisition of basic skills signify a terminal learning outcome but instead a path toward higher order thinking through which students ultimately generate new and useful solutions to life's myriad problems. As Dineen, Samuel, and Livesey (2005) affirm, "knowledge acquisition" serves as "a means to creativity rather than an end in itself" (p.

164). Developmental education has traditionally delivered instruction in reading, writing, math, study skills, and at some institutions, English as a second language (NADE, 2001), yet the global, knowledge-based economy necessitates a revised instructional focus—one through which students acquire not only the basics but also the capacity to analyze, synthesize, and evaluate ideas. If community college students are to become creative thinkers and lifelong learners in the knowledge economy, then perhaps the cultivation of higher order thinking should be deemed "essential" on every developmental educator's inventory of teaching goals.

"Eminently practical beings" (Cambourne, 2000, p. 414), teachers will undoubtedly inquire about how to accomplish the goal of teaching for creativity, particularly given the traditional skills-oriented nature of developmental education. As the literature review and field study revealed, the answer to this question lies in the classroom environment that teachers establish, their personality characteristics, as well as their instructional approaches and methods. According to Hamza (1996), classroom climates that facilitate creative thinking are "open, comfortable, relaxed, challenging, safe, supportive, trusting, humorous, energized, and collaborative" (p. 298). Like Hamza, several participants discussed the importance of a comfortable, welcoming atmosphere to creative thinking. Professor Davis, for example, noted that in such an environment, "learning is happening," but "it's comfortable" and "relaxed." When safe from negativity and criticism, students begin to trust one another. Conversely, "classroom conditions which inhibit creativity" include the presence of one definitively correct answer, an intolerance for mistakes, neglect of students' ideas, and teachers with low expectations regarding students' creative potential (Fleith, 2000).

As the study revealed, student-to-student and student-to-instructor interactions, open-mindedness, flexible learning options, and a decreased emphasis on standardized testing all distinguish classroom environments where creativity thrives. Through group discussions, presentations, brainstorming sessions, and activities, students develop the confidence to express their creativity. Opportunities to interact with a learner-centered instructor who circulates throughout the room rather than stands aloofly behind a desk while lecturing also nurture students' creative potential. Whereas classrooms with high levels of competition can inhibit the development of students' creativity, those with cooperative learning can enhance it (Fleith, 2000). In an environment conducive to creative thinking, moreover, instructors welcome differing viewpoints and permit students to select some learning methods and resources, as exemplified by Glendale Community College's Multiple Intelligences/ Learning for Understanding (MI/LfU) initiative in which students can choose from a variety of learning options to demonstrate their understanding of course concepts (Díaz-Lefebvre, 2004; Fogarty & McTighe, 1993, p. 166). In a classroom that facilitates creative thinking, furthermore, the teacher places less emphasis on standardized testing than on learning.

Conditions that promote creative thinking also include the availability of flexible facilities. When asked to describe a learning environment where creativity might thrive, several participants envisioned a sizeable classroom in which students could easily move. With tables and chairs that could be manipulated, such an environment would allow for class discussions and small group interactions. In an ideal classroom setting, which the participants admitted is often not logistically or financially feasible, computers and other forms of instructional technology would be available while still allowing space for

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cooperative activities among the class members. From the participants' perspectives, the functionality of a classroom plays a more significant role in promoting creative thinking than does its form. Thus, although lighting, color, and wall displays may influence students' creativity, a classroom that nurtures creative thinking is ultimately less about the physical space than the interactions of the students and teacher inside it.

The conditions that foster creative thinking ultimately extend beyond the classroom. Professor Miller noted that by hiring, training, and mentoring talented faculty, campus administrators play an instrumental role in establishing learning environments conducive to creativity. As she suggested, the relationship between administrators and faculty on a community college campus can significantly influence the dynamics within a developmental classroom. Indeed, the promotion of creative thinking necessitates not only a classroom but also a campus and college-wide commitment. To foster such thinking among students, teachers need the support of administrators through ongoing professional development, access to instructional resources, and the freedom to teach creatively at a campus that values creativity. On "The Creative Campus" envisioned by Tepper (2004) exist such characteristics as collaboration among students and between students and faculty; interdisciplinary communication; resources allocated to scholarship; the encouragement of risk-taking; and a tolerance for failure. When woven into a community college's culture, the value for creativity manifests itself through the aforementioned campus characteristics, subtly shaping the curriculum and instruction of its university transfer, workforce, and developmental education programs. Perhaps, as the findings from the field study and literature compel the researcher to conclude, learning environments that facilitate creative thinking among developmental students will flourish

at community colleges where creativity and innovation constitute integral aspects of the institutional culture.

In addition to the classroom environment, various instructional characteristics, approaches, and methods contribute to the goal of fostering creative thinking among developmental students. Though diverse in their instructional classifications and developmental teaching experiences, the participants shared such personality characteristics as an enthusiasm for teaching, a positive attitude toward students, and a contagious sense of humor. Hamza and Farrow (2000) observe that personableness, care, compassion, and energy, among other personality characteristics foster students' creativity (p. 33). Certainly, the participants possessed these qualities in abundance.

Of the numerous classroom approaches that the participants employed, a skills orientation through a lecture or workshop format, an emphasis on learning strategies, personalized instruction, the use of verbal praise to increase students' confidence, and the integration of cooperative learning surfaced most frequently. As Cropley (2001) remarks, although the lecture has been the principal instructional approach on college campuses, it typically does not engage students in the active learning required for creative thinking (p. 166). Approaches and methods more likely to facilitate such thinking include collaborative activities, student portfolios, journals, and peer assessment (Cropley, p. 167). Not only did several participants lecture, but they also employed other approaches more conducive to the promotion of creative thinking, such as individualizing instruction and praising students verbally. In the majority of classes that the researcher observed, moreover, the participants incorporated cooperative learning. Hamza and Farrow (2000) conclude that by engaging students in discussions, debates, small group exchanges, and

group projects, instructors can stimulate curiosity and inquisitiveness (p. 33). In addition to the aforementioned approaches, the participants delivered instructional content through storytelling, the use of figurative language, and open-ended writing assignments.

When asked about specific approaches and methods that might foster creative thinking in developmental students, the respondents suggested the use of models, which Cropley (2001) and Lindström (2006) likewise recommend. Though often perceived as being a "private and individual" phenomenon, creativity invariably transpires within a "social and cultural context"; thus, teachers who encourage students to observe and learn from others contribute to "the conditions for creative work" (Lindström, p. 63). In proposing that instructors incorporate classroom props, learning communities, field trips, and service learning to stimulate creative thinking, the participants contributed additional insights to the extant literature.

As Guenter (1994) notes, teaching for creativity encompasses three major components—instructional characteristics, the classroom environment, and pedagogical strategies (p. 67). In addition to these facets, the researcher investigated the participants' perspectives about the role of creative thinking in developmental courses at the Kent Campus. Caring, encouraging, and student-centered, the participants possessed the instructional characteristics necessary for the promotion of creative thinking among developmental students. Despite being intended to foster the acquisition of basic skills, many of the participants' approaches and methods, particularly the use of personalized instruction, verbal praise, cooperative learning, and figurative language, could also be used to establish learning environments that facilitate creative thinking. Perhaps the

conclusions drawn from this study will assist community college educators committed to cultivating developmental students' creativity.

Implications for the Future

Several implications for the future of developmental education emerged from the conclusions of the study. Distinguished by rapidly evolving change, the global, knowledge-based economy demands that higher education likewise change. As Davies (2006) asserts, "In a changing world, the need for new knowledge at both individual and societal levels is continuous, and hence the drive for creativity is remorseless" (p. 41). Although "ninety percent of the fastest-growing jobs" in this economy necessitate some higher education, many high school graduates do not possess the skills for "twenty-first century employment" (McCabe, 2000, p. vii; U.S. Department of Education, 2006, p. 1). Lacking both basic literacy and higher order thinking skills, a significant number of students must begin their freshman year in developmental education courses taught at community colleges. While providing an indispensable academic foundation through basic skills instruction, developmental education has traditionally overlooked the importance of higher order thinking to student success. In the current socio-cultural context, developmental students must master more than the basics; they must learn to think critically and creatively.

Reflecting on the relationship between the knowledge economy and higher educational institutions, Alkeaid (2007) observes that "the marketplace requires college graduates to possess basic knowledge and skills to meet its needs, but it is also looking for graduates with creative abilities." With missions dedicated to both the workforce and

university transfer, community colleges are responsible for providing students with the "knowledge and skills . . . relevant to the needs of the marketplace" as well as preparing them for baccalaureate studies (Alkeaid). As Alkeaid concludes, "Community colleges should consider this demand and strike a balance between providing students with basic knowledge and enhancing students' creativity." The authors of *A Test of Leadership: Charting the Future of U.S. Higher Education* (2006) similarly posit that higher educational institutions should "embrace new pedagogies, curricula, and technologies to improve student learning" (p. 4). Historically responsive to the needs of business and industry, community colleges must re-examine the curriculum and instruction in developmental education to prepare students for college-credit courses and the knowledge-based workforce.

To effect the requisite changes in developmental education, institutions must make creative thinking not only an instructional goal but also an institutional value. Dedicated to "honoring the past" while "preparing for the future" in "a global economy and knowledge-based society," leaders at the Kent Campus of Florida Community College at Jacksonville value "innovation and creativity" as they endeavor to "infuse innovative and creative practices" in their "work and learning environment" ("Kent Campus: Vision, Values and Goals," 2008). Kent exemplifies the institutional commitment necessary for creativity to thrive both in the classroom and on the campus. When embedded in the vision, values, and goals statements, creativity becomes a part of an institution's cultural fabric, thereby shaping the work and learning environments. Collaborating with faculty, community college leaders must communicate the value for

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creative thinking through the processes of curriculum development, instructional design, and professional development.

As the field study revealed, the participants possessed the instructional characteristics, approaches, and methods necessary to foster creative thinking among developmental students. Enthusiastic and positive, they personalized instruction, offered verbal praise, and employed cooperative learning to establish comfortable classroom environments where students could develop confidence in their learning abilities. The instruction of basic literacy skills, however, must serve as a vehicle for facilitating higher order thinking. When teaching for creativity becomes both an instructional and an institutional goal, developmental students will learn more than reading, writing, and arithmetic; they will learn to analyze, synthesize, and evaluate ideas. Such a goal does not contradict but rather complements the mission of fostering students' cognitive, affective, and social potential through developmental education. Only by cultivating higher order thinking skills will developmental students acquire the intellectual and creative capital necessary for success in the knowledge economy.

Recommendations for Practice

In concluding the study, the researcher offers several recommendations for practice, one of which concerns the need for developmental educators to participate in ongoing professional development. As Alkeaid (2007) observes, "A high percentage of community college instructors commence teaching without having received training about teaching and learning." Such training can provide critical insights into the instructional process, and as Alkeaid remarks, is "very helpful in preparing qualified

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instructors." According to Grubb (2001), if a professional development program does not exist, then instructors will often teach in the way that they themselves were taught— typically in the behaviorist tradition characterized by skills and drills. As Professor Smith attested, "That skill and drill stuff is what they did back in the day when I was a little kid." Describing the "pedagogical problem in developmental education" as "self-evidently difficult," Grubb (2001) raises fundamental questions: "How is an instructor to teach an individual the basic skills that ten or twelve years of prior education have failed to teach?" and "What are the teaching practices they use?" Reflecting on the history of developmental education, Grubb answers these questions by classifying the most prevalent instructional approach as "behaviorist" or "didactic" in nature. In this model, teachers emphasize "skills and drills" to teach reading, writing, and arithmetic. Although Grubb concedes that "there may be a place for drill in every program," he points out the shortcomings associated with the exclusive use of this approach, including a lack of student engagement, an extension of practices that had not effectively helped students in their K-12 educational experiences, and a failure to promote "the higher-order competencies called for by many national commentators, employers, and instructors in subsequent courses."

An alternative to the behaviorist approach, the constructivist model entails a student- or meaning-centered curriculum in which students explore the personal and social relevance of reading, writing, and math. Through the constructivist approach, students search for a deeper understanding of the course material, often by making text-to-life connections (Grubb, 2001). An educational theory "in which learners construct their reality through personal experiences," constructivism involves activities that

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promote critical and creative thinking, including discovery-based learning, self-directed exercises, problem solving, role playing, and group projects (Alkeaid, 2007). Teachers with a constructivist orientation may be more likely to foster creative thinking among their developmental students than instructors with a behaviorist philosophy.

During the interview, Professor Smith explained that she embraces constructivism as the theoretical framework for the instructional approaches and methods that she employs to help her students become "competent learners, learners with high self-esteem." In her classes, students "construct meaning out of the situations" that she provides for them. Professor Smith attributed her students' active engagement in their learning to her "theoretical and philosophical underpinning." Recognizing that her students possess different learning styles and preferences, she experiments with a variety of approaches. As she asserted, "You have to learn the pulse of your group, and you have to be able to move within that theory, philosophy." In a constructivist learning environment where students build "knowledge and skills" founded upon their "dispositions, experiences, aptitudes, and talents," creativity can thrive (Alkeaid). Therefore, the researcher recommends that instructors committed to teaching both basic and higher order thinking skills seek professional development regarding constructivist theory and practice.

To effect enduring changes in developmental education programs, community college leaders must provide instructors with ongoing training opportunities. As Díaz-Lefebvre (2004) contends, "Providing a forum for the exchange and dialogue of ideas, innovations, perceptions, and pedagogies is essential in the transformation of education and crucial in the dynamics and evolution of change" (p. 49). In Professor Davis's words,

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To me the biggest key for developmental education is there's not enough

training. . . . We need to train people who teach college prep. . . . A lot of people

have the attitude that anybody can teach. Well, I can tell you that I've been

teaching for 24 years, and I'm still trying to fine-tune my craft. I'm still looking

for ways to improve it. I'm still taking classes; I'm still doing training because it's

important to me not just to be a teacher but to be the best teacher I can be,

especially with prep students.

Committed to continually refining her craft, Professor Davis recommended that

institutional leaders offer professional development to developmental instructors.

Because community colleges "need the best teachers available" to teach "under-prepared

college students," she reiterated the importance of implementing "more training for

developmental educators."

Other participants reinforced Professor Davis's recommendation regarding

professional development. Professor Reid suggested that ENC 0021 instructors at the

Kent Campus hold a round table discussion about the various approaches that they use to

involve students in active learning and creative thinking. As she noted, teachers often

"start feeling stale even if they're not acting stale." Through such interaction,

developmental educators could infuse new ideas into their teaching repertoires. Professor

Scott likewise maintained, "If we could exchange ideas, even among ourselves, we would

likely learn a lot." Professor Watson also emphasized the importance of engaging in

dialogue to learn from colleagues. She advised, "If you see something that works for

someone else, ask them, 'May I use that?'" She added, "By sharing our inventory of

tools, we're increasing their inventory of tools, and that's going to promote their

success." Professor Scott, moreover, recommended that developmental instructors "should be attending conferences to learn from others who teach developmental students how they do what they do because we're bound to learn something that would make our areas better." Advocating for more professional development for developmental educators, she commented, "I think there's not enough of that going on; there needs to be." She asserted, "The more we interact with each other, the better we're likely to be." As the participants' testimonies revealed, professional development is imperative, and therefore strongly recommended, to enhance developmental instructors' knowledge and performance.

The researcher offers additional recommendations for community college educators committed to fostering creative thinking among developmental students:

- Administrators, faculty, and staff might establish creative thinking as a core institutional value.

- Administrators might consider hiring faculty with the following personality characteristics: personableness; enthusiasm; energy; a positive attitude toward their disciplines, students, and teaching; flexibility; and accessibility.

- Administrators can support creative teachers by providing the instructional materials and resources necessary for achieving course goals.

- Administrators might allocate funds for professional development related to the goal of teaching for creativity.

- Administrators and faculty might collaborate to design classrooms that foster the development of creative thinking. According to the participants, such learning environments would involve the flexible use of space in which students not only

could engage in cooperative learning activities but also access computers containing discipline-specific software.

- Developmental instructors might designate the teaching of creative thinking as a primary instructional goal.

- Developmental instructors might limit the use of lecture while employing the following instructional approaches and methods: personalized instruction, verbal praise, cooperative learning, storytelling, figurative language, open-ended writing assignments, classroom props, modeling, learning communities, field trips, service learning, and role-playing activities.

By applying these suggestions, community college educators could help developmental students not only master the fundamentals but also cultivate creative thinking. As Bunting (2006) asserts, "Inspired, imaginative teaching is key to educational success" (p. 78). The fact that an instructor teaches a basic skills course does not preclude her from teaching creatively to nurture creativity in learners. According to Treffinger and Isaksen (2005),

> Content standards in any curriculum area can be treated as topics to be "covered" through memorization and drill, but they can be made more challenging and stimulating when specific thinking tools are used to address the same standards. (p. 3)

Perhaps the aforementioned recommendations will provide instructors with the pedagogical tools for fostering creative thinking among developmental students.

Recommendations for Future Research

Conducted at Florida Community College at Jacksonville's Kent Campus, this basic interpretive qualitative study, while intended to address a gap in the existing literature, by no means presented an exhaustive exploration of the role of creative thinking in developmental education. Thus, the researcher offers several recommendations for future scholarship. Although she investigated developmental instructors' perceptions of creative thinking at a community college campus, the researcher did not examine students' perspectives, prompting the need for additional studies. A question posed by Davies (2006), moreover, warrants further investigation: "How are the use and application of new learning technologies best exploited to promote creativity?" (p. 50). Future researchers might explore the influence of instructional technology, like that in Florida Community College at Jacksonville's Sirius course development initiative, on students' emergent creativity. Additionally, the researcher echoes Davies's call for "new paths to the future" of creativity research regarding professional development for teachers (pp. 53-54). An intriguing inquiry concerns the design, development, and implementation of a creativity training program for developmental instructors at community colleges. As Fleith (2000) suggests, "A creativity training program for teachers, involving instructional planning, discussions, and follow-up observations might be helpful to guide and systematize teachers' efforts and knowledge." Studies about the formative assessment of students' creativity also offer a promising direction for new research, as Davies observes (pp. 53-54).

Beyond the scope of this investigation, an additional area for future research entails brain-based studies of the way that individuals learn. A former developmental

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writing teacher at North Seattle Community College, Smilkstein (2004) puzzled over the disparity between her students' competent performance on grammar worksheets and their persistent difficulties in writing (p. 5). Seeking to understand how students learn, she began investigating the areas of "brain-compatible creative- and critical-thinking curriculum and learning activities" (p. 2). Her research led her to conclude that the human brain is "innately impelled to learn by doing creative and critical thinking" (p. 2). By exploring the neuroscientific aspects of learning as well as the notion of "brain-compatible teaching" (p. 15), other community college educators might gain insights into curriculum development and instruction with which to foster creative thinking skills among developmental students.

About the relationship between creativity research and developmental education, Professor Miller remarked, "I think that whole topic is interesting. I don't think I've ever really thought about it and connected the two before. It's there." Although Professor Miller admitted to not having previously associated creativity with developmental education, she perceived a connection after participating in the study. Perhaps future research extrapolating upon that initiated in this study will enhance community college educators' awareness of the significance of creative thinking in developmental education.

At the crossroads of change, community colleges must prepare students for the knowledge economy by synthesizing creativity research and developmental education. Throughout this study, the researcher endeavored to chart a course to creativity in developmental education. As Root-Bernstein (2000) concludes,

> The most successful people in every field share an ability to think in ways that we
>
> seldom teach in the classroom. We owe it to our students, and to the world that

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can benefit from their creativity, to teach them how to recognize and use those

mental tools.

Indeed, when the promotion of creative thinking co-exists with the instruction of basic

skills in developmental courses at community colleges, both individuals and society will

benefit. Perhaps developmental education will ultimately become an "important part of

the story of creativity" (Gardner, 1993, p. 43) and creativity, in turn, an important part of

the story of developmental education.

APPENDICES

Appendix A: The Interview Protocol

Hello, and thank you for taking your valuable time to share your thoughts with me about my doctoral study. I am Kathleen Ciez-Volz, and I am conducting research for my treatise through The University of Texas at Austin.

The title of my study is *Charting a Course to Creativity in Developmental Education*. I am examining the role of creative thinking in developmental education from the perspectives of developmental instructors at Florida Community College at Jacksonville's Kent Campus. My purpose in this study is to contribute to the existing knowledge and practice of developmental education through interviews and observations of classroom experts like you.

Our interview will take approximately one hour, and with your permission, I would like to use my digital recorder so that I can be as accurate as possible in the analysis stage of my research. Do I have your permission to record our interview? Thank you.

Before we begin, do you have any questions for me?

Appendix B: The Interview Questions

- Please tell me a little about yourself in terms of your teaching background and interests.

- What goals do you have for your developmental students?

- What instructional approaches and methods do you use to help your students achieve these goals?

- How would you describe your teaching style?

- How are the instructional needs of today's developmental students different from those of ten years ago? Twenty years ago?

- How do you define *creativity*, especially within an educational context?

- How do you feel about your students being creative?

- To what extent can developmental students learn to be creative?

- When a teacher teaches for creativity, what do students learn?

- How do your students demonstrate creativity in their course work?

- What role do you think creative thinking plays in developmental education?

- What importance do you place on the teaching of creative thinking skills in your developmental classes?

- What instructional approaches and methods do you use to foster creative thinking in your students?

- What conditions in the classroom environment do you think promote the development of student creativity?

- What conditions in the classroom environment do you think hinder the development of student creativity?

- Do you have anything that you would like to add that we have not yet discussed?

Appendix C: Participant Demographic Profile Form

Please complete the following participant demographic profile form about yourself.

Age Group:

_____under 25 yrs.   _____25-35 yrs.   _____36-50 yrs.

_____51-62 yrs.   _____63 yrs. or over   _____not disclosed

Gender:

_____Male   _____Female

Race (Please check as many as apply.)**:**

_____African American (Black)   _____Euro American (White)

_____Hispanic/Latino   _____Asian/Pacific Islander

_____American Indian/Alaskan Native   _____Other: _____

Instructional Classification:

_____Full-time   _____Part-time

Length of Employment at Florida Community College at Jacksonville (FCCJ):

_____Years   _____Months

Discipline(s) in Which You Teach (Please check as many as apply.)**:**

_____Reading   _____English   _____Math

Please list all of the courses that you teach at FCCJ:

_____   _____   _____   _____   _____   _____
_____   _____   _____   _____   _____   _____

Please rank in order the courses that you most enjoy teaching:

1_____   2_____   3_____

Experience in Teaching Developmental Students:

_____Years   _____Months

Please list any courses and/or professional development training that you have taken

specifically for teaching developmental education courses and students.

_____
_____
_____
_____
_____
_____

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