ATTITUDES OF ADVANCED PLACEMENT TEACHERS TOWARD DEBATE: MEETING THE 21ST CENTURY CRITICAL-THINKING NEEDS OF GIFTED SECONDARY STUDENTS

A Dissertation Submitted
to the Graduate School
University of Arkansas at Little Rock

in partial fulfillment of requirements
for the degree of

DOCTOR OF EDUCATION

in Educational Administration and Supervision

in the Department of Educational Leadership
of the College of Education and Health Professions

August 2016

Allison Annette Boyer McMath

B. S., Rollins College, 1973

M. A., University of Central Florida, 1976

This dissertation, "Attitudes of Advanced Placement Teachers toward Debate: Meeting the 21st Century Critical-thinking needs of Gifted Secondary Students," by Allison Annette McMath, is approved by:

Dissertation Advisor:	Ann E. Robinson Professor of Gifted Education
Dissertation Committee:	Jon Mark Giese Professor of Mass Communication
	Gail H. Hughes Professor of Educational Foundations
	Kendra Lowery Professor of Educational Administration and Supervision
Interim Graduate Dean	Abhijit Bhattacharyya Professor of Systems Engineering

ATTITUDES OF ADVANCED PLACEMENT TEACHERS TOWARD DEBATE: MEETING THE 21ST CENTURY CRITICAL THINKING NEEDS OF GIFTED SECONDARY STUDENTS by Allison Annette McMath, August 2016

ABSTRACT

Young Americans must be equipped, both individually and collectively, with the 21st century skills, critical thinking, communication, collaboration, and creativity, in order to thrive in the global landscape which lies before them. Little political or economic capital is devoted to maximizing academic opportunities for gifted secondary learners. Limiting opportunities for children and youth with the potential for performing at remarkably high levels of accomplishment, deprives them of their right to an appropriate education and wastes a national resource. Recognizing that limited capital often circumscribes schools in their ability to provide special programs, the researcher proffers debate, a course within the standard curriculum, as an avenue to providing gifted secondary learners with depth, breadth and complexity while accelerating the development of critical thinking, communication and collaboration.

The threefold purpose of the study was to a) establish debate as a viable platform for providing the depth, breadth, and complexity needed by gifted secondary learners while developing critical thinking; b) examine the self-reported attitudes, principles and practices of AP-trained teachers, those most likely to have gifted students, related to 21st century skills, particularly critical thinking, the needs of gifted learners, and debate's ability to meet those needs, and; c) examine the effects of 6 independent variables, area of AP training, school size, community size and the presence or absence of three salient factors, teacher training in gifted education, debate in the school and special programs in the school for gifted learners upon teacher attitudes.

Results. A long history of empirical study confirms debate's efficacy at developing the 21st century skills, communication, collaboration, and critical thinking. Survey results for a sample of 202 AP teachers indicated greatest importance is allocated to challenge and critical thinking and least importance to standardized testing. Area of AP training had no significant effect on AP teachers' strong agreement that disruptions and too much test emphasis act as impediments to the development of critical thinking. There are significant differences between AP training groups in critical thinking development and assessment methods, communication, collaboration, and belief in the efficacy of debate. School and community size did not act as factors. Teacher self-reporting on the presence or absence of debate in their schools, the presence or absence of special programs for gifted learners in their schools, and their own special training in gifted education was substantially different from data available from the State Department of Education and from the chairman of the state chapter of the National Speech and Debate Association, therefore, no conclusions regarding the effects of those three independent variables could be drawn.

DEDICATION

No look into the past can come into focus without the smiling images of my parents, John and Helen Boyer, encouraging me at every turn. My father was a man great in compassion, justice, equality, integrity, humor, and charm. A wise counselor, loving husband, and indulgent father, he was a model of character for those fortunate enough to be illuminated by him, a beacon of human decency. My mother was a brilliant generous woman, devoted to her family, and diligent in her career. She believed in no limits for women, and served as a model for young professional women who came after her. My sister, Adrienne Roth, an accomplished woman in her own right, has never allowed me to take myself too seriously, and has always been supportive.

My children, McKenzie Alexandra, Savannah Giselle, and Ian Chase-Braughton, are gifts that I never expected. Each is a boundless source of delight, a bubbling spring of laughter, and a bottomless pool of love.

Sandy McMath: brilliant; hilarious; compassionate; champion of those with no voice; grand adventurer; raconteur; cultured; always surprising; adored; mine.

Thank you.

ACKNOWLEDGEMENTS

To my dissertation committee, Dr. Ann E. Robinson, Dr. Gail D. Hughes, Dr. Jon Mark Giese, Dr. Lucy Caroline Pearson, and Dr. Kendra Lowery, thank you for your patience, guidance, and support. Chairman Dr. Ann Robinson, an inspiring leader in gifted education, has always been generous in sharing her knowledge, advice, insights, and most important, her friendship. It has been a gift to grow under the tutelage of a professor with such broad knowledge, experience, and wisdom. Ever-gracious Dr. Hughes has been ready to share advice and encouragement at every step of the process. Her expertise as my methodologist made analysis a fun adventure rather than a weary travail. I particularly want to thank you for stepping in to help both our colleague and friend Dr. Pearson and me during an extremely difficult time. Dr. Caroline Pearson shared her expertise, support, encouragement, candor, humor, and friendship with me until her final hours. Her devotion to her profession, her students, her friends, and her family, were unwavering. It was the suggestion of Dr. Giese that launched me on my doctoral journey. Thank you for signing on to take the trip with me. I also thank Dr. Kendra Lowery for her administrative expertise and thoughtful questions.

Finally, I want to thank my students, those who endured my naïveté when I was a "baby" teacher, those who helped me mature into a seasoned professional and those yet to come. You all encouraged me to continue to grow; to find new ways to help you attain your dreams.

University of Arkansas at Little Rock
Office of Research and Graduate Studies
Institutional Review Board

TO: Allison McMath/Ann Robinson, Advisor

CC: Angela Willis, Interim Research Compliance Officer

FROM: Dr. Elisabeth Sherwin, IRB Chair
UALR Institutional Review Board

DATE: July 21, 2015

RE: IRB Request for Exemption Review

Thank you for your recent Institutional Review Board Request for Exemption Review of Protocol # **16-001** entitled, "**Attitudes of Advanced Placement Teachers Toward Debate: Meeting the 21st Century Critical-Thinking Needs of Gifted Secondary Students**." Your protocol has been approved. I have reviewed this request and find that it meets the IRB's criteria for protection of human participants. Your project end date is **July 20, 2016** and you are free to continue with data collection.

If this study continues unchanged past the project end date, you will need to submit a Request for Continuing Review. If there are changes to the research design or data that is collected, you will need to submit a Request for Review of Modification or Amendment to Approved Research form.

Best of luck with your study.

2801 South University Little Rock, Arkansas 72204
(O) 501.569.8656 (F) 501.371.7614
www.ualr.edu/irb

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

Background of the Study

Current dialogue in today's education is in large measure influenced by the Partnership for 21st Century Skills. A collaboration of business interests, Apple, Intel, Adobe, Hewlett Packard, and education concerns, including the National Education Association, Pearson, and Scholastic, the partnership focuses on eliminating the gap between what students typically learn in school and the knowledge and skills which they will need in order to participate in the workplaces and communities of the 21st century. The core skills which the Partnership seeks to maximize are critical thinking, collaboration, creativity and communication (Shames, 2014, p. 1). Former Secretary of Education, Arne Duncan (2012), added civic engagement to the list of skills needed for full actualization in the 21st century. Special programs designed to meet the accelerated curriculum needs of intellectually gifted and advanced secondary students, those most likely to develop critical thinking at a very high level, however, are rare. Instead, gifted students languish in classes that do not offer the levels of depth and complexity which they need, and wait, bored and under-challenged, for their age-mates to master the curriculum.

The Individuals with Disabilities Education Act ensures that special education students receive a free and appropriate education which is modified for their needs, and maximizes their educational potential (National Center for Learning Disabilities, para. 1). Academically talented students' educational needs are just as widely disparate from the norm as are those of students who demonstrate large deficits, but educational policymakers have not established a funded parallel federal agency to ensure that appropriate free public education, due process, mediation,

and the least restrictive learning environments are provided for gifted students. Contrasted with the strictly enforced funding and accommodations federally mandated for special education, states and/or individual districts are free to choose the extent to which gifted education will be provided. The National Surveys of Gifted Programs provided a graphic representation (see Figure 1.1*)* of the federal dollars allocated to gifted education compared with other programs in 2007 (Callahan, Moon & Oh, 2014, p. 2).

Figure 1.1. Comparative program spending

Provided with little federal financial support, states and local districts chart their own courses for meeting the needs of their gifted students. According to the will and ability of each entity, arrangements for the education of gifted children vary widely. In fact, many schools have no services for the gifted. According to the most recent report from the National Association for Gifted Children (NAGC), 14 states have no funded gifted education mandate. Only 25 states

provided funding for gifted services, and that funding ranged downward from minimal; 8 states provided $10 to 40 million or more, to insignificant; 9 states provided between 1$ million and $10 million (National Association for Gifted Children, State commitment to Gifted Students, 2014b).

The heavy funding burden for the education of high potential students falls to individual districts. According to Callahan, Moon and Oh, "Nearly 40% of districts with elementary gifted programs, 51% of the districts with middle school gifted programs, and 60% of the districts with high school gifted programs receive no state funding" (2014, p. 3). The decline of funding through the advancement of grades is a matter of particular interest to the present study. Funds, if any, decline in the upper grades, forcing the responsibility for meeting the needs of gifted students more squarely onto the regular curriculum.

Failure of schools, districts, states, and the nation to address the educational needs of the gifted is not without consequences for either individuals or society. Without intensive work which is advanced and conceptually challenging, is distinctive and complex, and enhances creativity, "many students at the most advanced levels don't stay at that level…the stagnation of performance among America's most-advanced students shows the consequences of failing to meet their educational needs" (Epstein, Pianko, Schnur, & Wyner, 2011, p. 2).

With the exception of a period spawned by the launching of *Sputnik*, public policy has devoted little attention to the public education of its brightest students. The low policy priority habitually given to cultivating the potential of the highest achievers has been exacerbated by multiple iterations of the "back to basics" movement up to the historically recent emphasis on

proficiency as opposed to excellence precipitated by the No Child Left Behind (NCLB) Act of 2001. The financial burdens put upon schools in the age of NCLB created an achievement trap for high ability students. There has been little time or motivation to worry about high achieving students when schools' and teachers' survival depends upon raising the skills of the lowest achievers. "It has become more important for schools to identify deficiencies than to cultivate gifts" (Cloud, 2007, p. 3). The ethos of the current educational environment has resulted in schools' attention, energy and resources being overwhelmingly focused on failing students (Cloud, 2007; Epstein, Pianko, Schnur & Wyner, 2011; Loveless, 2011; Mayfield & Son, 2012; Petrilli, 2013). Over 60% of teachers reported that struggling students were their top priority and only 5% indicated that high ability students were likely to receive individual attention (Farkas, Duffet & Loveless, 2008, p. 3).

Overwhelmed by these demands, and unwilling to invest in special services for gifted students, many districts have determined that Advanced Placement is a sufficient accommodation for gifted and advanced students. It is ironic that students' very successes have crossed them off schools' priority lists (Cloud, 2007; Epstein, Pianko, Schnur & Wyner, 2011; Loveless, 2011; Petrilli, 2013). Gifted students find themselves in a double bind. Forced to take practice tests for tests on which they have already hit the ceiling, they are denied challenging content that will allow them to move forward. Meanwhile, they sit, anesthetized, waiting for their less academically advanced peers to struggle to proficiency; their academic progress has become flat (Cleaver, 2013). Figure 1.2 provides a graphic illustration.

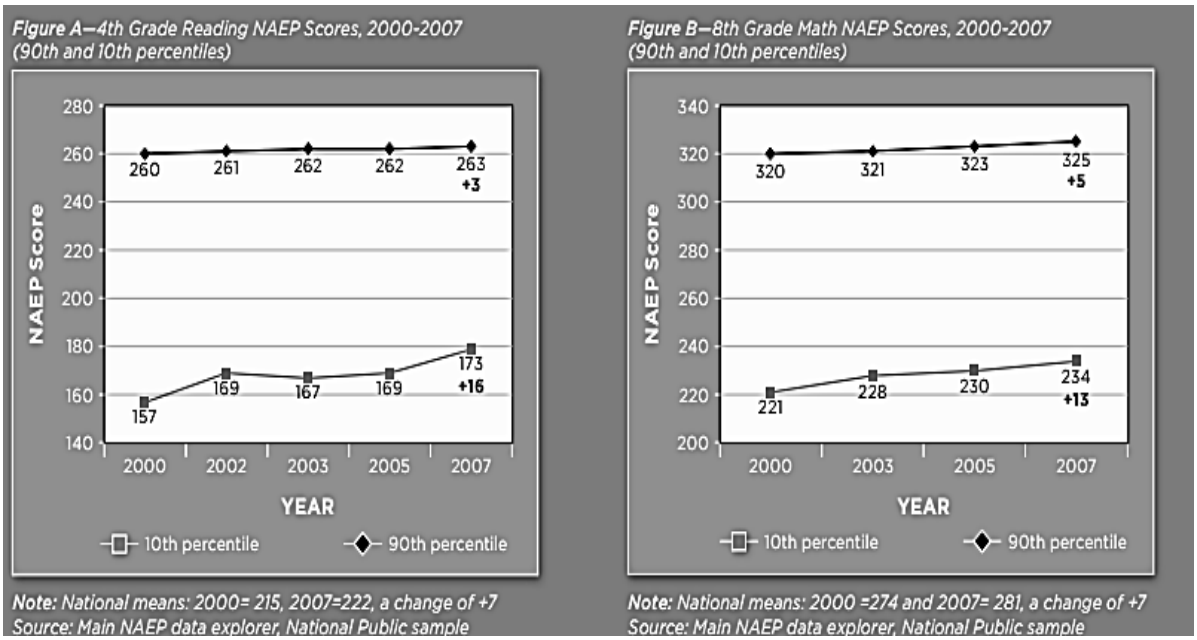


Figure 1.2. Comparative advances of 10th Figure 0.2 Comparative advances of 10th and 90 percentiles and 90th percentiles

Inspection of the graphs clearly indicates that advanced students did not make strides similar to their less academically advanced peers in 4th grade reading and 8th grade math. Results are representative of progress across grades and core subjects. NCLB's intense effort at raising the bottom decile was accompanied by inattention to the educational needs of those in the top decile. The resultant pattern of advancement was the opposite of pre-NCLB trends where advanced students obtained greater percentage achievement gains than did those in the lowest decile (Cleaver, 2013, p. 3).

One consequence of the long-term undervaluing of gifted education is that the United States ranked 16th amongst industrial nations in sciences and 23rd in math. Conversely, according to Monks and Pfluger, "support for educating the gifted is booming in many European countries" (2005, p. 2). Not only the Europeans, but also the Chinese and rising economies in India and Brazil are outstripping us. According to Shirley Jackson, President of Rensselaer Polytechnic Institute, in a speech delivered at the City Club of Cleveland,

> Research and development expenditures worldwide doubled between 1996 and 2007. Developing countries are investing substantially in higher education in science and engineering, in order to create a culture of innovation — and a workforce ready for the industries of the future, while the United States (in a recent Information Technology and Innovation Foundation study) is ranked last of 40 countries on metrics of 'rate of change in innovation capacity,' a construct that includes human capital development, information technology infrastructure, and economic performance (2010).

Robinson also expressed the fears of the gifted education community. "At a time when other nations are redoubling their commitment to their highest potential students, the United States continues to neglect the needs of this student population, a policy failure that will cost us dearly in the years to come" (2009, para. 4).

Faced with the failure of No Child Left Behind to meet its lofty goal of all students performing on grade level by 2014, and mindful of the need for increased competencies, the National Governors' Conference, along with several other organizations, instituted the Common Core curriculum. Looking ahead to a new world changing so rapidly that content becomes

obsolete before the printer's ink has dried upon the page, the group concluded that learners of all ages need skills in acquiring and interpreting information more than they need to acquire an unrelated arsenal of facts which rapidly disappear from their memories; that collection of skills is currently referred to as 21st Century skills. Twenty-first century skills include critical thinking, communication, collaboration, and creativity as well as civic awareness. For these reasons, Common Core is attempting to shift education's attention to the thinking skills required to interpret an endlessly expanding landscape of information. While this is a great leap forward, the framers of Common Core themselves concede that the standards are not designed to meet the needs of the gifted. Despite that admission, Finn and Northern reported a farther step in the wrong direction. "CCSS are indeed being used in some places to justify reducing or even scrapping gifted education services on the grounds that the new universal standards are more challenging than what came before them" (2015, para. 4).

Problem Statement

Schools are failing America's most gifted students; they are failing to provide equity; they are ignoring the needs of advanced learners; and, they are failing to meet the nation's need for a talented workforce.

> Gifted and talented students are a special needs population in our public schools, for whom laws were enacted thirty years ago and are still in effect today. To neglect this population of students is to deny them their civil rights to an appropriate and adequate education which is guaranteed and funded by those laws. Arkansas Gifted and Talented Educators, April 9, 2015, para. 4.

Rather than offer specific gifted programs and services, many districts instead rely, disproportionately, on two programs to meet academic needs – Advanced Placement and International Baccalaureate. Simultaneously, they ignore debate in the regular curriculum as a highly suitable platform for supplying the depth, breadth, complexity, individualization, affective engagement, leadership development, and creativity required by gifted students. Schools are also failing to use debate as an exceptional tool for the development of 21st century skills: communication, collaboration, civic engagement, creativity and critical thinking.

Several studies, (Ackerman & Neale, 2001; Brembeck, 1949; Colbert, 1987; Inoue & Nakano, 2004; Jackson, 1961; McKee, 2003; Mezuk, 2009) link participation in debate with developing critical-thinking skills. Rogers (2002) reviewed 682 studies and articles in his meta-analysis, only twenty-five of which suggested that debate is not a completely positive experience. Despite the large number of studies which support the positive outcomes of debate, few, if any, studies have focused on debate in terms of meeting the 21st century critical thinking, communication, collaboration, creativity, and civic awareness needs of gifted and advanced students while also meeting their needs for greater depth, breadth, and complexity of content. There are resultant gaps in the literature.

Districts, and many individual educators, have failed to consider debate as a vehicle for providing 21st century skills and as a method of meeting the needs of gifted students within the regular curriculum. Little scholarly attention has been devoted to the alignment of the National Forensics League's (NFL) standards with critical thinking models. The NFL explored how speaking and debating activities specifically meet Common Core State Standards in Reading for

Informational Text, Reading Standards for History/Social Studies, Writing Standards, Speaking and Listening Standards, and Language Standards (NFL, p. 2). The organization, however, did not consider gifted and advanced students in their analysis, nor did it examine critical thinking standards. That oversight contributed to a dearth of debate-related research studies appearing in journals whose primary focus is gifted students.

Many school districts do not provide special programs designed to meet the complex needs of secondary gifted and advanced students. Practicable, research-based alternatives must be provided within the confines of the regular curriculum. When

it is not possible for creative administrators and teachers to offer specialized gifted and talented programs and services, they must, "(1) broaden access to academically rigorous programs that extend learning opportunities throughout the school year, week, and day; (2) support co-curricular programs that focus on secondary literacy skills and incorporate complex reading materials into instructional time; (3) implement programs that prepare and motivate students to excel at school-based learning; and (4) invest in innovative programmatic approaches backed by empirical evidence (Colangelo, Assouline & Gross, 2004, *Vol. 1,* p. 23).

Educational leaders can fulfill both the letter and the spirit of their obligations to their most able students by offering and supporting debate programs in their schools and districts. Advanced Placement teachers are particularly important in this process because they are most likely to have gifted and advanced students in their classrooms. Their daily student contact allows them many opportunities to encourage creative, talented, and under-challenged students to participate in debate.

Purpose of the Study

The overarching purposes of this study were threefold. First, the study sought to demonstrate that debate is a viable platform for meeting the 21st century critical-thinking needs of gifted and advanced students within the confines of the regular high school curriculum. Second, the study sought to examine AP teachers' self-reported attitudes and practices toward a number of facets related to 21st century skills, particularly critical thinking, the needs of gifted learners, and debate's ability to meet those needs. Third, the study sought to examine the effects of six (6) independent variables upon teacher attitudes. The independent variables were area of AP training, school size, community size, the presence or absence of teacher training in gifted education, the presence or absence of debate in the school, and the presence or absence special programs for gifted learners in the school upon five (5) dependent variables: pedagogic methods of developing and assessing critical thinking; how 21st century skills are manifest in the AP classroom; beliefs regarding debate as a means of meeting the academic needs of gifted students; likelihood of recommending debate; preference for debate or AP in producing desirable outcomes, were measured.

Research Questions

The search for ways to address the 21st century critical thinking and content depth, breadth and complexity needs of gifted and advanced students within the framework of the regular high school curriculum through debate raises several research questions.

1. What are the instructional priorities of Advanced Placement (AP) teachers?

2. What do AP teachers believe are impediments to developing critical thinking in the AP classroom?

3. What pedagogical methods do AP teachers report they use to address critical thinking?

4. How do students manifest 21st century skills in the AP classroom?

5. How do AP teachers evaluate debate as an option for gifted students?

6. Does participation in a debate-oriented survey create a positive attitude toward debate?

7. Do AP teachers see debate or an AP class as a more effective method for developing 21st century skills?

8. Is there a difference in AP teachers' attitudes toward debate based on area of AP certification, preparation in gifted education (GT), school and community sizes, and availability of special programs (debate and GT) in their schools?

Advanced Placement teachers' perceptions of debate as a viable mechanism for developing critical-thinking skills and providing curricular depth, breadth and complexity for gifted and advanced.

Theoretical Foundations

The theoretical foundations of this study are threefold. The first, which has been established by almost 100 years of research into giftedness, is consensus on the academic needs of gifted students. Transforming that body of knowledge into policy, U. S. Congress defined gifted children as:

> Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment. These children and youth exhibit high performance capability in intellectual, creative and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools. Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor. (Davis, Rimm & Siegle, 2011, p. 18-19)

The second area of interest to the current study is 21st century skills, particularly critical thinking. According to Facioni, critical thinking is "purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based" (2013, p. 26). Scriven and Paul (1987) provided the following definition of critical thinking at the 8th Annual International Conference on Critical Thinking and Education Reform.

> Critical thinking is 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. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy,

> precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness (as cited in the Foundation for Critical Thinking, 2013, para. 2).

Scriven and Paul's trans-disciplinary definition of critical thinking is in accord with the needs of gifted and advanced students. It entails the examination of those structures or elements of thought implicit in all reasoning: purpose, problem, or question-at-issue; assumptions; concepts; empirical grounding; reasoning leading to conclusions; implications and consequences; objections from alternative viewpoints; and frame of reference.

> Critical thinking — in being responsive to variable subject matter, issues, and purposes — is incorporated in a family of interwoven modes of thinking, among them: scientific thinking, mathematical thinking, historical thinking, anthropological thinking, economic thinking, moral thinking, and philosophical thinking. (Scriven & Paul as cited in Foundation for Critical Thinking, 2013, para 3-4).

The cognitive processes described above by Facioni and Scriven and Paul are not based just on content competency. Knowledge and comprehension are lower-order thinking skills which will not meet 21st century challenges. The higher-order thinking skills categorized by Bloom, analyzing, evaluating, and creating, transcend their grounding in knowledge and comprehension, and are the thinking skills which will equip individuals to meet the challenges of the 21st century.

Critical thinking is not a single, unified process that is used uniformly in every problem-solving situation. Rather, critical thinking is a synergetic process which utilizes a number of cognitive processes in response to the needs of the problem to be solved. The end product,

however, is always reached through evaluation and judgment. The Foundation for Critical Thinking has adopted the Paul-Elder model which graphically illustrates the various components of critical thinking.

The academic needs of gifted and advanced students are not limited to critical thinking. According to the NAGC, curriculum must emphasize advanced, conceptually challenging, in-depth, distinctive, and complex content within cognitive, affective, aesthetic, social, and leadership domains (National Association for Gifted Children, 2014a). For these reasons, a one-size-fits-all curriculum is not appropriate for gifted and advanced students. The content itself must be advanced, must be available at an accelerated pace, and must allow the learner latitude in choice. The resources used by debate students are more complex, written at a high level, are authentic, and require higher level thinking skills than those used in the typical classroom. Communication skills are honed by the presentation format of debate. Debate content prepares students in the 21st century skill of civic awareness because most debates revolve around policy decisions which encompass current social, political, economic, environmental and ethical issues. The debater is also actively engaged in learning as he creatively constructs, evaluates and delivers his arguments, and parries the attacks of his opposition.

In these ways, debate can meet the unique needs of gifted and advanced students within the framework of the regular curriculum. Because the National Forensics League Common Core-aligned debate skills and activities operationalize each component of the Paul-Elder model adopted by the Foundation for Critical Thinking, then debate meets the critical-thinking needs of gifted and advanced students.

Significance of the Study

The financial burden for gifted education has been left largely in the hands of local districts, most of whom have limited funds at their command. Although some districts have well-developed programs for gifted students at the elementary level, very few have special programs for gifted students at the secondary level, therefore, ways to meet the advanced cognitive, content, and critical-thinking needs of gifted students must be found within the regular curriculum. Competitive academic debate is one way to solve this problem which is national in scope.

Conceptual Framework

The structure of the study is graphically represented in Figure 1.4. The survey was designed to collect AP teachers' self-reported attitudes toward a series of matters related to 21st century skills, gifted learners and debate. The survey was constructed to narrow the respondents' focus from broad educational goals to impediments to the development of critical thinking, to pedagogic practices in developing and assessing critical thinking, to student manifestation of critical thinking, to needs of the gifted, to the efficacy of debate in meeting 21st century needs, to a preference for debate or a single AP class in meeting those needs. After collecting the data, the effects of six independent variables upon AP teachers' attitudes were examined. The independent variables were the presence or absence of special programs for gifted learners and/or a debate program in the respondent's school, special training in gifted education, area of AP training, school size, and community size. The study also sought to determine if the act of

participating in a debate-oriented survey would increase the likelihood of respondents recommending debate to their gifted learners.

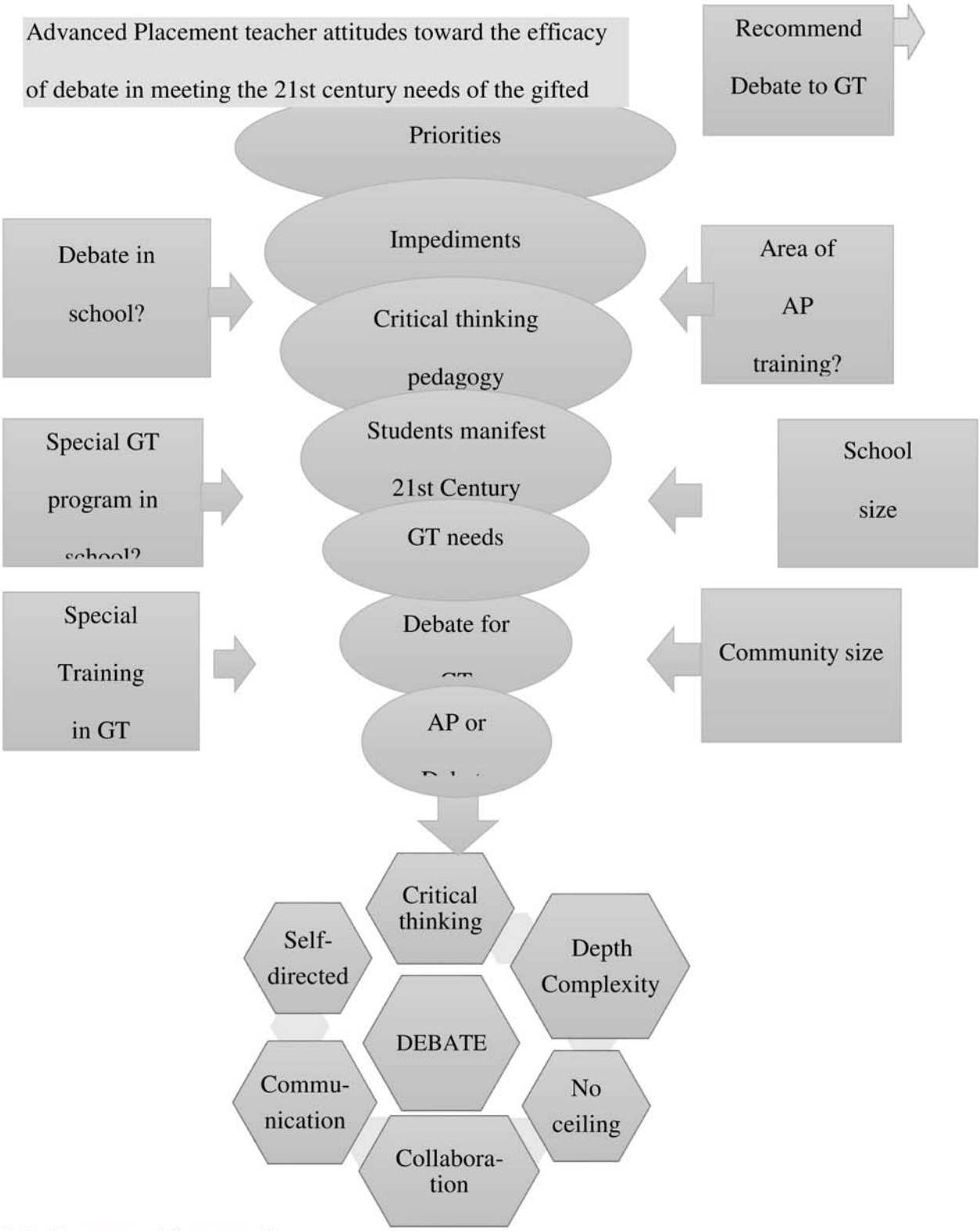


Figure1.3 Conceptual framework

Limitations

There were several limitations to the study. First, it was possible that the homogeneity of the teachers sample might limit generalizability. Second, a threat lay in assumptions made about AP teachers' depth of knowledge about academic debate and gifted education. For example, the research held the assumption that teachers do not confuse the short-response, theatrical format of political televised candidate debates with academic debate. In addition, the researcher assumed that teachers outside of the communication arts were familiar with the complexity of debate, the extent of preparation for an academic debate, the stringency of the stock issues, solvency, harms, topicality, inherency, and significance, and the high levels of competition typical in secondary debate. Another limitation was the possibility that respondents may have been unaware of the evidence linking debate to critical thinking. The study had no mechanism to evaluate participants' knowledge of debate. Conversely, there was also the possibility of a false positive relationship being generated as a result of the frequent mention of debate in the questionnaire.

In a similar manner, respondents may not have known a great deal about the characteristics and needs of gifted learners. While the survey asked participants if they have had special training in gifted education, and about the presence or absence of debate and gifted programs and services in their schools, the responses were questionable, a matter addressed in the Discussion section.

Another possible limitation was that the study depended heavily upon the reliability and construct validity of the survey instrument itself. Three measures were taken to address validity. All survey questions were evaluated by two independent groups, a cohort of Communications

teachers, and an unrelated cohort of AP teachers who were also licensed in gifted education. Test-retest survey was piloted with a third, unrelated group of AP teachers.

Finally, the respondents were provided a variety of ways to examine their own beliefs about educational priorities, critical thinking, and gifted learners. Four different response methods were provided: rank/order, Likert response, dichotomous response, and open-response questions asking AP teachers for their comments, suggestions and questions.

CHAPTER 2: REVIEW OF RELATED LITERATURE

Introduction

The importance of 21st century skills, critical thinking, communication, and collaboration, and the problem of educational neglect of gifted learners in American education, the need for a practicable solution are pressing. A review of literature examined selected models of giftedness, and the academic needs of gifted learners. Literature addressing the translation of theory into school-based practice through Common Cores State Standards, recommendations of the National Association for Gifted Children and the recommendations of long-time advocates for gifted children, and advocates of debate was also reviewed. Special attention was paid to empirical findings linking the development of 21st century skills, particularly critical thinking, to participation in academic debate. Because a purpose of the study was to evaluate the beliefs, attitudes, priorities and practices of AP teachers vis a vis gifted learners and the efficacy of debate, special attention was devoted to four studies which focused on the joint topics of interest. The review of literature was used to inform the design and content of the AP teacher attitudes survey.

Selected Models of Giftedness

The first step in approaching the 21st century academic needs of gifted secondary learner was examining several widely reviewed models of giftedness Although there are many models of giftedness, models developed by theorists Renzulli, Gagne`, and Tannenbaum have withstood frequent peer review and are widely applied.

Renzulli developed the Three Ring model of interacting personal individual traits which, when combined, characterize gifted learners. The traits are above average ability, task commitment, and creativity. Renzulli's Triad model of giftedness (see Figure 2.1) is widely accepted and very often used by schools to identify students for academic placement. He described gifted learners as follows: "Gifted and talented children are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance (Renzulli & Reis, 1994, p. 8). None on the traits are sufficient unto themselves; it is from the interaction of the three traits that giftedness arises.

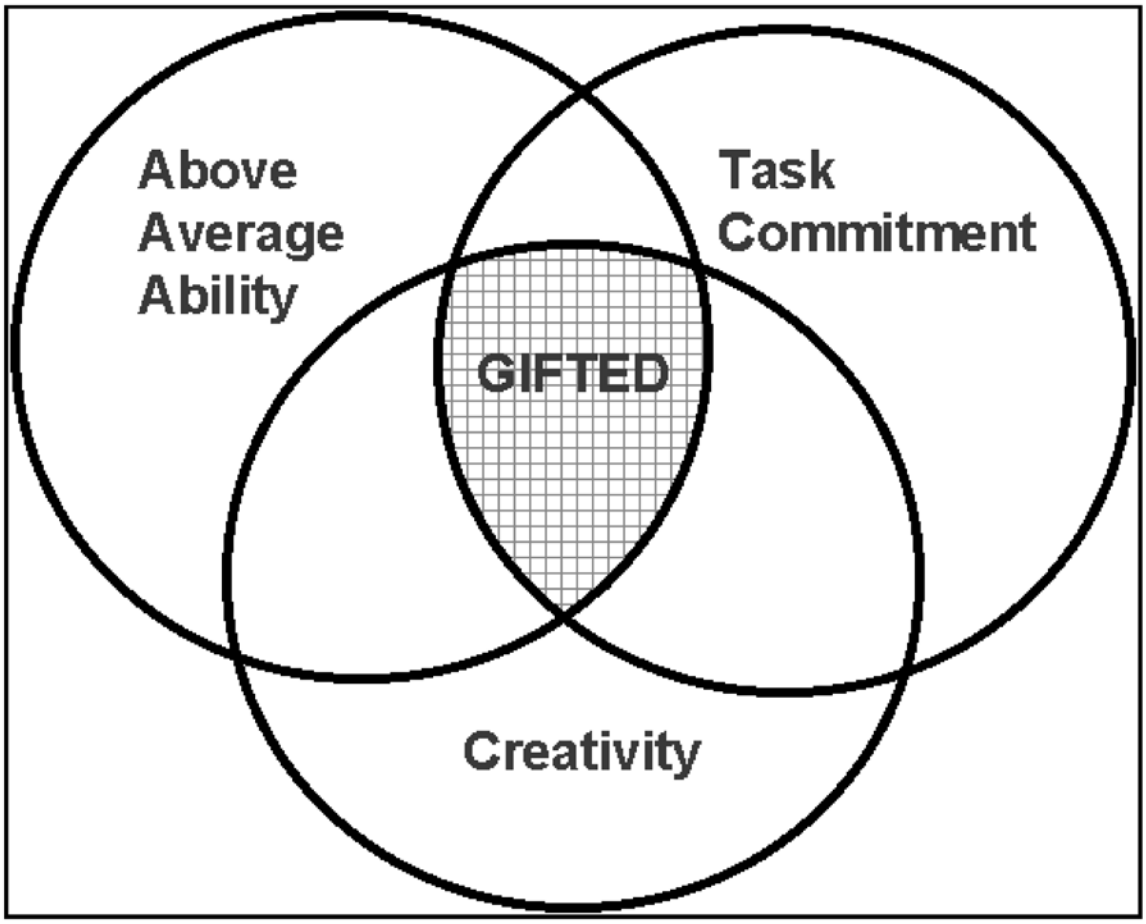


Figure 2.1 Renzulli's triad model

Renzulli's Triad model of giftedness (in Davis, Rimm, & Siegle, 2011, p. 21) made an important contribution to practicing K-12 teachers. More inclusive than the single dimension of ability test scores, it offered access to gifted programs to a wider range of students. Casting a wider net when searching for talented students is more likely to serve the needs of both individuals and the nation. Renzulli's equal emphasis on creativity and task commitment, however, has been problematic in that students may possess high ability and motivation but remain uncreative, or they may possess both outstanding ability and creativity, but lack task commitment.

Another multi-dimensional model of giftedness (see Figure 2.2) was developed by Gagne` (2010). Gagne` approached gifted education much as a constructivist process. He defined giftedness as the possession and use of untrained and spontaneously expressed outstanding natural abilities or aptitudes (called gifts), in at least one ability domain, to a degree that places an individual at least among the top 10% of age peers. According to Gagne` talent designates the outstanding mastery of systematically developed competencies (knowledge and skills) in at least one field of human activity to a degree that places an individual at least among the top 10% of 'learning peers' (those who have accumulated a similar amount of learning time from either current or past training) (2010, p. 82).

Gagne`'s Differentiated Model of Giftedness and Talent included Renzulli's three elements, but also acknowledged the importance of environment and chance. Unlike the Renzulli model, Gagne` placed greater emphasis on "natural" abilities and denoted them as prerequisites for giftedness. He maintained that the four "natural" abilities, intellectual, creative, social, and physical, were partially controlled by genetic endowment and act as the "raw materials" of talents. Environment and chance are independent factors which must also be recognized as integral elements in a model of giftedness.

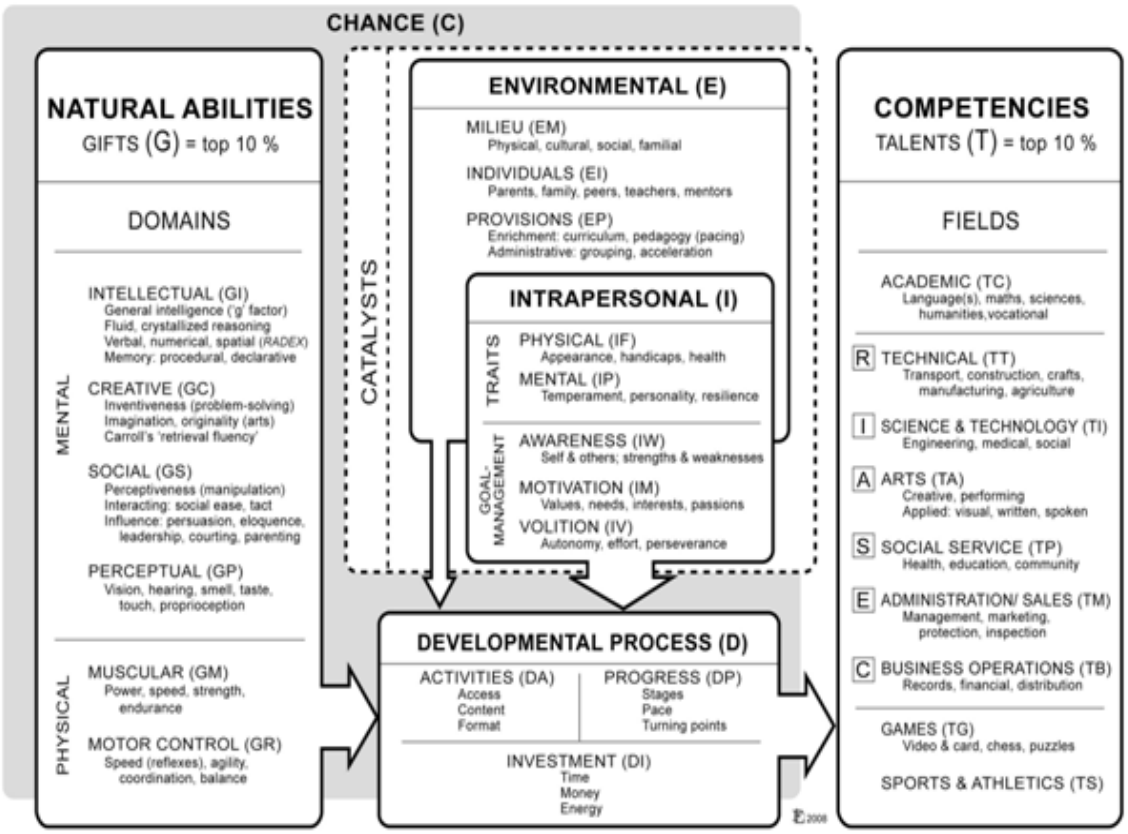


Figure 2.2 Gagne` Differentiated Model of Giftedness and Talent

Note that the model functions in one direction. Exceptional environments do not create natural gifts. However, natural abilities may go undeveloped without sufficient environmental support and the positive intervention of chance.

According to Gagne` (2008, p. 222), while environmental factors are not as genetically dependent as are the "natural" factors, genetics can influence personality, parental commitment and the like as well. Catalysts for giftedness are both environmental and personal. Chance is the independent variable which can have profound effects upon the "raw materials" which students bring with them. As F. Scott Fitzgerald said, "Our lives are defined by opportunities, even the ones we miss"

Tannenbaum's Sea Star Model of Giftedness (in Gross, 2010) shares similarities and differences with the models of Renzulli and Gagne`. According to Tannenbaum, children have the potential for giftedness. Developed talent exists only in adults who become "critically acclaimed performers or exemplary producers of ideas in spheres of activity which enhance the moral, physical, emotional, social, intellectual or aesthetic life of the community" (p. 16). Similar to Gagne`, Tannenbaum's Sea Star model of giftedness (Figure 2.3) includes general ability, special ability, non-intellective factors, environmental factors and chance factors. Tannenbaum goes beyond the familial environment of the individual to the supportiveness of the entire culture, and its ability to directly or indirectly foster or stunt the individual's gifts. The Sea Star model (in Gross, 2004. p.16) approaches task commitment through "non-intellective" requisites including motivation, a secure self-concept, need for cognition, ability to delay rewards, adequate mental health, and the desire to show or share one's talents with other. Additionally, each element of the Sea Star model can be static or dynamic throughout the producer's or performer's lifetime. Fluctuation between static and dynamic states in each of the star's components accounts for asynchrony within gifted individuals.

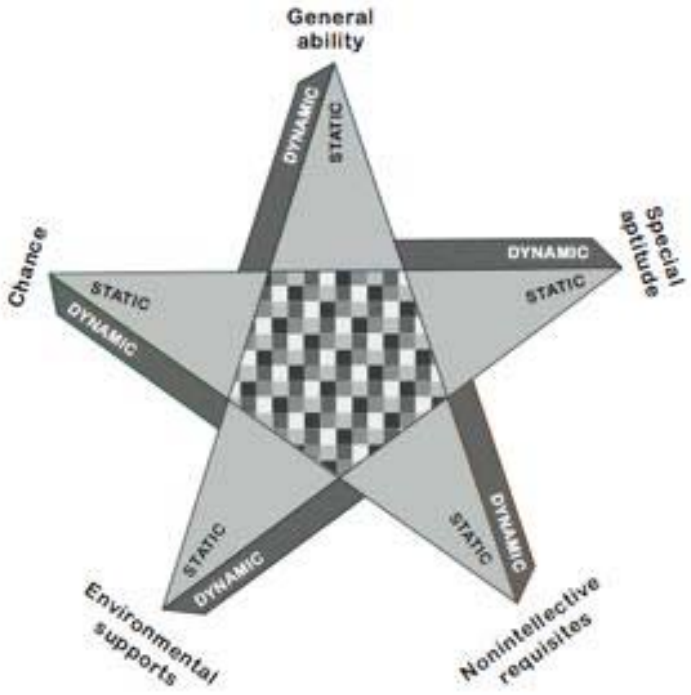


Figure 2.3 Tannenbaum's Sea Star Model

Definitions

Definitions of giftedness are similar in their fundamentals. The definition currently used by the U. S. Department of Education follows. The policy statement exerts great influence upon educational practices for gifted American children.

> Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment. These children and youth exhibit high performance capability in intellectual, creative and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools. Outstanding talents are present in children and youth

> from all cultural groups, across all economic strata, and in all areas of human endeavor (No Child Left Behind Act, P. L. 107-110 (Title XI, Part A Definition 22) (2002)).

Unfortunately, the government's definition upon which policy is based does not fully articulate the complexity of the gifted child or adolescent. A collection of educational leaders who referred to themselves as the Columbus Group was successful in capturing the uniqueness of gifted individuals. Gifted individuals' interactions with the world are not only different in degree, but also in kind, making them both internally and externally asynchronous. Asynchronous development is the collection of disparities among a given child's intellectual, emotional and physical levels of development. "External asynchrony, then, is the lack of fit of the gifted or less academically abled child with other same-age children and with the age-related expectations of the culture" (Silverman, 1997, p. 40). Their uniqueness and consequent needs act as a mandate for special programs for exceptional children.

> Giftedness is asynchronous development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm. This asynchrony increases with higher intellectual capacity. The uniqueness of the gifted renders them particularly vulnerable and requires modifications in parenting, teaching and counseling in order for them to develop optimally (as cited in Morelock, 1992, p. 11).

The foregoing review of models of giftedness, talent development, and definitions makes it clear that gifted individuals are different from their peers in more than matters of simple degree. More of the same old thing will not meet their needs. They need an education which is

different in kind; their social and emotional needs are complex; and, they display various patterns of development across different domains.

Review of selected models and definitions of giftedness made it clear that although a wide variety of interpretations of the characteristics and needs of gifted students exists, it is generally accepted that gifted students have unique needs. While some theorists focus on school-based solutions to the unique learning needs of these students, others, Gagne` (2008, 2012) and Foster (2006), suggest that the total environment of gifted children, including their parenting, must be modified in order to meet their needs. None of the theorists reviewed suggested that these students would be adequately served by more of the same curriculum which is offered for the general intellectual palate. They need an educational curriculum and an environment which is differentiated to meet their needs.

While there are many interpretations of giftedness, each accepts the importance of advanced cognitive abilities. Most school districts that identify their gifted students use cognitive measures as a major factor in identification. For those reasons, and for the purposes of this study, the focus will be on students who are intellectually and academically gifted.

Demographics of giftedness and the loss of talent

Academically exceptional individuals are not insolated in a few sub-populations. "Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor (No Child Left Behind Act, P. L. 107-110 (Title XI, Part A Definition 22) (2002)). The need for academic response is both wide-spread and pressing.

> Giftedness cuts across gender, ethnicity, social and economic background, and geographic location. There are students ready to accelerate in all of America's classrooms—in rural areas, in the inner city, and in the suburbs. These students are found in every type of school, from public to private to alternative (Colangelo, Assouline & Gross, 2004, *Vol. 1,* p. *xi*).

Policy-makers, educational theorists, and practitioners agree that gifted individuals, a neglected group, are represented throughout the population. The

U. S. Department of Education reported that in 2008, approximately 55.2 million students were enrolled in public and private elementary and secondary schools. In 2006, 3,236,990 were classified as gifted and talented. Federal law guarantees gifted students no services (National Center for Educational Statistics, 2010). Epstein et al reported that approximately 3.4 million K-12 children, who reside in households with incomes below the national median, rank in the top quartile academically (Epstein, Pianko, Schnur, & Wyner, 2011, p. 4). When they enter elementary school, high-achieving, lower-income students mirrored America both demographically and geographically (Wyner, Bridgeland, & Dilulio, Jr., 2009). They existed proportionately to the overall first grade population among males and females and within urban, suburban, and rural communities, and were similar to the first grade population in terms of race and ethnicity (African-American, Hispanic, Caucasian, and Asian). Wyner, Bridgeland, and Dilulio went on to report that those numbers did not persist. Advanced children from lower income backgrounds who are in the top academic quartiles are particularly vulnerable; only 56% maintain their status as high achievers in reading by fifth grade; 25% fall out of the top academic quartile in math in high school; and 8% drop out of high school.

Subject to low expectation and unchallenging coursework, many lower-income students with the ability to excel languish in their schools for years, performing well below their potential. For those remaining, prospects for reaching their full academic potential are not much better. According to the U. S. Department Education report, *National Excellence: A Case for Developing America's Talent*, at any grade level, gifted students already know at least half of the curriculum when the class starts (Ross, 1993, p. 26). Even schools and districts which *do* offer special programs for gifted, talented, and advanced students are most likely to do so only in the elementary grades, suspending GT programs at the end of 5th grade. Cessation of programming for upper level students is counter-intuitive. The report went on to say, "The college preparatory curriculum in the United States generally does not require hard work from able students" (Ross, p. 28).

The accelerated rate of learning typical of advanced students results in an ever-widening gap between their knowledge base and that of their peers, making the need for advanced learning opportunities even more pronounced in the upper grades. Achievement differences between advanced students and their age-mates expand as they progress through school. While gifted kindergartners may be only two grades ahead of their classmates, they will be five grades ahead by the time they get to high school (Cleaver, 2013). Under-challenged gifted students are plagued by boredom because their thirst for depth and complexity of knowledge goes largely unslaked in the regular classroom.

During the years of No Child Left Behind, districts faced harsh consequences for failing to rectify the shortcomings of their below-target students, and little interest and no financial incentives were offered for moving advanced students forward. Epstein, Pianko, Schnur &

Wyner (2011) noted that, "the federal government does not impose minimum standards for gifted education even though the No Child Left Behind law imposes all sorts of mandates to bring up the bottom" (p. 50). *The Nation's Report Card* (2012) confirmed that although those in the bottom quartile made some progress, those at higher achievement levels remained virtually unchanged despite doubling the per pupil expenditure between 1970 and 1990. Expenditures were not equitably dispersed across the achievement spectrum, but were almost exclusively focused on interventions for the bottom quartile. Learners in the 10th percentile and below gained 12 math achievement points between 1978 and 2012; the 25th percentile rose 11 points; the 50th percentile rose 6 points; the 75th percentile rose 3 points; the 90th percentile rose 0 points (U. S. Department of Education, 2013, p. 34).

American resistance to gifted education and its consequences

As early as 1830, Alexis de Tocqueville described the United States as a society with low levels of interest in education and intellect…a culture that values equality and is uncomfortable with social and intellectual distinctions (Ross, p. 19). The long-term undervaluing of intellectualism in general and gifted education in particular has likely affected American student achievement vis a vis our international peers. The United States ranked 16th amongst industrial nations in sciences and 23rd in math (Ross, p. 16). While American commitment to gifted education remains tepid, "support for educating the gifted is booming in many European countries" (Monks & Pfluger, 2005, p. 2). For example, an opinion paper issued by the European Economic and Social Committee (2013) stated,

> …priorities: the quest for smart growth through the development of an economy based on knowledge and innovation. From this angle, the education of all citizens can be seen

> as a key resource through which to guarantee the future of the European Union, and this includes improved detection and educational care for high able people…it is necessary to increase the resources currently devoted to those with high intellectual abilities" (p. 76/2).

Finally, attacks on aptitude itself have become popular. The best-selling book *Outliers* (Gladwell) denies the existence of giftedness. Instead, persistence and the month of one's birth are most important. The confluence of egalitarianism, anti-intellectualism, fear of elitism, and government mandates for remediation contributed to the neglect of, or outright denial of giftedness, and with it eliminated the belief that there is a need for gifted education.

Commitment by other nations to their gifted and advanced students has not gone unnoticed by some American educational leaders. According to Shirley Jackson, President of Rensselaer Polytechnic Institute, in a speech delivered at the City Club of Cleveland,

> Research and development expenditures worldwide doubled between 1996 and 2007. Developing countries are investing substantially in higher education in science and engineering, in order to create a culture of innovation — and a workforce ready for the industries of the future, while the United States (in a recent Information Technology and Innovation Foundation study) is ranked last of forty countries on metrics of 'rate of change in innovation capacity', i.e., in human capital development, information technology infrastructure, and economic performance (2010).

Robinson too expressed similar alarm and articulated the fears of the gifted education community. "At a time when other nations are redoubling their commitment to their highest potential students, the United States continues to neglect the needs of this student population, a policy failure that will cost us dearly in the years to come" (PR Newswire, 2013).

Van Tassel-Baska also elaborated on the long term effects of the failure to provide an appropriate education to gifted learners.

> 30 years down the road, we will know that we have made a mistake by not developing our best minds. We will know it because we will no longer be preeminent in the world. We will know it as we don't enjoy the quality of life that we have enjoyed over the past 30 years. We will know it in the fact that certain breakthroughs in medicines have not been made, certain social problems have not been solved; we will know it as life becomes ever-more complex and we don't have sufficient numbers of people who are able to meet the challenge of those complexities and solve problems in important ways. The lack of attention to gifted and talented students as a group will cause us to suffer in the long run as a society (Zagursky, 2009).

Translating theory into practice

As mentioned in the introduction, conceptions of giftedness have changed over time, but the foundation of descriptors has been the same: individuals with exceptional capacities for acquisition of knowledge at greater depth, breadth and complexity than their peers. Many envisioned this capacity as a holistic ability, "g," that spark brilliant individuals possessed *in toto*. The Chinese were the first to advance the conception of giftedness as multiple talents that could be expressed at any stage in life. Foster (2006) has dubbed the recent move away from the conception of giftedness as embodied in a single IQ score to a collection of talents or multiple intelligences to be advanced as a transition from mystery to mastery. Foster's approach was more pragmatic in nature. She defined giftedness as, "exceptionally advanced subject-specific ability at a particular point in time such that a student's learning needs cannot be well met without

significant adaptations to the curriculum" (p. 26). The dynamism implied in Foster's definition was in keeping with Tannenbaum's static and dynamic states.

Regardless of the conception of giftedness as "g" or as a panoply of behaviors, the theoretical foundation of giftedness has recognized the unique educational needs of brilliant individuals, and has recognized that gifted students need to be in the company of their academic peers. So too has their creative, social and affective uniqueness been acknowledged across the centuries from the time of Aristotle (White, 2010, p. 14) to today's writing. Once exceptional need has been identified, the next steps are to determine the child's current level of mastery and then devise an advanced curriculum designed to take him rapidly forward from that position. N. Robinson and Aldricch's optimal match concept (2016)), Subotnik and Coleman's talent development (1996), and VanTassel-Baska's Integrated Curriculum (2008) are in accord on three main constructs of gifted education. First, domain specific development varies along complex continua. Secondly, individuals are not divided categorically into gifted and not gifted. Finally, a wide range of curricular options which include sufficient depth, breadth, and complexity must be made available to developmentally advanced students.

Depth, breadth, complexity, need for cognition and academic debate

Literature enumerating the needs of gifted and talented students repeatedly refers to curriculum rich in depth, breadth, and complexity. The most common form of differentiation for gifted secondary students in the U. S. is Advanced Placement (AP). International Baccalaureate (IB) is a second, but far less frequent alternative program. It is the contention of the current study that academic debate provides a practicable avenue to meeting the need for depth, breadth and complexity and the 21st century needs of gifted secondary learners as well.

Need for cognition, gifted learners and academic debate

Gifted learners are not the only individuals who demonstrate a preference for, or need for, complexity. The need for complexity attracted the attention of researchers Cacippo and Petty. In their early research, Cacippo and Petty developed a motivational theory which helped explain the need for that complexity demonstrated by some individuals. The researches named their construct *need for cognition*. They proposed that there were, "stable individual differences in people's tendency to engage in and enjoy effortful cognitive activity" (p. 199). Individuals low in a need for cognition were labeled, "cognitive misers" while those who reveled in cognition were labeled "chronic cognizers". Academic debaters share many of the variables associated with chronic cognizers.

Cacioppo and Petty developed the *Need for Cognition Scale* (NCS), coefficient alpha = .95, which has been widely used in motivational studies. The authors concluded that although the need for complexity is not limited to the gifted, it is more prevalent in that population and those exhibiting characteristics commonly associated with giftedness. Fourteen years after developing the NCS, Cacioppo, Petty, Feinstein and Jarvis (1996) conducted a meta-analysis of studies which used the Need for Cognition Scaled to measure correlations between the need for cognition and an array of other behavioral, environmental, social and intellectual variables. Over 50,000 subjects participated in the 166 studies included in the meta-analysis. Studies had *Ns* as large as 1,318 and as small as 25. An abbreviated version of the Cacioppo, Petty, Feinstin and Jarvis' 1996 meta-analysis is summarized in Table 2.1. Variables (individual differences) selected for inclusion in the abbreviated table were significant and non-significant findings related to gifted education and to academic debate.

Table 2.1

Relationship of Need for Cognition (NCS) To Other Individual Differences

Characteristic under study	# of sig results	# non-sig results
Ability to focus exclusively on cognitive task	1(+)	
Age	3(-)	7
ACT scores	6(+)	
Causal uncertainty	1(-)	
Cognitive innovativeness	2(+)	
Desire for control	1(+)	
Dogmatism	3(-)	
Extraversion		2
Grade point average	4(+)	
Intelligence (abstract reasoning)		1
Intelligence (verbal reasoning)	2(+)	
Intrinsic motivation	25(+)	
Need for closure	10(-)	
Openness to experience	5(+)	
Need for structure	5(-)	4
Self-consciousness	2(+), 1(-)	12
Self-esteem	7(+)	2
Social anxiety	7(-)	1

Note. Adapted from "Individual Difference in Cognitive Motivation" by J. T. Cacioppo, R. E. Petty, J. A. Feinstein & B. G. Jarvis, 1996, *Psychological Bulletin*, *19,* (2), p. 204 – 214. Copyright by the American Psychological Association.

Categories which are positively related to academic debate include ACT scores (Mezuk, 2011, cognitive innovation (Freely & Steinberg, 2009), GPA (Mezuk, 2011, Akerman & Neale, 2011, McKee, 2003), verbal reasoning (Fogel, 2011, Trumposky, 2005), intrinsic motivation (Voisen, 1994), and self-esteem (Inoue & Nakono, 2004). Conversely, drive for cognition and debate are both negatively associated with dogmatism (McKee, 2003), and need for closure (McKee, 2003). Ennis, designer of the Cornell Critical Thinking test, also maintained that critical thinking abilities and dispositions are integrated into an individual's beliefs and actions. Open-mindedness, seeking as much accurate information as the subject permits, and dealing with

the aspects of a complex whole in an systematic way are a few of the dispositions Ennis (1993) considered.

Inferences can be drawn about gifted individuals, debaters, and the need for cognition through examination of the foregoing abbreviated table. Although only two studies investigated the correlation between intelligence and need for cognition, both demonstrated a positive correlation. High ACT scores, (six positively correlated studies) and high GPAs (4 positively correlated studies) also often correlate with both gifted secondary learners and academic debate participants.

According to Cacioppo, Petty, Feinstin and Jarvis, the largest number of studies related to need for cognition focused on intrinsic motivation. Debate students demonstrate intrinsic motivation in several areas. They voluntarily enroll in a class which they know will be challenging, will require much effort outside normal school hours, will require potentially anxiety-producing public oral presentations, and will expose them to multiple opportunities for both public success and defeat. Not only do debaters demonstrate intrinsic motivation, they also reveal their ability to thrive in an environment which is set up to deny closure. Of the 10 studies focused on the relationship between need for cognition and need for closure, all revealed that those driven by a need for cognition are negatively correlated to the need for closure. Debate is an ideal milieu because every topic debated has two reasonable sides and closure is not possible. The need for cognition was also positively correlated in seven studies with high self-esteem and with low social anxiety in seven studies. Debaters demonstrate high self-esteem and low social anxiety by voluntarily subjecting themselves to many opportunities for public scrutiny. Over the years, hundreds of study participants have directly attributed growth in self-esteem and reduction

of social anxiety to participation in debate (Inoue & Nakono, 2004; Mezuk, 2009; Mezuk, Bondarenko, Smith, & Tucker, 2011; Mezuk & Anderson, 2013; Minch, 2006; Rogers, 2002; Strait, 2008).

In a recent (2014) study, Powell and Nettelbeck suggested that the constructs Need for Cognition (NFC), Typical Intellectual Engagement (TIE), Openness to Ideas (OI), and Epistemic Curiosity (EC), may all be part of a single intellectual curiosity construct. Using factor analysis, Powell and Nettelbeck determined that all four constructs are highly inter-related. Correlations at $p < .001$ were found between all four measures of intellectual curiosity, and coefficient alphas ranged from a low of .82 to a high of .93. While general fluid intelligence remains the greatest single predictor of academic success, Powell and Nettlebeck determined that the inclusive construct of intellectual curiosity is correlated with general intelligence. The relationship between the two constructs is important for gifted education for at least two reasons. First, intellectual curiosity may be closely associated to Renzilli's Triad model component task motivation. Second, intellectual curiosity, be it called Typical Intellectual Engagement, Need for Cognition, and Openness to Ideas, or Epistemic Curiosity, must be considered when developing curriculum for gifted and advanced students. Debate offers gifted and advanced secondary students many avenues to gratify intellectual curiosity.

According to Dean and Levasseur, (1989) the aforementioned constructs, motivation and intellectual curiosity, are characteristic of forensic models of instruction. In forensic models of instruction, students complete independent study, participate in in-depth discussion, read primary source materials, cover the subject area in great depth, and engage in both critical and creative thinking during the process of crafting oral presentations at a high level of sophistication. As

Smith (1997) pointed out, debate students are not only exercising research and other 21st century skills and while constructing their arguments for oral presentation, they are also learning across content fields and historic periods. For example, when debating public policy, the debater acquires civic knowledge which spans

> …the function and structure of our government from funding to bureaucratic administration to the pragmatic application of policy and the results of that policy…the interrelationship of government function and responsibility, of economics, of societal needs and expectations, of history, and of legality of governmental action (p. 5).

Academic debate offers participants, many of whom are academically gifted and advanced, avenues to challenge intellectual curiosity. The need for cognition can be gratified through year-long study of a singles topic or through developing arguments for frequently changing topics depending on the debate format.

Meeting school-based needs of gifted learners – AP, IB and academic debate

Ideally, when gifted and advanced students reach secondary school, they should be enrolled in programs specifically designed to meet their needs. Such is not generally the case because few American high schools offer programs specifically designed for gifted students. Instead, Advanced Placement (AP) courses (in varying numbers), which are open to all students, are offered. International Baccalaureate (IB), a rigorous, multi-year, cross-curricular program, is offered by fewer than 1,000 high schools. According to the Educational Testing Service (ETS), only 58% of U. S. high schools offered AP in 2007. Eighty-five percent of the nation's students were served by those AP schools. Closer examination of the data revealed that of the 58% which did offer AP, 24% offered only one AP class (2008, p. 15). One, or even a few AP courses,

cannot be considered adequate to meet the needs of gifted students. It should also be noted that while AP is available to 85% of the nation's students, only 5% of students opt to participate by taking the examination in one or more AP classes. Most disheartening, less than half of those students score a grade of 3 or higher on the AP exams which they do take (Handwer, Tognatta, Coley, & Gitomer, 2008). The Educational Testing Service created a graphic of AP participation and success rates, (Figure 2.4) to illustrate participation. These numbers are improving as districts cast a wider net in recruiting students to AP courses, offer summer and after school tutoring to better prepare students for participation, and defray the costs of test-taking.

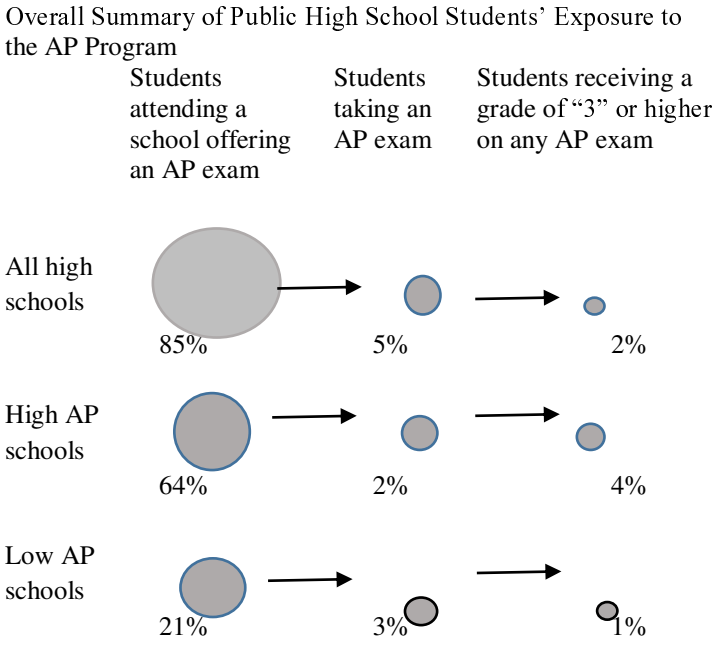


Figure 2.4 College Board 2004 AP Administration File and U.S. Department of Education Common Core of Data, 2003-2004 Public Elementary and Secondary School Universe Survey Data analyzed by Educational Testing Service.

Reported percentages are not consistent due to restrictions in data release, gaps in time between data collection and release, and focus populations. According to Bidwell (2014), the AP exam pass rate for all schools has nearly doubled, and more students are taking the exams than in 2004. Pass rates have increased from 7.6% in 2004 to 12.5% in 2014. Malkus (2016) reported that the number of public schools offering AP peaked at 78% in 2008 and dropped to 74% by 2012. In reviewing comparative AP exam success rates the researcher concluded, "the stark differences in exam passing rates by school performance suggest that simply ensuring that all high schools offer AP courses will be a costly supply-side investment with dismal returns" (p. 12). Not surprisingly, reported pass rates were lowest in low-performing or failing schools. There have been increases in both participation rates and pass rates, but increases have been uneven with rural and low-performing public schools making less absolute progress.

There is also a caveat. While one may take heart that most students attend a school where at least one AP course is offered, AP should not be confused with gifted education. AP classes are open to all interested students, and although once intended for gifted students, today's AP programs are available to all students. Low pass rates are clear indicators that the AP curriculum is not functioning as intended.

The two excellent options for gifted education, grade acceleration and residential schools, serve the least number of gifted students. Most districts do not provide special classes for gifted students at every level because they are unwilling or unable to allocate funding, fear appearing elitist, feel they do not have sufficient numbers of gifted students to justify spending, and salve their consciences with the myth that AP classes meet all of the needs of gifted students. Many universities offer summer enrichment programs for gifted students. Special schools for gifted and

talented students are provided in some states. They, along with private institutions like the Davidson Institute for Talent Development, serve a statistically small proportion of the gifted secondary population.

Because no regulatory agency ensures that the complex content and critical-thinking needs of gifted and advanced students are met, it falls to creative educational leaders to provide appropriate challenge, depth and complexity within the context of the regular curriculum. Too frequently, "America's school system keeps bright students in line by forcing them to learn in a lock-step manner with their classmates. Teachers and principals disregard students' desires to learn more, much more—than they are being taught. Instead of praise and encouragement, these students hear one word—no. When they ask for a challenge, they are held back. When they want to fly, they are told to stay in their seats" (Colangelo, N., Assouline, S. G., & Gross, M. U. M, 2004, 1, p. 1).

Most gifted students will remain in neighborhood rather than residential schools, therefore, content appropriate for their needs must be provided for them within that context. Cash strapped and stretched by the past demands of NCLB and the ramp-up to Common Core State Standards, the majority of American secondary schools have neither the fiscal and staff resources nor the political will to offer gifted programs. Instead, they rely on AP or IB offerings to meet the needs of their gifted and advanced students. Of the two programs, the most comprehensive alternative is IB, a complete multi-year curriculum. While the program is very attractive academically and meets an international standard, it is both individually and institutionally demanding. The IB program must be offered and taken in its entirety, requires much professional development, has specific facilities' standards (particularly in the sciences),

conducts inspections, and requires a lengthy research project of its students. While more appropriate for gifted and advanced students, those rigorous standards make IB unattractive to all but the most committed schools, and its rigor is beyond both the faculty and facility resources of most small and/or rural schools.

The most popular American alternative for meeting the needs of advanced learners, and a topic of the current study, is Advanced Placement, a collection of 37 independent courses which purportedly replicate freshman level collegiate courses. Although not specifically designed for gifted students, AP classes are usually the most challenging classes offered by most U. S. schools, and therefore attract the largest percentage of gifted learners. Because AP teachers are most likely to have gifted learners in their classrooms, they and their attitudes toward gifted learners, gifted learners' academic needs vis a vis 21st century skills, and academic debate, AP teachers are the population of interest to the current study.

Advanced Placement is an open enrollment collection of course offerings. Unlike gifted programs, any student can register in an AP class. Although teachers and guidance counselors can make recommendations for participation, students are free to choose their level of participation. Parents also influence the decision to participate or not in AP courses, which makes AP very attractive to districts who struggle to be more inclusive. It is also more attractive to politicians who want to be seen as egalitarian, hence there is much underwriting of AP test fees.

Gallagher noted that "senior high programs have a great preference for AP courses that yield college credit and may reduce the expensive time in college" (Gallagher, 2004, p. 40), an appealing prospect for parents. This is not, however, an accurate or complete view of secondary

schools' reasons for encouraging AP. It is a vehicle whereby schools can claim to be accommodating the needs of gifted children without leaving out anyone who wants to participate in the program. Since students self-select, schools cannot be accused of tracking, a practice which is anathema to the egalitarian perspective (Davis, Rimm & Siegle, 2011, p. 10). In addition to making no waves, high schools also retain able students in schools and can continue to hope that their good academic examples will be copied by their classmates. Offering AP classes also make schools look good to ranking agencies that consider AP offerings a hallmark of "good" schools. Last, and certainly not least, participation in AP classes keeps high school funding securely in place. While high schools had no vested interest in getting students to college early, they certainly have an interest in keeping them in their high school seats (Gallagher, 2004, p. 41). Some of the nation's largest districts do have a vested interest in offering AP classes. As part of their accountability standards, Arkansas, California, Indiana, South Carolina and West Virginia now require schools to offer AP courses (College Board, California Supplement, 2014, Education Commission of the States, 2013).

Another enticement for districts to promote AP has been the allocation of federal grant money to underwrite the cost of AP exams for many students. For example, a New Jersey newspaper reported that of $50,000 its district spent in 2007 on AP exams, $28,000 came from federal grants and the remainder came from money set aside to improve high school standardized test scores (Alvarado, M., 2007, p. L-1). The current cost of one AP examination to a child who is not subsidized is $89.00. While the College Board itself reduces examination fees for free and reduced lunch students by $26.00 (AP Central, 2014), some districts (e.g. Glendale Union High School District, AZ) pay the exam fee for every student who completes an AP course

(College Board, 2014, p. 38). According to the Education Commission of the States (ECS), every state receives "funds through the U.S. Department of Education's Advanced Placement Test Fee Program to cover all or a substantial portion of the AP test fees of students eligible for free and reduced lunch" (2013, Subsidies for testing fees). "Free money" is usually an irresistible enticement. The Department of Education, unfortunately, has not subsidized the International Baccalaureate program in a similar manner.

Finally, schools are also anxious to offer AP classes because the number of AP classes offered is often used as a method of rating schools. The benefits of offering AP are twofold. AP acts as a vehicle whereby schools can claim to be accommodating the needs of gifted children. Simultaneously, they can point to AP's open enrollment to prove that they are not leaving out anyone who wants to participate in the program (Gallagher, 2004, p. 40).

Advanced Placement courses do provide additional challenge in a number of ways. First, AP courses increase content complexity. Second, AP course frequently require projects such as History Day, Science Fair, and research papers which are not always undertaken in the regular curriculum. Finally, AP courses cover more material than is typical in a regular class. Despite advantages, there are, however, a number of reasons why AP is not ideal programming for accelerated students. All AP courses are test driven. Both students and teachers are under the lash to "cover" the curriculum for those tests, a factor which generates persistent criticism of AP's sacrifice of depth to breadth and analysis to memorization. For example, *Campbell Biology, 10th Edition,* a popular AP Biology text, has 1488 pages. According to Kyburg, Hertberg-Davis & Callahan (2001), the rigid structure of AP denies gifted and advanced students

the opportunity to exercise their creativity and the flexibility to pursue their special interests. Independent pursuits are rarely an AP option. Tierney (2012) agreed, saying,

> The AP curriculum leads to rigid stultification -- a kind of mindless genuflection to a prescribed plan of study that squelches creativity and free inquiry. The courses cover too much material and do so too quickly and superficially. In short, AP courses are a forced march through a preordained subject, leaving no time for a high-school teacher to take her or his students down some path of mutual interest. The AP classroom is where intellectual curiosity goes to die (p. 2).

It is the rupture between challenge and higher-order thinking that often makes AP courses fall short of meeting the academic needs of gifted learners. Kyburg, Hertberg-Davis and Callahan conducted a three-stage grounded theory qualitative study which focused on the effectiveness of AP and IB programs for talented ethnic minority students. According to the authors, a primary benefit of either program was, and remains, their readily available curricula, complete with professional development and frameworks. International Baccalaureate is less popular in the U.S. for two primary reasons. Unlike AP, IB is a complete, multi-year, multi-disciplinary program which cannot be undertaken piecemeal. Standards for both facilities and teacher training are also more stringent. At the time of the study, there were less than 1,000 IB programs in the United States.

Schools, both public and private, offering AP are far more numerous in the U.S. than are schools offering IB. Students may take as few or as many AP courses as they like. Schools can offer as few as one AP course or as many as 37. There is scant national data on the number of students participating in an AP class during their four years of high school because not all class

members take the final AP exam. "By May of 2006, however, more than 2.3 million exams were administered to more than 1.3 million students" (Kyburg, Hertberg-Davis & Callahan, 2007, p. 176). One consequence of federal pressure to move more students into AP has been a "reduction in the number of alternative options for meeting the academic needs of talented students at the secondary level" (p. 180).

Kyburg, Hertberg-Davis and Callahan's conclusions were relevant for all students. Success was largely dependent upon district wide support which included professional development, additional funding for field trips, and additional funding for lunch and after school help session. Adapting the AP and IB curricula to fit constituents more comfortably, and the provision of scaffolding at every step was beneficial. Finally, both on-site administrative support and parental involvement contributed to program success. The more adaptations that were made, the more students responded positively to the programs.

Of special interest to a study of gifted student's critical thinking, cognitive, and emotional needs, was the examination of curricular challenge in AP classes. In brief, the level of satisfaction was inversely proportional to the extent to which the teacher adhered to the suggested curriculum. While all agreed that the curricula was "challenging", Kyburg et al also found that instruction and assessment were inappropriately focused at Bloom's lower levels. Students complained about limitations on creativity, regurgitation, no room for personal insight, rigid rubrics, and being expected to fit a pre-cast mold. It is the contention of the current study that academic debate can meet many of gifted learners' needs - depth, independence, complexity, acceleration, personal insights through critical thinking and creativity – which may not be adequately provided in AP.

Common Core State Standards and Gifted Education

The National Association for Gifted Children (NAGC) acts as a national voice of gifted education. There are many institutional centers for Gifted Education – John Hopkins, William and Mary, University of Connecticut, and the University of Arkansas at Little Rock amongst them, but the NAGC acts as a clearing house for information and advocates nationally for the interests of gifted children. It is also the publisher of some of the most respected journals in the field: *Gifted Child Quarterly, Parenting for High Potential,* and *Teaching for High Potential.* The organization applauds the increase in rigor reflected in the new Common Core State Standards (CCSS) and the attention paid to skills and concepts required for the 21st century. Despite its praise for increased rigor, however, the organization maintained that Common Core still does not meet the needs of gifted learners.

According to the NAGC (2014a), the new CCSS are evidence-based, aligned with expectations for success in college and the work place, and they informed by the successes and failures of the current standards and international competition demands. The new standards were designed to stress rigor, depth, clarity and coherence. Despite the fact that the new content standards are considered to be more rigorous than most current state standards, they fall short in meeting the specific needs of gifted learners. If accommodations are not made to move gifted learners beyond the standards, they could actually limit learning. The organization cautioned that efforts should be made to overcome this pitfall. Differentiated curriculum, specialized instruction, advanced programs, and advocacy are still going to be critical to optimizing learning for gifted and advanced students. Educational leaders must be resist complacency generated by the belief that the increased of the CCSS will provide sufficient rigor for all. It is imperative that

gifted educators create a full range of supports for high-ability learners through differentiated curriculum, instruction, and assessments. Debate can be one of the most powerful engines for meeting those needs.

Just as with NCLB, school-wide average yearly progress provides little information on gifted students. Without appropriate interventions, they start and end their years at the ceiling of benchmark tests. Like NCLB before it, the CCSS do not address the needs of students who have already exceeded those standards. The only achievement gap-closing that occurs is produced by students at the top failing to progress in concert with their abilities. Gifted and advanced students should be provided with opportunities to measure progress against their academic peers rather than comparing them to a lower performing group.

In much the same way that NCLB stripped educators of their focus on excellence and replaced it with a sense of urgency to tend to the yearly growth of lagging students, Common Core State Standards do same. There is little discussion of raising the ceiling for those already scoring advanced when the fate of entire institutions depends on moving the bottom up. One test-driven policy has merely been replaced with another.

In discussing the merits of one test-driven program (NCLB) to another (CCSS), it is important to note that constant focus on, and practice for literacy tests did not substantially improve literacy scores for all. Tieso (2013) reported the failure. "In spite of devoting approximately 60% of weekly instructional time on reading and language literacy, results from the Nation's Report Card, the National Assessment of Educational Progress found that average reading scale scores for students in Grade 8 have flat lined since 2002" (p. 97).

An additional irony of the test-driven dialectic of contemporary high schools is that, according to Conley (2003), the majority of state tests did not test what they claimed to value, college readiness. The tests were not aligned with the Knowledge and Skills for University Success (KSUS), a set of college readiness standards which pre-dated the Partnership for Assessment of Readiness for College and Careers (PARCC). Like PARCC, KSUS also purported to be based on colligate and career readiness, standards for entry-level university courses. Knowledge and Skills for University Success standards, those most appropriate for gifted and advanced students, were developed by 400 faculty members from 28 Association of American Universities. Conley examined every test item in 66 state tests for 20 states. He analyzed 35 English examinations and 31 Mathematics examinations. Three levels of alignment were assigned: (a) well aligned, (b) inconsistently aligned, and (c) not aligned. Conley also used Marzano's depth of knowledge to categorize level of question complexity. The findings of interest to the current study, the effectiveness of debate for gifted learners, were critical thinking, complex reading, and research. Conley's findings were:

> KSUS standard of Reading and Comprehension was adequately aligned with only 30% of the assessments and the standard of Critical Thinking was aligned only 23% of the time… for KSUS standard of Research Skills, none of the 30 state assessments met the benchmark adequately for Range of Knowledge (2003, p. 11).

Empirical evidence suggests that academic debate is positively aligned with the aforementioned KSUS standards. Studies reported positive impact upon reading comprehension (Collier, 2004, Duffin, 2002 in Snider, 2011) and critical thinking (Akerman & Neale, 2011,

Colbert, 1987, Mezuk, 2009). Finally, all forms of competitive require some level of engagement in research.

Van Tassel-Baska's nonnegotiables, gifted learners, and debate

There are several ways to address the academic needs of gifted learners. AP is the most common in the U.S. IB is highly successful in meeting its college completion goal – 80% 6-year college graduation rate (Conley, 2009) – and is gaining ground. Its two year full commitment requirement, however, makes it unlikely to surpass AP participation. Grade-skipping, curriculum compacting, and special schools are unlikely accommodations for most gifted learners. Whatever opportunities are made available for giftedness, a certain baseline of minimum services should be established.

Van Tassel-Baska (2013 said certain accommodations for gifted and talented students are nonnegotiable. Acceleration is the most effective method of meeting the needs of gifted students, however, "Flexibility in schools has been one of the most difficult tasks for public schools to enact" (p. 91). The flexibility that Van Tassle-Baska enumerated must include early admission to school and early exit from school paired with early admission to college. Whole grade skipping is also effective.

Another nonnegotiable is content acceleration which accommodates the asynchronous development displayed by some students. Schools have become adaptive in mathematics, allowing secondary students to double up in math courses, but institutions remain resistant to acceleration on other content areas. Curriculum compacting is rare. The acceleration offered by academic debate does not move the student through school any faster, but allows the student to

analytically engage with content far beyond his grade level and thereby address asynchronous development.

AP intends to offer students the opportunity to engage in college level work while still in high school. Unfortunately, a full menu of the mild acceleration offered by AP cannot be offered by many small rural schools. Debate can be an avenue to additional challenge as can telecommunication.

Van Tassel-Baska also asserted that grouping arrangements with peers is also a must. Gifted and advanced students need their peers. Debate classes are ideal for appropriate peer interactions to flourish. Students work in self-selected small groups or pairs. They interact in research teams, travel to events together, and develop personal relationships with their teammates. Participation in academic debate enhances intellectual, social and affective growth (Akerman & Neale, 2011; McKee, 2003; Mezuk, 2011; Minnesota Urban Debate League, 2005, Inoue & Nakano, 2004).

In direct opposition to the "one size fits all" curriculum map model practiced by many districts, Van Tassel-Baska stated that differentiated curriculum is mandatory. Differentiated curriculum does not mean differentiated instruction. The *content* itself must be different. Gifted students also require problem-based learning, discovery learning, independent study, higher-level questioning, and appropriate and authentic assessments. Academic debate, in addition to developing research and communication skills with advanced content, is problem-based learning, requires independent study, higher-level questioning and is measured by authentic assessment.

Appropriate Challenge and affective development through Academic Debate

Gifted students should be afforded the opportunity to advance in multiple academic domains in addition to their special talent areas. When that is not possible via special programs designed for gifted students, alternatives in the regular curriculum should be found. AP alone is not sufficient. Through participation in debate, students research topics in both depth and breadth. For example, an environmental policy topic requires readings across domains: economic affects, cultural influences, legal ramifications, scientific evidence, and statistical data. In addition to understanding the environmental impact of the proposed policy, he must be able to develop a plan and them be able to both support and attack the proposed policy. Because the scope of each issue is so broad, students are both compelled to step into unfamiliar intellectual territory, and are also simultaneously able to devote in depth study to their preferred domains. Through that processes, high ability students develop the research and independent investigation skills necessary for broad investigations. In so doing, they meet both KUSU and PARRC standards. The 21st century skills acquired will serve them well in both higher education and in their lives as professionals and civic participants.

The level of personal competence required for gifted and advanced students is often difficult to obtain in the regular classroom because the functional level of the class is inappropriate. For the same reasons, gifted students often have difficulty building social competence in groups where they are the odd man out. As Van Tassel-Baska (2013) point to out, they need the company of their peers in order to share their more complex and advanced areas of interest. Bright students are better served by the competitive and academic challenges offered in self-regulated courses like debate. Leadership, cultural, and communication

competencies - 21st century skills - flourishes in intellectually and socially stimulating environments. "…debate transforms the classroom environment into an intellectually challenging world where ideas are explored through discourse and argument" (Wade & Zorwick, 2009, p. 1). The team nature of research, case preparation, drills, and competition helps build peer relations and facilitates cooperative learning in ways that are difficult to maintain in the regular classroom where lecture, mixed ability grouping and teacher-lead instruction prevail. The freedom to delve deeply, to make connections, and to construct and defend oral arguments, are the energy sources which power gifted students and keep them engaged.

Other areas of personal competence which are not sufficiently developed by regular classes but which flourish through participation in debate are self-awareness, self-advocacy, and self-efficacy. Wade and Zorwick explained that students, "learn how to give voice to their thoughts. Such self-awareness is incredibly empowering and makes a student more motived to learn, while giving them new tools that can fundamentally improve their learning skills" (p. 1). Students utilize their new learning tools not only in debate, but they also use them across the curriculum. Command of those tools naturally enhances the student's sense of self-efficacy.

Minch (2009) concurred that the affective rewards of participating in debate are far-reaching. "Performance activities are life-changing experiences for the students who participate in them. Speech, performance and critical thinking liberate the mind and the individual" (p. 20).

The programming needs of gifted and advanced secondary students are more difficult to meet, but there is a viable option available within the context of the regular curriculum. Traditionally, U. S. schools rely on AP courses to serve gifted learners. Although AP is not without merit, AP courses are open to all comers. The pace and depth are frequently not

sufficient for gifted students. Debate too also is open to all comers, but individual students pursue their research, develop their oratorical skills, create unique positions of advocacy and adversary, and zip along unfettered by the pace of others in the class.

Students also control their mode and level of engagement by choosing amongst competitive formats (Student Congress, extemporaneous, IPDA, etc.) and by the number of tournament s in which they compete. The levels of independence and self-selection typical of debate are rare in other secondary courses.

Exceptional students' needs for complexity, depth, breadth, accelerated pace, independence, and critical thinking can be met through competitive debate in manners which are desirable, but often difficult in either AP or other regular classrooms. For example, other important advantages debate offers over other curricular options are instructional format and content. AP is predominantly teacher-driven, lecture-based, and test-focused. All students work from the same textbook, have the same assignments and take the same tests. There is little room in the AP curriculum for individualization or independence. Finally, academic debate allows vast flexibility in the selection of advanced content with each student or team regulating its own depth, breadth, pace and extent of inquiry. Learners, in effect, differentiate for themselves. Consequently, motivated students and advanced students thrive in academic debate. Dean and Levasseur (1989) found that the most academically talented students out-performed all others. "Despite student earnestness and/or prior speaking experience, intellectual ability soon became a discriminating factor," (p. 138).

Academic debate operationalizes all levels of Bloom's taxonomy (Figure 2.4), and each is used multiple times in solving a given problem – the combined affirmation and refutation of

each resolution. Every participant is required to have a deep knowledge and comprehension of the facts which underlie every resolution. Facts must be drawn from every possible area that may affect the resolution. Although a part of the regular curriculum, debate is unique in that the sources from which students research those areas are more challenging in content than texts normally used in the regular classroom. The debater must then evaluate and use acquired knowledge to develop cogent arguments both for and against the resolution in question. The multi-layered, reiterative process used for acquisition of knowledge and the construction of advocacy is critical thinking.

Critical Thinking

Critical thinking and its composite subsets may be the most important skill taught in school. Acquisition of facts is no longer a sufficient outcome of education. "We have learned that it's not enough for students to study content in isolation; they must use their content knowledge to solve problems, make conjectures and inferences, and think deeply about the big questions of the disciplines" (Conley, 2009, p. 9). Individuals must become self-directed in the acquisition of information, must be able analyze its meaning, must be able to evaluate evidence and judge its usefulness, and must become resourceful in applying newly acquired knowledge. Employers, policymakers, and educators are in consensus that the dispositional and skills dimensions of critical thinking should be considered an essential outcome of an education. Critical thinking may, in fact, be the overriding ideal of, and fundamental aim of contemporary education. The conclusion is not new. Paul, Elder & Bartell (1997) reported that 2,500 years ago Socrates discovered that people could not rationally justify their claims. They used confused definitions, inadequate evidence, or self-contradictory beliefs. Through his method of Socratic

questioning, he highlighted the importance of evidence, close examination of reason and assumptions, analyzing concepts and examining the implications of both words and actions (as cited by Foundation for Critical Thinking, 2013).

Discussions of critical thinking in education frequently make reference to the upper levels of Bloom's taxonomy because most teachers are familiar with its vocabulary. Referring to Bloom's Taxonomy, (Figure 2.5) it is not sufficient to supply students with "knowledge" without providing them with the critical thinking tools to interpret and use that knowledge. Conversely, it should be obvious from Bloom's diagram that higher-order thinking skills, analysis, evaluation, and creation, are *based* on knowledge and comprehension. According to Willingham (2007), "The processes of thinking are intertwined with the content of thought, that is, domain knowledge…the ability to think critically depends on having adequate content knowledge; you can't think critically about topics you know little about" (2007, p. 12).

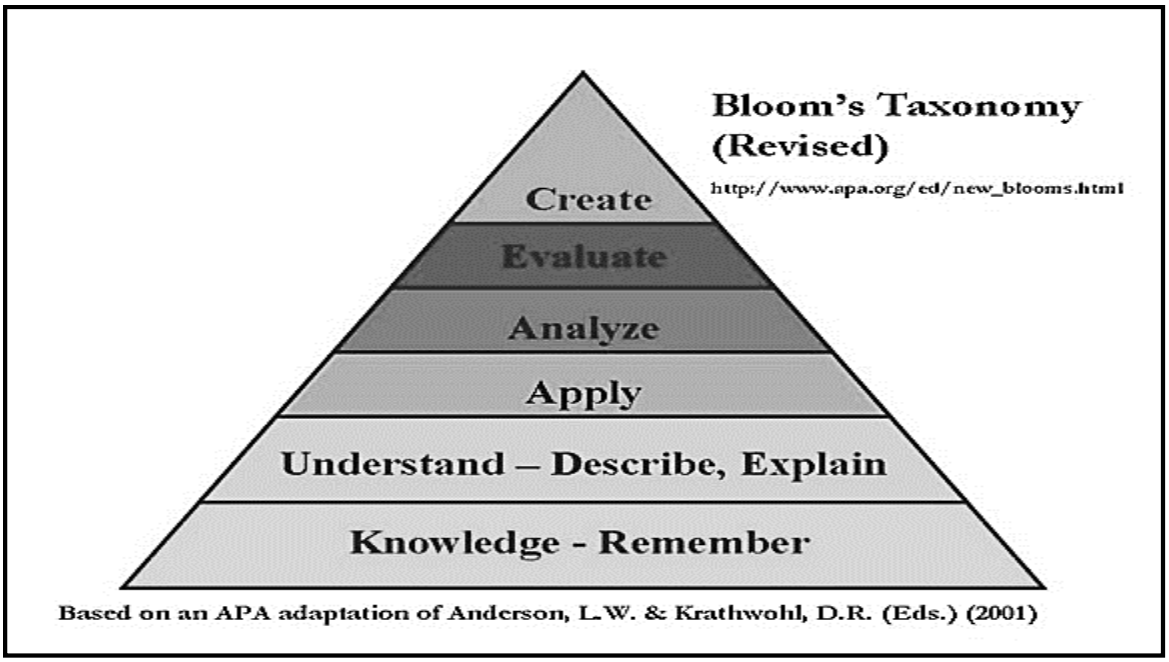


Figure 2.5 Bloom's taxonomy

According to Gomez and Gomez (2007) comprehending written text is at the center of higher order thinking skills and critical thinking. The ability to critically analyze and synthesize information, and to transform information into new forms for interaction with others is what knowledge work is about" (p. 224). Not coincidentally, it is also what debate is about.

Critical thinking has raced up the ladder for skills in high demand because of a paradigm shift in society. We are in a new age - the Age of Global Information. Information is no longer passed ritualistically from an informed few to waiting learners. In the past, education was successful if it passed along the body of a culture's knowledge, customs, and mores. Whether told by a campfire, demonstrated by a master at the forge, or explained on the pages of books, learners could acquire all the knowledge they needed to function in, and prosper in a given economic, cultural or social group. Today, we are faced with a new interpretation of Marshall McLuhan's "the medium is the message".

Knowledge is no longer sufficient. "Knowledge and skills, the staples of the educational philosophy of the mid-twentieth century, are not sufficient. We must look to a broader set of outcomes including habits of mind and dispositions, such as civic engagement, concern for the common good, and social responsibility" (Facione, 2013, p. 14). Today's digital messages are delivered at lightning speed via the information highway. Information, and access to it, is expanding at a rate so vast that schools can no longer undertake to deliver it all. Instead, schools must provide students with the tools to access information, the critical thinking skills required to assess it, and the communication skills required to use and share information in effective and original ways. Wade and Zorwick, (2009) express a like conviction.

> …education exists to prepare students to deal with the demands of an unpredictable and dynamic future, the value of specific facts will always be limited, but the value of analysis, critical thought, and oral competence create a foundation for adult life in a rapidly changing world (p.2).

Twenty-first century survival depends on being a facile critical thinker, and on having both the communication and collaboration skills necessary to effectively operationalize the outcomes of critical thinking. Academic debate helps students develop all three skills in an authentic format.

Definitions of critical thinking

The need for critical-thinking skills for all, and its special importance in gifted education, has been agreed upon by a number of researchers (Abrami et al, 2008; Eisner, 2004; Goodwin, 2003; Inoue & Nakano, 2004; McKee, 2003; Pegram, 2006; White, 2010). Michael Scriven and Richard Paul (2013) provided the following definition of critical thinking at the 8th Annual International Conference on Critical Thinking and Education Reform, 1987.

> Critical thinking is 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. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness.

> It entails the examination of those structures or elements of thought implicit in all reasoning: purpose, problem, or question-at-issue; assumptions; concepts; empirical grounding; reasoning leading to conclusions; implications and consequences; objections from alternative viewpoints; and frame of reference. Critical thinking — in being responsive to variable subject matter, issues, and purposes — is incorporated in a family of interwoven modes of thinking, among them: scientific thinking, mathematical thinking, historical thinking, anthropological thinking, economic thinking, moral thinking, and philosophical thinking. (Scriven & Paul as cited in Foundation for Critical Thinking, 2013, para 3-4)

Critical thinking is not a single, unified process that is engaged uniformly in every problem-solving situation. Rather, critical thinking is a synergetic process which utilizes a number of cognitive processes in response to the needs of the problem to be solved. The end product, however, is always reached through evaluation and judgment. The Foundation for Critical Thinking (2007) has adopted the Paul-Elder model (see Figure 2.6) which graphically illustrates the various components of critical thinking.

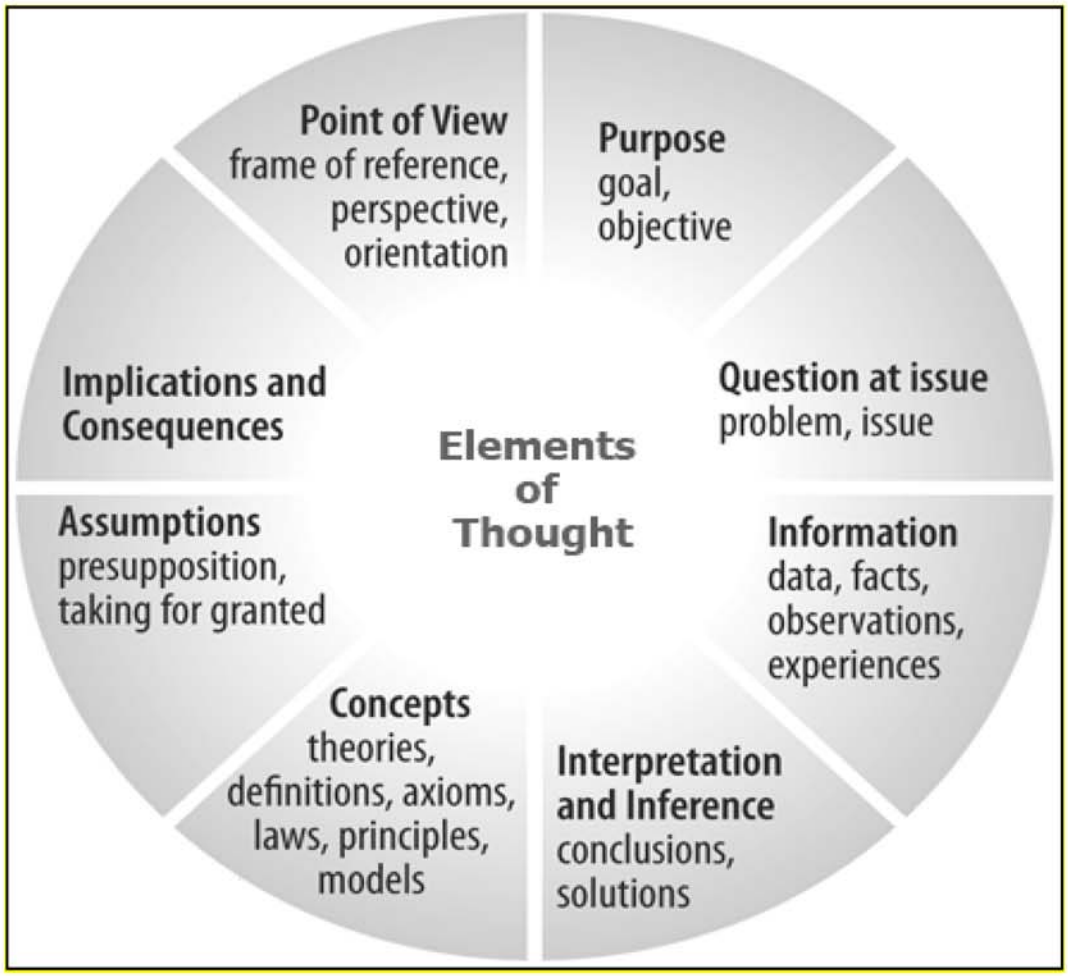


Figure 2.6 Paul-Elder model of the elements of thought

Each of the elements of thought depicted in the Paul-Elder model is activated during case preparation. At first glance the model appears sequential, but critical thinking is reiterative. The addition of each new finding requires comparison with prior knowledge. Assumptions must be evaluated not only in isolation, but interactive effects must also be considered when developing a plan. Debate's unique requirements for continual side-changing, immediate response to questions, forays and rebuttals forces the debater to be fully engaged in the model.

Scriven and Paul's trans-disciplinary definition of critical thinking is in accord with the needs of gifted and advanced students. Its alignment can be demonstrated by comparing

Common Core State Standards for critical thinking with the National Association for Gifted Children's (2010) critical thinking standards. The definition's responsiveness to variable subject matter also makes it well-suited for the study of debate – a field which draws its monthly-changing topics from ethics, science, political science, economics, sociology, criminology, education, agriculture and the arts.

> In order to meet the unique needs of students with gifts and talents, curriculum must emphasize advanced, conceptually challenging, in-depth, distinctive, and complex content within cognitive, affective, aesthetic, social, and leadership domains. Educators must possess a repertoire of evidence-based instructional strategies in delivering the curriculum to develop talent, enhance learning, and provide students with the knowledge and skills to become independent, self-aware learners (National Association for Gifted Children, 2010).

Definitions of critical thinking are complex. Many use the language of one definition to frame the meaning of another. "Various authors offered definitions and descriptions of critical thinking and dispositions. Their work seems to indicate agreement about the dispositions to critical thinking and what these might be. However, there seems to be no one 'correct' way to define or describe critical thinking" (Profetto-McGrath, (1999, p. 61). The American Philosophical Association Delphi panel (1990) took two years to reach a consensus on the meaning of critical thinking and the disposition of those inclined to practice it. A Delphi panel is a group of experts in a given field who participate in a qualitative reiterative investigative format known as the Delphi method in order to meet a consensus.

We understand critical thinking to be purposeful, self-regulatory judgment

> which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based. . . .The ideal critical thinker is habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider . . . and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit. (Facione, 1990a, p. 3)

The Delphi panel coined the phrase "critical spirit" to describe one who has a probing, keen mind that is dedicated to reason, is inquisitive and is possessed by a hunger for reliable information. The Delphi panel's description echoes Cacioppo, Petty, Feinstin and Jarvis' construct of drive for cognition. The same adjectives are often used to describe gifted individuals. McCollister and Sayler explained that, "Intellectual mindedness is strongly related to critical thinking ability; however, critical-thinking skills depend heavily on formal learning" (2010, p. 42). Finally, Elder's description of critical thinkers is also in accord with the characteristics of the gifted.

> Critical thinking is self-guided, self-disciplined thinking which attempts to reason at the highest level of quality in a fair-minded way. People who think critically consistently attempt to live rationally, reasonably, empathically… At the same time, they recognize the complexities often inherent in doing so. They avoid thinking simplistically about complicated issues and strive to appropriately consider the rights and needs of relevant others. ~ Linda Elder, September, 2007

Critical thinking (CT), or the ability to engage in purposeful, self-regulatory judgment, is widely recognized as an essential skill for the Knowledge Age. Most educators would agree that learning to think critically is among the most desirable goals of formal schooling, and fostering critical-thinking skills is an aim included in most school mission statements. This includes not only thinking about important problems within disciplinary areas such as history, science, and mathematics, but also includes thinking about the social, political, and ethical challenges of everyday life in a multifaceted and increasingly complex world.

With an eye to the instruction and needs of the gifted, Davis, Rimm and Siegle (2011) divided critical thinking in to two different frames of reference. The first frame of reference defined critical thinking as evaluation which leads one to beliefs and courses of action. Gifted educators were to provide students with the ability to evaluate a source's qualification to provide correct information, and to enhance students' ability and intent to observe accurately. Therefore, the student must be able to detect bias. The student must be able to make inferences, determine relevance, search for logical fallacies, and draw appropriate conclusions.

The second frame of reference defined critical thinking as problem solving. White (2010) supported the distinction by noting that critical thinking is reactive in response to information which already exists whereas creative thinking produces something new. "Creativity encourages posing and solving problems. When a learner defines goals, pursues knowledge, and draws conclusions, learning becomes more meaningful, the search more intense, and the results more personally satisfying" (Elder & Paul, 2010). The student must define the problem and break it into its component elements. The student must then find pertinent information and determine relevance and accuracy. He then formulates hypotheses based upon

facts, inferences, and definitions. Finally, he draws logical conclusion based on the complete process. White included six cognitive skills which contribute to purposeful reflective judgment: interpretation, analysis, evaluation, inference, explanation and self-regulation (p. 14).

Facione (2013), a member of the American Philosophical Association's Delphi panel, developed an assessment of core critical thinking skills and dispositions. In it he defined each of White's elements.

1. Interpretation: comprehend and express the meaning of significance of. It includes the sub-skills of categorization, decoding, significance and clarifying meaning.

2. Analysis: identifying the intended and actual inferential relationship among statements, questions, concepts and descriptions. Detecting and analyzing arguments. Identifying claims and unstated assumptions.

3. Evaluation: assessing credibility, situation, belief, opinion, inferences logic, relevance and inherency.

4. Inference: identify elements needed to draw conclusion, forming conjectures and hypotheses which flow from data, conjecturing alternatives and definitions.

5. Explanation: the ability to articulate one's conclusions

6. Self-regulation: Related to meta-cognition, examining your own thinking, recalculating, revising, self-examination, self-correction, self-discovery. p. 5 – 8

Operationalizing critical thinking through academic debate

Each of White's cognitive skills is employed in structuring every debate, and each is replicated over and over for both affirmative and negative positions. The fact that the debaters do not know if they will represent the affirmative or negative position on any issue at hand requires a multi-frame approach uncommon in other academic pursuits. Every debater must read, comprehend, interpret, categorize, prioritize and evaluate a large body of knowledge related to the issue at hand. That body of knowledge is also very expansive because so many topics are covered in course of one's debate career. Debaters develop claims, examine underlying assumptions and build arguments based on evidence. Inferences drawn from all evidence are required at every step of debate preparation. Participants must know and defend or refute all possible arguments for and against every issue, and they must be able to consolidate information into persuasive assertions. Self-regulation is an ongoing process in the preparation of every case and the construction of every argument particularly because debaters must be prepared to affirm or negate each issue.

When arguing the affirmative position, the debater also bears responsibility for addressing the stock issues, significance, harms, inherency, and topicality, and solvency, are required in every debate. The affirmative speaker must establish the significance of the problem (advantages and disadvantages of an action) and clearly identify the harms which currently exist or which may exist if action is not taken. He must show that the identified harms are inherent in the status quo, and he must establish definitions which bound the topic (topicality). Finally, he must offer a plan to solve the problem and provide evidence (a case) in support of his claim.

Debate is both a stepwise and a repetitive process in which the resolution is stated as a claim and a case is built to support the claim. Issues are stated in clear action terms, definitions are set forth, multiple frames are used to analyze the problem, solvency, harms, inherency and topicality are established, and several sources of evidence are used to support each main facet of the case. Counter-evidence is evaluated for merit and analyzed for refutation; judgment is exercised in selection, organization and merit; and a weighing mechanism (criterion check) must be established. Preparation for debate is a complex, long-term intellectual task which requires the full execution of all of the debaters' cognitive skills.

When viewed holistically, one can see that debate operationalizes Renzulli's type III enrichment activities – those specifically designed for gifted students. In type III activities, "students become researchers or scientists investigating a real problem and producing a creative product for a specific audience" (Bain et al, 2005, "Some theoretical models for gifted education", para, 2). Debaters research real, contemporary policy issues, develop reasoned arguments, and present them in a persuasive manner to a specific audience – judges.

Not all advocates for gifted learners endorse debate and its format, adversarial argument. Wade (2009) argued that debate is polarizing and eliminates the middle ground. Wade's argument that debate has a polarizing effect is specious. Debaters learn both sides of every issue and arbitrarily assert or negate positions based on the flip of a coin. Debates are won not on judicial agreement with argued positions, but on the depth and breadth of competitors' evidence and the adroitness of their arguments.

Van Tassel-Baska also demanded a clear link between theory and practice. Debate operationalizes theory into practice through the aforementioned sequence. Theories of giftedness

agree that the fundamental distinctions of gifted learners are their precocity and complexity. Curricula for gifted learners must be responsive to those characteristics. Gifted learners must be offered a curriculum which is advanced, emphasizes higher level thinking and problem solving, and exposes students to the world of great ideas, issues and themes (2008, p. 3). Debate, as a single course, brings students deeply into the world of great ideas, issues and themes with both depth and breadth. Debate, standing as a single course, replicates Van Tassel-Baska's Integrated Curriculum Model.

The benefits of developing critical thinking, whether concrete and school-oriented like improvement in GPA, or abstract like improving the quality of one's cognition, are gratifying and liberating. The benefits are also vital to the health of the nation. *Thinking for a Living: Education and the Wealth of Nations* warned that, "The future now belongs to societies that organize themselves for learning... nations that want high incomes and full employment must develop policies that emphasize the acquisition of knowledge and skills by everyone, not just a select few" (Marshall and Tucker in Facione, 2013, p. 21).

Two other leaders in the field of critical thinking, Elders and Paul, developed "Universal Intellectual Standards" for critical thinking. (See Figure 2.7). The pair developed these standards as classroom rituals to help students evaluate their own thinking. They believed that through the repeated process of holding students accountable for their own thinking, the process would become internalized. The Paul-Elder standards should not be exclusive to gifted learners; all students, in every clime, should receive instruction designed to develop critical thinking.

CLARITY: Could you elaborate further on that point? Could you express that point in another way? Could you give me an illustration? Could you give me an example?

ACCURACY: Is that really true? How could we check that? How could we find out if that is true?

PRECISION: Could you give more details? Could you be more specific?

RELEVANCE: How is that connected to the question? How does that bear on the issue?

DEPTH: How does your answer address the complexities in the question? How are you taking into account the problems in the question? Is that dealing with the most significant factors?

BREADTH: Do we need to consider another point of view? Is there another way to look at this question? What would this look like from a conservative standpoint? What would this look like from the point of view of . . .?

LOGIC: Does this really make sense? Does that follow from what you said? How does that follow? But before you implied this, and now you are saying that; how can both be true?

FAIRNESS: Do I have a vested interest in this issue? Am I sympathetically representing the viewpoints of others?

Figure 2.7 Universal intellectual standards

The use of tables and figures should not lead one to believe that critical thinking is a linear process of categorically exclusive elements. Nor is critical thinking a single, unified process that is used uniformly in every problem-solving situation. Rather, critical thinking is a synergetic process which utilizes a number of cognitive processes in response to the needs of the problem to be solved. The end product, however, is always reached through evaluation and judgment.

The assertion of the qualitative section of this study is that the National Forensic League's skills and activities for academic debate operationalize each facet of the Paul-Elder critical thinking model, and therefore meet the critical-thinking needs of gifted and advanced students engaged in academic debate. Therefore, the study of academic debate is one appropriate way for schools to meet the 21st century needs of gifted and advanced students within the confines of the regular curriculum.

Research findings on the effects of participation in academic debate

Academic debate is that which is conducted in sanctioned secondary or university settings. Participation is limited to students, and rounds are conducted with both format and time limitations. Many academic debate participants continue to use advanced critical thinking, communication and collaboration skills acquired school in their adult careers. According to Keele and Matlon (in Minch, 2006), 90% of their sample of past collegiate debaters attained at least one graduate degree, 30% were university educators, 15% were corporate executives, and 10% were working the in the executive or legislative branches of government. Minch also reported that a high percentage of senators, congressmen, governors, Supreme Court justices, and other political leaders were high school and/or collegiate debaters. As one would expect, many past debaters continue to use their skills in the practice of law.

Freely and Steinberg (2009) defined academic debate as formal, structured, argumentation which is conducted on propositions, questions, and topics in which the challenged and motivated advocates have both a short-term and a long-term academic interest. An academic debate is typically presented before a judge who renders decisions based on the merits of the arguments and supports presented by each debater, responses to the opposition, and

oratorical style. According to Freely and Steinberg, its purpose is to provide the following educational opportunities to participants: preparation for effective participation in a democratic society; preparation for leadership; training in argumentation; investigation and analyze of significant contemporary problems; development of proficiency in critical thinking, integration of knowledge; development of purposeful inquiry; development of the ability to make prompt, analytical responses; development of critical listening; development of proficiency in reading and writing, maturation of both judgment and personal maturity; development of courage; development of effective oral presentation skills; development of multicultural sensitivities; development of computer competencies; empowerment for personal expression; and development of problem solving skills.

Participation in academic debate produces salubrious outcomes for most participants. It is, however, particularly appropriate for gifted students who are not sufficiently challenged by other curricular options. Voisin asserted that

> The intellectual challenge of forensic activities is instrumental in the personal growth and development of individual students. Schools unable to maintain or even initiate gifted and talented programs would be wise to maintain debate/forensic programs as the training obtained is highly comparable. Student success and achievement is the major reason that competitive forensic activity should be an educational opportunity for all young people (Arthur Voisin (1994), Former Director of Forensics, Southfield, MI, in Minch, (2006), p. 4).

The various competitive high school debate formats engage two teams of one, two, or three students from a minimum of 26 minutes for an IPDA debate, to 90 minutes for rapid fire

policy debate (Snider, 2011) of intense intellectual engagement. The rigor, duration, and intensity of intellectual activity required by debate outstrips that prompted by most secondary school academic activities. Research, preparation, and practice are held during and after class time; tournaments are held outside of the school day. Teachers can easily conduct classroom debates by reducing speech length and/or by eliminating one of the rebuttal rounds. Regardless of the format followed, debate develops skills and habits of thought which are hoped for in all students. Every student in the class can participate at his proximal zone of learning because research is done both independently and collaboratively. Although winners of debate tournaments are usually those with high ability, creativity and task commitment can boost competitiveness. All students do not participate in every debate tournament or in every type of debate. Some may choose to act only as researchers or assume other non-speaking roles. Every tournament participant is guaranteed two rounds; participants can choose extemporaneous speaking, or even poetry recitation. Those interested in politics and social action can write and argue legislation for Student Congress, and budding attorneys can compete in Mock Trial. Finally, debate formats are offered at novice and advanced levels. Although the more competitive levels of debate are ideally suited for gifted and advanced learners, its structure provides scaffolding and accommodates tremendous latitude within the regular classroom. Every participant will enrich his critical thinking skills, public speaking abilities, and self-confidence.

According to Edwards (2008), competitive debate is unlike other academic competitions like Quiz Bowl because it does not rest upon the memorization of facts. Debate engage higher-order thinking skills in determining *why* something is true and evaluating its merits, 21st century

skills, and in so doing, satisfies the gifted student's need for greater depth and complexity. The examination of issues from multiple perspectives requires evaluation and judgment, higher-order thinking skills. The debater must also be able to synthesize a great deal of information in order to meet the time restrictions of the contest.

Debate is multi-faceted in its ability to develop critical-thinking skills and stimulate thinking at the highest levels of Bloom's taxonomy. Participation in debate provides opportunities for both teamwork and leadership, places gifted and advanced students with their academic peers, promotes tolerance through the process of developing both affirmative and negative positions, requires analysis of highly complex texts, develops both interpersonal and oral communication skills, and is competitive fun.

Policy debate, according to Fogel (2012), is the most academically rigorous of all interscholastic speech activities and the oldest, dating back to 1928, of all high school academic competitions. Policy debate develops core academic skills: literacy, critical thinking, research, communication, organization, and supporting of arguments (para. 2). In short, "USA policy debate is the most challenging, difficult, intense, and preparation-demanding debate format in the world" (Snider, 2006, para 2). As such, it is the ideal milieu for gifted and advanced learners.

The study of debate has additional advantages beyond developing critical thinking and providing academic rigor. Studies on the effects of debate instruction and participation have indicated that debaters have higher grade point averages (Akerman & Neale, 2011; McKee, 2003; Mezuk, 2011; Minnesota Urban Debate League, 2005), are more likely to graduate (Akerman & Neale, 2011; McKee, 2003; Mezuk, 2011; Minnesota Urban Debate League, 2005), show improvement in their reading scores (Collier, 2004: McKee, 2003; Mezuk, 2011),

report that they have become more confident in their speaking and communication skills (Inoue & Nakano, 2004), demonstrate higher levels of civic engagement (Fogel, 2012), and have become empowered by their debate experience (Minch, 2006; Warner & Burschke, 2001; Malcolm X, 1964).

Structure and formats of academic debate

Academic debate evolved from the ancient arts of oratory and rhetoric, forums used by the Greeks to arrive at philosophic and civic conclusions. Every decision, whether trivial or of great import, requires that we evaluate relevant advantages and disadvantages, consider possible alternatives, and come to some conclusion. The knowledge that decision-making, a "process that combines desire and reasoning in the act of deliberation focused on some end" (Strait, 2008, p. 5), is a universal human trait, goes back to Aristotle (c. 330 BCE). The tradition of reasoned decision-making based on the fruits of argumentation and advocacy – debate - has persisted and expanded through both formal and informal channels from ancient times to the present. Gifted and intellectually advanced individuals have been chief amongst critical thinkers in every culture.

As an academic discipline, competitive debate has been meeting the critical-thinking needs of gifted and advanced students around the globe for almost a century. The National Forensic League (NFL), founded in 1925, sponsors an array of oral competition for both individuals and groups including poetry, prose, original oratory, extemporaneous speaking and its crown jewel, American policy debate, the most competitive oratorical competition. Each year a single topic is chosen for debate. Past NFL topics (National Forensics League, 2014) are included in Figure 2.8.

Resolved: That every able-bodied male citizen in the United States should be required to have one year of full-time military training before attaining the present draft age; **1941-42**
Resolved: That the United States should adopt the essential features of the British system of education; 1958-59
Resolved: That the federal government should establish, finance, and administer programs to control air and/or water pollution in the United States. **1996-97**
Resolved: That the federal government should establish a program to substantially reduce juvenile crime in the United States; 1970-71
Resolved: The United States federal government should substantially increase its public health assistance to Sub-Saharan Africa 2007-8
Resolved: The United States federal government should substantially increase its non-military exploration and/or development of the Earth's oceans. 2014-15.

Figure 2.8 Selected National Forensics League topics

It is clear from the complexity of the topics that all are multi-curricular and expand debaters' knowledge across both content and historic periods. Debate is not a course to be undertaken by the faint of heart or wit. The format is not to be taken lightly either. A policy debate round is contested by two 2-person teams who, along with other non-speaking teammates, spend a great deal of time researching the topic, writing constructive and rebuttal speeches, and practicing both content and delivery style. Each participant delivers an eight minute constructive speech. Between each constructive speech, the opposing team has three minutes to question its

adversary. Each participant must think rapidly and have a thorough knowledge of all factors, both positive and negative, that impact the issue under discussion. In the final portion of the debate, each of the four speakers presents a five minute rebuttal speech in which he refutes the arguments of the opponents and defends his team's position. In these speeches, the debaters try to solidify their arguments and persuade the judge that their side has presented the best supported and delivered argument. A policy debate round, often called cross-x, takes an hour and 40 minutes. The winners must work their way through five or six rounds at a typical weekend tournament. That is certainly more time than a football or basketball player spends in a weekend game. Couple that with the fireball upper level debate delivery style, spreading, in which the debaters speak at 700 to 800 words per minute, and competitors put their physical, intellectual, and emotional all into the clash. Other debate formats, public forum, International Public Debate, and Lincoln-Douglas share a similar format with reduced speech length and spreading is less popular or discouraged.

Additional debate formats

Indeed, National Forensic League policy debate has become so competitive and esoteric that another organization, the International Public Debate Association (IPDA), was founded in 1997 so that topics would be diversified, and a wider range of debaters would have opportunities to compete. The IPDA promotes a debate format that emphasizes public speaking and real-world persuasive skills over the use of volumes of evidence and speed. The single most important difference between NFL and IPDA debate is that IPDA topics change monthly. That arrangement prevents students with a vast cache of facts on a single topic from being invincible. IPDA also allows for debate on many more topics throughout the year. Competitors, who

compete individually rather than in two-man teams, are also given some measure of choice in the debate topic. All team members, including those who will not speak, conduct research and analyze evidence, devise affirmative and negative argument strategies, and practice. Unlike NFL policy debates which last one hour and 40 minutes, IPDA debates have both fewer and shorter speeches, thereby reducing the total debate time to 26 minutes.

Other debate formats popular in secondary school are public forum, Lincoln-Douglas, extemporaneous speaking, Student Congress and Ethics Bowl. Competitor arrangements, length of preparation time, and speech length vary, but the tender of all formats is the same – evidence-based argument construction.

Debate, in any of its forms, is particularly appropriate for today's gifted and advanced students in light of current discovery learning theory. Van Tassel-Baska said, "Instructional studies have suggested that the use of inquiry is the most powerful teaching method for working with the gifted. Forms of problem finding and problem solving also heighten the interest of gifted students and their capacity to perform and create products at advanced levels" (2008, p.2). The combination of the inquiry method and the depth and breadth of content researched, paired with the internalization which is a product of oral delivery, is optimal for gifted students.

Perceived advantages of participation in academic debate

Studies over sixty years have consistently shown positive relationships between participation in competitive academic debate and improved critical thinking, research and reading skills, argumentation, writing and speaking skills, increased school retention and increased graduation rates, improved GPA, avoidance of negative behavioral issues, empowerment, and self-esteem (Akerman & Neale, 2011; Brembeck, 1949; Colbert, 1987; Inoue

& Nakano, 2004; Jackson, 1961; Mezuk, 2009; White, 2010). Most research was conducted at the collegiate level, but most collegiate debaters participated in high school. The Urban Debate League studies focused on high school students.

The following four qualitative or mixed methods studies queried participants and coaches about the perceived benefits of debate participation to themselves as individuals (Williams, McGee, & Worth, 2001, Inoue & Nakanto, 2004), to their adult careers (Lux, 2012), and to perceived positive change in student performance (Wade & Zorwick, 2009).

Given the opportunity by Williams, McGee, and Worth (2001) to express their own perceived benefits of debate, 735 collegiate debaters created a list of benefits when asked the open-ended question: "Identify three benefits of your participation in debate". Of the 49 categories of benefits listed, the top 10 benefits cited were: Speaking skills/Communication skills, 18.6%; Analytical/Critical skills, 11.8%; Social life/Meet people, 10.4%; Research skills, 8.4%; Knowledge/Education, 6.2%; Self-esteem/Confidence, 5.8%; Argumentation, 4.0%; Travel, 3.8%; Learn about issues, 3.8%; Organizational skills, 3.0%; Thinking fast, 2.8%. Responses represented 78.6% of all responses (p. 202). Similar results were obtained by Inoue and Nakanto's 2004 study of 167 Japanese and American collegiate debaters. Their participants listed speaking and communication skills, research, social life and meeting people, acquisition of analytical and critical skills, knowledge and education, and English language skills as benefits of participating in debate.

Lux (2012) surveyed 121 past debaters from ages 22 to 53 to determine how important the current use of skills they learned in debate were to their adult careers. Lux's study was different from the preceding two in that his paradigm of interest was persistence of competitive

debate skills into adult careers. Skills falling in the "very important" or "very frequent" range of a 5 point Likert scale were as follows:

Enhanced Communication Skills, (*M* = 4.77); Enhanced Analytical/Critical Thinking Skills, (*M* = 4.59); Enhanced Understanding of Professional Conduct, (*M* = 4.49); Increased Knowledge/Education, (*M* = 4.40); Enhanced Listening Skills, (*M* = 4.33); Enhanced Organizational Skills, (*M* = 4.29); Enhanced Leadership Skills, (*M* = 4.29); Increased Self-Esteem/Confidence, (*M* = 4.19); Enhanced Ability to Think Fast, (*M* = 4.19); Enhanced Argumentation Skills, (*M* = 4.15); Enhanced Worldview, (*M* = 4.10); Enhanced Research Skills, (*M* = 4.05); Enhanced Teamwork Skills, (*M* = 4.04).

The aforementioned list of participant perceived benefits could serve as an accountability checklist for the standards established for debate, and could also stand as an affirmation of its value. Participants reported that they received the very benefits set forth in the NFL's standards for debate. Additionally, participant-cited benefits included the 21st century skills of interest to the current study: communication, collaboration, and critical thinking.

Aside from the responses which clearly related to academic/cognitive outcomes, the reported advantages of meeting people and self-esteem are also important when considering the education of gifted children. Gifted students need a milieu in which their social and affective needs can be met as well. Debaters self-reported those very benefits.

Unlike the three preceding studies, Wade and Zorwick's 2009 sample was drawn from high school debate teacher/coaches. Perceptions of 138 high school debate coaches regarding positive changes in student performance are reported in Table 2.2.

Table 2.1

Reported Positive Change in Student Performance

Level of Skill Development	56.0%	32.6%	9.2%	1.4%
Level of Content Knowledge	55.4%	28.8%	`5/`%	0%
Positive interaction with peers	44.7%	37.6%	9.2%	7.8%
Positive interaction with teacher	41.3%	34.8%	14.5%	7.2%
Commitment to learning	37.3%	43.0%	14.8%	4.2%
Academic performance	25.2%	41.0%	22.3%	6.5%
Teacher's ability to manage student behavior	23.6%	29.3%	17.9%	22.9%
	Significant	Moderate	Small	No change
Level of Engagement/Participation	61.3%	31.0%	7.0%	0%

Note. (N= 139). Survey Monkey results conducted with support of the National Forensic League, the National Debate Coaches Association, Emory University and Urban Debate Leagues in Milwaukee, Boston, and Atlanta, by J. Wade and L. W. Zorwick, 2009, *Rostrum, 83*(8), p. 3. Copyright by National Speech and Debate Association.

Few of the respondents were full time debate coaches, so the use of structured advocacy was not limited to debate classes. The high percentages of coaches who saw moderate to significant advances in student engagement (92.3%), increased skill development (88. 6%), and growth in content knowledge (84.2%) were impressive.

Developing critical thinking through academic debate

The process which debaters use in preparation for events are the same as those Ennis (1993), designer of the Cornell Critical Thinking test and the Ennis-Wier Critical Thinking Essay test, asserted are activated and reiterated in the critical thinking process: Judge the credibility of sources; Identify conclusions, reasons, and assumptions, Judge the quality of an argument, including the acceptability of its reasons, assumptions and evidence; Develop and defend a position on an issue; Ask appropriate clarifying questions; Plan experiments and judge

experiment designs; Define terms in a way appropriate for the context; Be open-minded; Try to be well informed; Draw conclusions when warranted, but with caution. Each of these processes is undertaken and reiterated with every document examined during the debate preparation process.

The number of quantitative studies investigating the efficacy of debate in developing critical-thinking skills has been numerous. Allen, Berkowitz, Hunt and Louden (1999) noted that, "the concern of educators has prompted a series of investigations over the past 60 years exploring the impact of communication skill experiences on critical thinking" (p. 19). Both longitudinal and cross-sectional studies have been undertaken and published in master's theses and doctoral dissertations. In their meta-analysis, Allen et al standardized and compared the scores of 19 studies conducted between 1942 and 1995. The Watson-Glaser test was the most commonly used measure (14 of 19 studies examined) of critical thinking. Estimates (correlation coefficients) from each study were transformed into a correlation. Results from each study were then weighted (*r*') based on sample size so both (*r*) and (*r'*) were reported for both longitudinal and cross-sectional studies. "The results of longitudinal designs illustrate that communication skill exercises improve critical thinking (*average r* = .176, *var.* = .010, *k* = 17, *N* = 2657, 95% Confidence Interval [C.I.] +/- .037). Cross-sectional designs find that a communication skill exercise improves critical thinking (*average r* = .196, *var.* = .028, *k* = 13, *N* = 2395, 95% C. I. +/- .038), (p. 23 - 24). The authors then divided the studies into three types of communication experiences: public speaking classes, argumentation classes, and competitive forensics. Each was measured independently and effect sizes were compared. Public speaking improvement: (*average r* = .145, *var.* = .066, *k* = 6, *N* = 531, 95% C.I. +/- .082). Argumentation improvement

(*average r* = .129, *var.* = .012, *k* = 5, *N* = 549, 95% C.I. = +/- .081). The largest improvements, however, resulted from competitive forensics (*average r* = .203, *var.* = .010, *k* = 8, *N* = 1577, 95% C.I. = +/- .047), (p. 26). Of public speaking classes, argumentation classes, and competitive forensics, competitive forensics produced the largest gains in critical thinking. Using the Binominal Effect Size Display, Allen et al determined identified a cumulative 44% increase in critical thinking ability.

After reviewing the results of 19 cross-sectional and longitudinal studies spanning a period of more than 50 years, Allen, Berkowitz, Hunt and Louden concluded that

> regardless of the specific measure used to assess critical thinking, the type of design employed, or the specific type of communication skill training taught, critical thinking improved as a result of training in communication skills…Participation in forensics demonstrated the largest improvement in critical thinking scores whether considering longitudinal or cross-sectional designs (p. 27).

The weight of the body of evidence rendered by that collection of studies was formidable.

Support for debate as rigorous preparation in critical thinking comes not only from those within the field, but also for those outside the field of forensics. Helen Wide, former president of the National Education Association said, "No single activity can prepare one better than debating – the ability to think on one's feet, to form conclusions rapidly, to answer questions logically and with clarity, to summarize ideas are all processes which forensic activities develop well" (as cited in Corcoran, Nelson & Perella, 2000).

Neither do debate's advocates come solely from the confines of Main Street. Malcolm X, who learned to read and write and debate in prison, said, "But I will tell you that, right there, in

the prison, debating, speaking to a crowd, was as exhilarating to me as the discovery of knowledge through reading had been. Once my feet got wet, I was gone on debating" (Malcolm X in Haley, 1964, chpt. 11). Whether they become leaders, great orators, changers of society, or average citizens making their way through a complex world, debaters will later use the vital skills they acquired in debate to navigate professional shoals in a variety of fields of study, as well as in their social, political and personal lives.

If there is a single instrument which trumpets the relationship between debate and critical thinking more loudly and broadly than others, it is the James Madison Test of Critical Thinking (2004) developed by Fawkes, O'Meara, and Flage. Cassidy and Young's 2007 review of the test appeared in the *Seventeenth Mental Measurements Yearbook.* Their description of the James Madison Test of Critical Thinking abilities is completely composed of skills used in debate.

> Distinguish between paragraphs that are arguments and those that are not; identify main conclusions of arguments; analyze sufficient and necessary conditions; analyze the structure of arguments based on experimental results in science; judge strengths and weaknesses of additional evidence supporting inductive arguments; draw conclusions from Aristotelian and other forms of deductive arguments; draw direct conclusions from given statements; judge logical equivalence of two statements; judge arguments that are fallacious or ambiguous; judge if hypothetical claims and additional information support an argument leading to a definite conclusion; supply missing assumptions or premises that guarantee stated conclusions are true; assess relevance of claims to other claims, questions, descriptions, etc.; judge whether conditional claims have been satisfied by the provided information to draw correct conclusions; identify the claim that will best

support a TARGET argument; and discern whether pairs of claims are consistent, contrary, contradictory, or paradoxical (description section, para. 2).

Although not the original intent of the authors, the James Madison Test of Critical Thinking stands as an example of the core elements of debate preparation. Engagement in any of the various debate formats is an engagement in critical thinking.

Debate as a creative problem solving process also satisfied the standards for gifted education in some states. For example, the California GATE Standards (2005) provided for the balanced development of critical and creative problem solving and research skills, advanced content, and authentic and appropriate products (California Department of Education, 2005). The debate process, the development of argumentation, follows the Osborne-Parnes (in Arnold, September 9, 2010). Creative problem solving (CPS) model/process. (See Figure 2.9).

1) Objective finding: identify goal/challenge gather information,

2) Fact finding: gather data,

3) Problem finding; clarify the problem,

4) Idea finding: generate ideas for all possible solutions,

5) Solution finding: select and strengthen solutions,

6) Acceptance finding: steps needed for implementation and presentation of solutions.

A close inspection of the Osborne-Parnes model reveals great similarity to the Paul-Elder model (Figure 2.5) of critical thinking. Also, there are close relationships between the elements of thought, the creative problem solving process, and the stock issues required in every debate: harms, inherency significance, solvency and topicality. Finally, current state standards for gifted education, as exemplified by the California Department of Education, call for authentic products.

The construction of arguments based on evidence is an authentic product which will serve a lifetime.

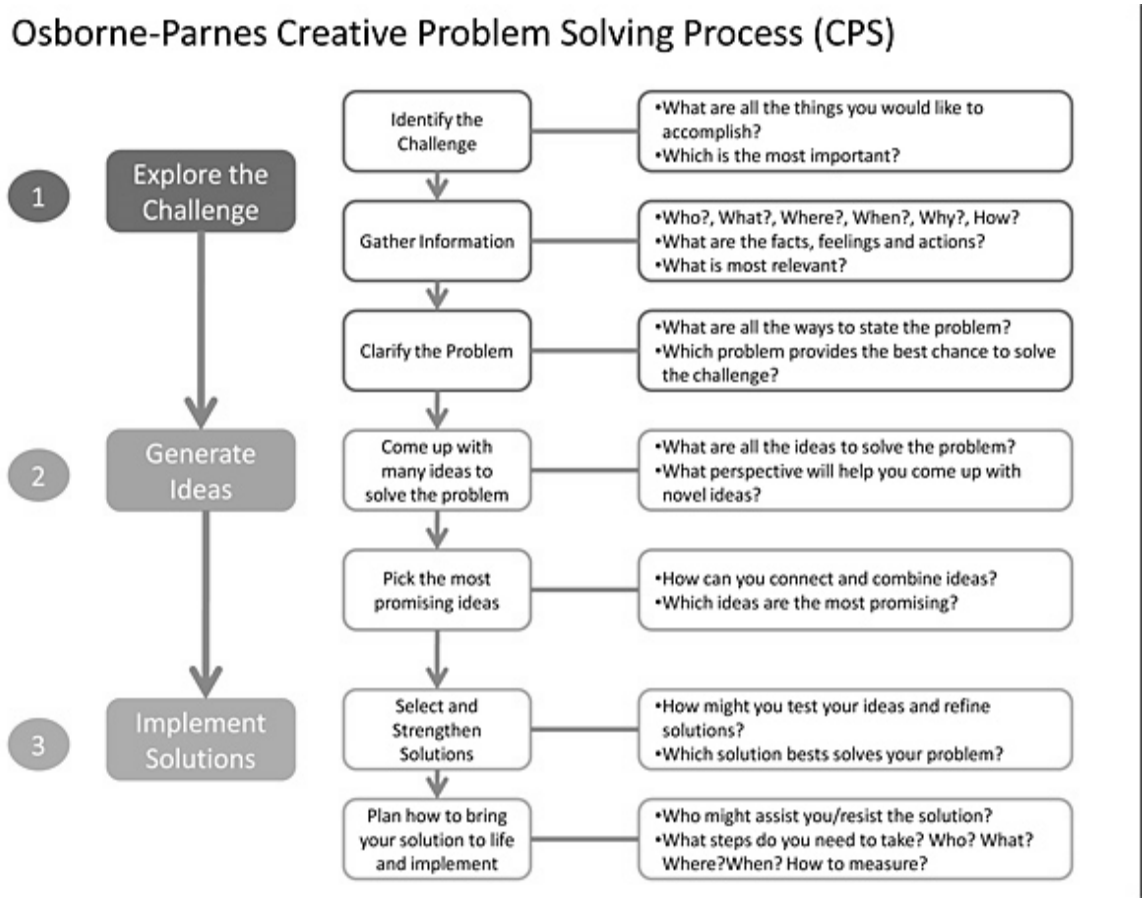


Figure 2.9 Osborne-Parnes Creative Problem Solving Process

Sufficient empirical evidence supports the positive relationship between the study of academic debate and improvement in critical thinking. The evidence is sufficient to support the claim that participation in academic debate meets the first of the 21st century needs addressed in

the current study – critical thinking. Improvement of critical thinking, however, is not the sole benefit of participation in academic debate.

In addition to improving critical-thinking skills, many empirical studies focused on secondary students have found other positive benefits for academic debate participants. Amongst those most frequently studied are increased high school graduation rates, higher grade point averages, increases in reading-related skills, decreases in at-risk behaviors, increased civic awareness and likelihood of civic participation, and empowerment. Affiliates of the National Association Urban Debate League (NAUDL) have produced a significant body of literature which examines the effects of debate/forensics participation upon secondary students, particularly those from urban settings.

Graduation

The Urban Debate League has been a leader in tracking graduation, Grade Point Average (GPA), and at-risk behaviors amongst debate participants. Seeking to evaluate the effects of debate participation upon graduation rates, Mezuk (2009) conducted a longitudinal study of Chicago debater and non-debater graduation rates. Data from Chicago Public Schools and the Chicago Debate League from 1997 to 2006 were examined. Overall, more than three quarters (77.4%) of debaters graduated, compared to barely half (55%) of non-debaters. The effects for African American males were even larger: African American males who participated in debate were 70% more likely to graduate and three times less likely to drop out than their peers. This is vitally important both to individual students and to society as a whole because, “On average, each additional year of education increases earning power by 8 to 15% (p. 293).

Urban public school districts, on average, perform less-well than their suburban counterparts. “In 1998, the national high school graduation rate was 71%, while in the City of Chicago school district, the rate was 47%” (p. 294). While graduating from high school in a district where only 55% do so is indeed a milestone, urban debaters did not stop with high school graduation. The New York City Great Debaters reported that 75 – 80% of urban debaters matriculate at four-year colleges (Fogel, 2011).

Grade Point Average.

Mezuk (2009) also found a positive relationship between participation in debate and increased Grade Point Average (GPA). Multiple linear regression was used beginning with 8th grade state test scores (no debate experience) and 12th grade benchmark scores. Baseline data showed that debaters and non-debaters (N = 2500) differed from the outset ($p < .01$). Higher performing students self-selected debate. 31% of students from the upper quartile choose debate while only 8% from lower quartile choose debate (p. 295). The Mezuk study also found that the level of debate involvement did not vary significantly by race ($p = .11$). The Chicago enrollment pattern supported the contention that debate is appropriate for gifted and advanced students because they are more likely to be amongst their intellectual peers. Placement, however, is not enough. Curriculum must be significantly different. Just putting gifted students together—but not accelerating the curriculum—has minimal academic benefit. The key component is accelerated curriculum. The best way to maximize the academic performance of bright students is to maximize the pace and level of the content/curriculum, a feat accomplished by debate.

After accounting for initial group inequality, Chicago Urban Debate League students increased their GPAs by 0.20, 20% of a letter grade ($p < .05$). African American male debaters

who competed at higher levels increased their GPA by 0.5, 50% of a letter grade ($p < .05$), over those who participated at five or fewer debate rounds. Non-debating black males' final GPA was 2.07 while debaters' average GPA was 2.83. Active black male debaters had an average GPA of 3.25.

Rising GPAs were not the only indicators of improved performance and increased college readiness. Another Mezuk study (2012) revealed that debate participation improved ($p < .01$) college readiness, in the form of higher ACT scores, for all groups ($N = 6932$) of participants. Results were positive for both high and low risk groups. High risk factors were free and reduced lunch, special education status (mostly specific learning disability and speech/language impairment), neighborhood poverty, and low 8th grade standardized test scores in math and/or reading (p. 1228). Urban debate students were 50 percent more likely to reach the ACT English benchmark than non-debate students. African American males who participated in urban debate were 70 percent more likely to reach the ACT benchmark in Reading than non-debater counterparts.

Reading

Increases in GPA and ACT scores led researchers to look for root causes. GPAs improved not only in debate class, but across the curriculum. Collier (2004) assessed debate's impact on reading, self-esteem, and risk-taking behaviors within a treatment group of 209 debaters and a comparison group of 212 urban high school students. The sample was drawn from urban high school students in five cities across the country: Chicago, Kansas City, St. Louis, Seattle and New York. A standardized reading test, the Scholastic Reading Inventory, was administered in a pre-test/post-test design, along with a self-report survey of risk-taking

behavior. The study concluded that academic debate improved performance at statistically significant levels on reading test scores, diminished high-risk behaviors, and improved academic success. Additionally, students reported more positive attitudes towards higher education. Notable findings of Collier included: a 25% increase in debater ($N = 209$) reading scores compared to the increase in the control (entire $N = 212$) category scores. Debaters increased test scores 18% more than the honors controls ($N = 64$).

Collier's was not an isolated study. Using existing reading scores for baseline data, Duffin (2002) turned his Rhode Island high school in to a research site. Debate across the curriculum was used heavily in classes for one third of the student population, sparingly in classes for one third, and not at all for one third of the students. In the first year, group A scored 20% ahead of group B, and 33% ahead of group C. In the second year, group A raised its scores an additional 20%, but groups B and C declined (as reported in Snider, 2011). Finally, Fogel, (2011) reported a pre-post reading study of Minnesota debaters. After one year of debate, they showed a 36% improvement in reading scores as well as reduced attendance issues and discipline problems. "Minneapolis UDL debaters were unlikely to engage in negative risk behavior: drug, use, early pregnancy and alcohol".

Debate increases achievement in tests involving secondary literacy skills. Urban debate students were 50% more likely to reach the ACT English benchmark than non-debater students. African American males who participated in urban debate were 70 percent more likely to reach the ACT benchmark in Reading than non-debater counterparts. These benefits are concrete. A rise in ACT scores increases access to college, and the increased likelihood of graduation pays off in real, spendable dollars. "A college degree produces at least 17 percent more income over

the lifetime of the household compared to a high school diploma only" (Gouskova & Stafford, 2007, p. 7-8)

Wade and Zorwick (2009) reported more general improvements in student performance. Under the auspices of the National Forensic League, the National Debate Coaches Association, Emory University and Urban Debate Leagues in Milwaukee, Boston and Atlanta, the researchers distributed an electronic survey which was sent to debate coaches across the country in 2009. One hundred thirty-nine surveys were returned. The research project continues to take responses as an ongoing study. Ninety percent of those who responded ($N = 139$) used assigned argument in non-debate classrooms and reported the following improvement in student performance. "The majority of respondents saw moderate or significant improvement in engagement and participation (92.3%), increased skill development (88.6%), growth in content knowledge (84.2%), and academic performance (66.2%) following the inclusion of argumentation and debate into their class" (Wade & Zorwick, p. 2). Wade and Zorwick also noted an 82% increase in students' interaction with other students. That affective change was important for all students, but meeting the affective needs of gifted and advanced students is a significant component of NAGC standards.

Civic engagement.

Debate programs also prepare students to become leaders in their communities. Debaters are disproportionately represented in leadership ranks in the law, business, and academia. With expanded horizons, and by learning to lead and compete, urban debaters are equipped to improve their schools, strengthen their communities, and ultimately broaden the local and national

leadership base. A survey by the National Forensic League shows that 64% of the Members of the United States Congress competed in debate or speech in high school (Fogel, 2011).

Political leaders from Aristotle to Obama have championed debate as training for civic involvement. In a speech delivered in April of 2012, and published by the U.S. Department of Education, former Secretary of Education Arne Duncan said, “In a number of respects, competitive urban debate is almost uniquely suited to building what's been called the "Four C's" of 21st century skills—critical thinking, communication, collaboration, and creativity. And to that list I might add a fifth "C"—for civic awareness and engagement” (U.S. Department of Education, April 12, 2012). A believer in education as the great equalizer, Duncan held that the value of debate is both great and unrecognized. The Secretary of Education assured his audience that he was not alone in that belief. He also named John Sexton, President of New York University, and Larry Summers, economist, President of Harvard University and United States Treasury Secretary as fierce advocates for the power of debate to fire young men and women to civic engagement.

Empowerment

Educators, and those who research the effects of various educational paradigms, principles, programs, and practices, have devoted a great deal of research time, energy, and fortune to providing both qualitative and quantitative evidence that debate has positive academic effects. Other positive effects are affective. Diana Carlin (1994), Dean of the Graduate School, University of Kansas said, “I am a firm believer in the power of forensics to change a person’s life. The ability to communicate is one of the most powerful there is in our society. By giving

young people the opportunity to develop effective communication skills, forensics opens doors to endless opportunities. I know it did for me" (in Minch, 2006, p. 3).

The benefits of academic debate surpass curricular issues. The structure of debate itself requires questioning the *status quo*. Participants in every policy debate must determine how the issue at hand relates to the *status quo*; they must determine if current conditions indeed *cause* the problem; they must determine what issues are inherent in larger issues; and they must demonstrate that their solution will change conditions in a manner which will solve the problem. Examination of the *status quo,* inherency, solvency, significance, harms and the questioning rituals that students practice in debating issues in a curricular context extend beyond the classroom and train students to question the world outside of the classroom as well. Lee, of the Atlanta Urban Debate League, and as quoted by Warner and Bruschke, (2001) contended that participation in academic debate, "provided the opportunity to question the nefarious rites of passage (prison, drugs, and drinking) that seem to be uniquely debilitating to individuals in the poor urban communities…there is an undercurrent of nihilism and negativity that eats away at the soul," (p. 10). Because questioning is at the very heart of debate, participants come to question the givens of urban outcomes.

Post-modernism, socialism and communism are paradoxical in that each creates environments in which individuals become more dependent upon institutions which simultaneously distance themselves from individuals if for no other cause than their size. They can hear only the loudest voices. Those voices are seldom from the underserved and marginalized. According to Galston, as quoted by Warner and Bruschke (2001), "…one of the

most debilitating results of modernization is a feeling of powerlessness in the face of institutions controlled by those whom we do not know and whose values we often do not share," (p. 3).

> There are many tales of empowerment and there are history tomes full of parliamentary proclamations, but perhaps no account of debate speaks so articulately to bright, underserved minority students as that of the firebrand, Malcolm X. Malcolm X confessed to Alex Haley that he was virtually illiterate when he arrived in prison. Wanting to write to Elijah Muhammad, he began studying a dictionary and thereby taught himself the language skills of reading and writing. He became a voracious reader. "My reading had my mind like steam under pressure. Some way, I had to start telling the white man about himself to his face. I decided I could do this by putting my name down to debate," (Haley, 1964, chpt. 11). Debate brought him from the Norfolk Prison Colony to coliseums and arenas, to the greatest American universities, to television, and to the world. Debate students feel empowered by the ability to have their voices heard, and their locus of control becomes internalized (Warner & Bruschke, 2001, p. 1). Debate empowers students in a way that endless test preparation does not. It gives them a voice.
>
> Echoing the sentiments of Helen Wide, former National Education Association president, Warner and Bruschke contended that debate can transform students' lives. "There is faith in the ability of debate to fundamentally alter a person's orientation toward education," (p. 2). In this manner, the independent learning, self-directed, cognitive nature of debate is empowering not only because it gives students the *skills* they need in order to control their futures, it empowers them in a transformative way because debate is dynamic and constructivist in nature as well. Malcolm X expressed that sense

> of empowerment: "I was immensely proud,,,fascinated… excited… things never would have crossed my mind… I was tormented…I never had been so truly free in my life" (Haley, 1964, chpt 11).

The evidence supporting debate as a contributor to critical thinking, grade point average, increased likelihood of graduation, reduction in counter-productive and negative behaviors, civic engagement and empowerment has a long history and comes from a variety of sources. So convinced of its transformational effects, the Open Society Youth Initiative has launched a $20 million "Global Debates" program of grants to fund three years of support to schools with very small or no debate programs at all (Open Society Foundations, September 14, 2011).

Criticism of academic debate

Debate as a legitimate approach to learning is not without its critics, but even opponents agree that argumentation has significant merits. Tumposky (2005) conceded that there is much current and legitimate support for debate. First, it moves away from the standard lecture format of pedagogy which has fallen into disfavor. Lecture is common in AP. Debate demands peer interaction with teacher-student interaction taking a distant second place. Constructivist educators hold that peer interaction calls upon critical-thinking skills whereby students arrive at a deeper understanding of the material under discussion. Talk acts as a mediator of cognitive development. The levels of Bloom's taxonomy also act as a scaffold upon which arguments are constructed. Preparation for a debate moves students up the taxonomy to at least the level of analysis. Finally, Tumposky acknowledged that debate encourages metacognition. "The analysis of both sides of an argument…encourages participants to step outside their personal frames of

reference and become aware of their own thinking…Debate also requires participant to consider how the 'other side' is thinking, which helps develop empathy" (p. 53).

Despite its advantages, Tumposky voiced objections to both the format and the conduct of debate. First, Tumposky claimed that the dichotomous nature of debate oversimplifies and misrepresents the nature of knowledge. "Debate reinforces a Western bias toward dualism and ignores the multiplicity of perspectives inherent in many issues," (p. 54) thereby trivializing some aspects and giving disproportionate importance to others. The second criticism was aimed at the increasing use of "kritiks" in the negative case. Kritiks, an adaptation of the word critique, are usually epistemological arguments which undermine the affirmative's case by drawing the nature of knowledge itself into question. Kritiks are a complex and highly successful negative strategy when used by gifted debaters.

The absolutism implied by Tumposky is an overstatement. While it is the purpose of all debate to persuade the audience to support one's claim, debate does not seek to deny the existence of all other possibilities. The stock issue significance is usually stated, "On the whole…" indicating that there is no absolute resolution of the problem at hand. There is the possibility of multiple perspectives on an issue, but on the whole, or based on the evidence, on course of action is preferable to another.

"Dualism" is also not a legitimate objection to academic debate because debaters research all aspects of issues and must stand as affirmative and negative for all topics. Case preparation holds a of prism research to a claim, breaking its light into a broad spectrum of evidence, i.e. economic, scientific, national security, ethical, and greater good vs individual rights. The artful

debater then develops arguments and a competitive strategy to support or refute the claim in question. Debate's format broadens, not narrows, perspective.

Use and defense of evidence, argument construction, plan development, and delivery are the standards upon which debates are judged. The affirmative must address the stock issues: topicality, harms, significance, inherency, and solvency; and judges award points for speaker criteria: organization, evidence, analysis, refutation, oral style, and speed. Nowhere on the ballot is the judge ever asked to indicate who is "right".

Tumposky claimed that the structure of debate forces participants to "validate points of view that most people would find lacking legitimacy, such as Holocaust denial" (p. 54). Such egregious assertions as Holocaust denial are easily parried by multiple forms of evidence. The author's contention that not all issues have a reasonable other side is correct, so state and national debate organizations restrict topics to those which have two reasonable sides.

Tumposky's second class of critiques were largely feminist and psychological in nature. The author contended that debate's confrontational win/lose format is a hostile environment for those uncomfortable with conflict, particularly women. Citing the work of Tannen (1992), Tumposky asserted that debate is antithetical to the way females learn. The assertion that "most women are more comfortable speaking in private to a small group of people they know well" (p. 54) is most likely true. The vast majority of people, not just women, prefer private conversations with people they know to juried public addresses delivered before a host of strangers. Neither did the author offer sufficient evidence to support her second assertion: men who come from "cultures that value social harmony rather than individualism" (p. 54) – African-American, Latino, Native American and Asian - will be uncomfortable with debate. The vast majority of

people suffer from initial performance anxiety. Like all communication curriculums, debate provides students with the tools and experience to overcome their initial trepidations, and helps them become effective and polished communicators.

A final consideration when discussing the negative aspects of debate is that it is a game; it is a contest; it is an intellectual sport. Like chess, another contest which frequently appeals to gifted and advanced learners, both are exercises that develop critical thinking skills, strategy, rebuttals, have standard and creative techniques, require real-time responses, and are completely engaging for the contestants.

One legitimate criticism which went unmentioned is that the National Speech and Debate Association chooses one topic per year for American policy debate, sometimes referred to as Cross-X debate. While students explore every facet of the issue, a host of other contemporary issues are left unaddressed. Also, the sheer volume of research that early-starters amass makes the competition extremely intense. The year-long topic format of NFL debate, the use of kritiks, and the technique of spreading, make the clash more about winning and losing than about legitimate exchange and evaluation of ideas.

Debate students are not vessels which contain received learning. They are trained to question the status quo; they engage knowledge in a critical way; they must take multiple perspectives and develop questions in a dialectical way. They must also evaluate policies in terms of alternatives, effectiveness and morality. They may be called upon to re-think the social order and have the courage to face both challengers and judges, conditions not usually met in the standard curriculum but ones which are uniquely appropriate preparation for participation in a democratic society (Warner & Bruschke, 2001, p. 5 - 8). Debate is active learning with the

throttle wide open – a learning environment tailored to the inquisitive mind. Debaters are highly engaged in not only the acquisition of knowledge but also in the transformative process of making it their own through the higher-order thinking processes of evaluation, synthesis, delivery and defense.

When considering criticism of debate as a practice, one should always remember that debate is a competition; it is a game; it is fun. It is not for everyone; it is not a way of life; it is not social behavior. It is intellectual sparring between bright young people who revel in its challenge, and who delight in the company of others who also enjoy a clash of wits. As such, it is intensely affective and invigorating.

Contributing Studies

Four studies contributed directly to the development of the current study's survey instrument: Profetto-McGrath (1999), McKee (2003), Happ (2013), and Thurman (2009). All were related to some of the topics of interest: critical thinking skills and dispositions, debate, AP teachers' attitudes towards critical thinking and/or debate, 21st century skills, impediments, and the presence or absence of a debate program in the school. Some part of each study was replicated in the current study and each provided insight into survey instrument development.

Profetto-McGrath

The Profetto-McGrath (1999) study is of interest to the current study because Profetto-McGrath used a cross-sectional, descriptive, correlational design to examine dispositions toward critical thinking, and specific variables associated with critical thinking. Disposition toward critical thinking (habits of mind) is of interest to the current study because disposition/motivation is used as a part of the Renzulli triad in identifying gifted students, the population of interest to

the current study. The disposition toward critical thinking may also be closely related to other theories which are of interest and may be related to giftedness: need for cognition, typical intellectual engagement, openness to ideas, and epistemic curiosity.

University of Alberta nursing students, at one year intervals in their nursing education, were the population from which the sample was drawn. One-hundred percent of the nursing students were contacted, and 35.13% chose to participate. Three instruments were used in the study: the California Critical Thinking Skills Test (CCTST), the California Critical Thinking Disposition Inventory (CCTDI), and a background/demographics questionnaire. The CCTST is designed to measure an individual's cognitive dexterity with elements of critical thinking. The test's sub-scales are analysis, evaluation, inference, deduction, and induction. These elements are in accord with both Paul and Elder's and the American Philosophical Association's Delphi panel' constructs of critical thinking.

The CCTDI is an instrument intended to measure the respondent's dispositions or habits of mind. The sub-scales are truth-seeking, open-mindedness, analyticity, systematicity, critical thinking self-confidence, inquisitiveness, and maturity. Like Facione, et al's critical thinking components, these are very similar to Paul and Elder's theoretical model of critical thinking (Figure 2.6), and the relationship between intellectual standard and intellectual traits.

Correlations between CCTST scores and CCTDI scores were examined across all four grade levels of university nursing students in a cross-section design. Both the CCTST and the CCTDI produce an overall score and a score for each sub-scale. Profetto-McGrath reported mean scores for the four years of the program ($N = 228$) ranging from 16.70 to 17.94. However, based on ANOVA ($F = 1.243$, $df = 3$, $p = 0.295$) there was no statistically significant difference

among the four groups. That is, critical thinking scores increased across the years, but not at a statistically significant level. Each of the sub-scaled ANOVA results for four year growth follows: analysis, (F = 1.396, df = 3, p = .255) no significant difference; evaluation, (F = 1.426, df = 3, p = 0.236), no significant difference; inference, (F = 1.426, df = 3, p = 0.236), no significant difference; deduction, (F = 2.918, df= 3, p = 0.035) statistically significant difference; and, induction, (F = .024, df = 3, p = .995), no significant difference. Like earlier studies, these results are both good news and bad news for nursing educators. The good news is that nursing students have higher than average critical thinking scores across all four years of study from a low at the 60th percentile to a high at the 90th percentile. Like debaters (McKee, 2005; Mezuk, 2009), nursing students tend to have higher critical thinking scores than their counterparts at the outset of their studies and continue to maintain their superiority throughout. The bad news is that four years of education in a field that requires a high level of critical thinking in practice did not increase critical thinking skills at a statistically significant level. Only the deductive thinking sub-scale produced statistically significant improvement.

The conclusion of the Profetto-McGrath study was that critical thinking abilities and critical thinking dispositions are correlated. "Based on chi-square for independence (χ^2 = 9.37, p = .014, power > .80), there was a significant relationship between the participants' critical thinking skills and their critical thinking dispositions" (p. 122). Profetto-McGrath's results were also in keeping with the Cacioppo, Petty, Feinstein and Jarvis' 1996 meta-analysis. Findings are consistent with the contention of the current study: gifted students are dispositionally inclined toward critical thinking, critical thinking is improved through participation in debate, and debate is an excellent academic pursuit for gifted students.

McKee/Barfield

Of particular interest to the current study was the 2005 work of McKee and the 1990 work of Barfield, which McKee replicated. The purpose of the original Barfield questionnaire was to:

(1) Evaluate the importance of instruction in critical-thinking skills at the secondary level.

(2) Determine the importance of instruction in debate at the secondary level.

(3) Determine the degree with which AP teachers correlate gains in critical-thinking skills with participation in debate.

(4) Explore the existence or non-existence of differences in these perceptions between AP teachers from schools/systems that offered debate to their student populations and perceptions of AP teachers from schools/systems that did not offer debate to their student populations.

A clear parallel exists between the McKee/Barfield studies and the current study. The current study narrowed the focus of inquiry to gifted and advanced students.
The sample surveyed remained the same, AP teachers. The study sought AP teachers' perceptions of the efficacy of debate in developing critical thinking.

The Barfield/McKee studies were partially replicated. Three of McKee/ Barfield's research questions were closely related to those in the current study. The first research question of interest was, "What relationship exists between participation in debate and the acquisition of critical-thinking skills by secondary school students?" (p. 57). Using paired sample *t*-tests, McKee compared SAT-9 reading comprehension and thinking skills NCE scores for 35 debaters

and 35 non-debaters. His results (see Table 2.3) indicated that the skills of both debaters and non-debaters lost ground in both reading comprehension and critical-thinking skills between grades 8 and 11.

Table 2. 2

Gains in Reading Comprehension and Thinking Skills by Debaters and Non-debaters from 8th Grade to 11th Grade on SAT-9 Reading Comprehension and Critical Thinking

	M	*SD*	*t*	*p*
debater 8th reading	80.82	13.04		
debater 11th reading	69.99	13.60	4.97	.01
non-debater 8th reading	65.85	16.65		
non-debater 11th reading	52.88	13.29	4.95	.01
debater 8th critical thinking	86.63	13.33		
debater 11th critical thinking	81.85	13.91	3.37	.01
non-debater 8th critical thinking	68.28	15.38		
non-debater 11th critical thinking	61.70	13.09	3.94	.01

* $p < .05$

Results from the preceding table provided both expected and unexpected results. Debaters had statistically significant higher reading scores than did their non-debating counterparts in both 8th and 11th grades; debater (M = 80.82, M = 65.85) and non-debater (M = 69.99, M =52.88). It is reasonable to expect higher reading scores amongst debaters because debate is a self-selected, rigorous course which requires extensive reading of information texts. Students who do not like reading will not voluntarily subject themselves to a course which is as reading intensive as debate. Likewise, debaters also had statistically significant higher critical thinking scores. The unexpected result of the McKee study was the fall in all students' reading and critical thinking scores. McKee did not offer any explanation for the decrease in reading

comprehension and critical thinking scores of all participants. Examination of the means indicated that debaters showed smaller losses than did non-debaters. Debaters suffered a 12% drop in reading comprehension between 8th and 11th grades while non-debaters dropped 18.5%. Debaters suffered a 6% drop in critical thinking while non-debaters dropped 9%. On its face, the results are highly suspect. The results imply that the three years of schooling between grades 8 and 11 are detrimental to all students. McKee's results also contradict a number of earlier studies including the Mezuk, 2012, and Collier, 2004.

An analysis of covariance was conducted to determine if there was a significant difference in post-test normal curve equivalent score. McKee's analysis (Table 2.4) rendered more reasonable results. Reading comprehension and critical thinking scores were used as the dependent variable and participation in debate was the independent variable. The covariates were the SAT-9 pre-test reading comprehension and critical thinking scores.

Table 2.3

Results of Analysis of Covariance: Reading Comprehension and Critical Thinking

Group	Pretest Mean	Posttest Mean	Adj. Post Mean	*F*	*p*
Non-debaters reading	65.85	52.88	56.25		
Debaters reading	80.82	69.99	62.66		
				10.88	.01
Non-debaters crit think	68.28	61.70	68.45		
Debaters crit think	86.63	81.85	75.08		
				7.63	.01

* $p < .05$

Using analysis of covariance, McKee confirmed that statistically significant differences existed between debaters and non-debaters. Those differences existed in both reading

comprehension and critical thinking ($F = 10.88$, $p < .01$) and ($F = 7.62$, $p < .01$) respectively. While both groups declined in both reading comprehension and critical thinking, debaters' declines were smaller. Debaters were higher achievers at the outset of grade 8 and continued to out-perform their non-debate peers throughout the intervening grades. High performers are more likely to enroll in more challenging classes. Self-selected rigor may be related to Cacioppo, Petty, Feinstein and Jarvis' theory of need for cognition and intrinsic motivation.

McKee's evidence serves as another example of the need for gifted and advanced students to be with their peers. The smaller levels of decline in both reading comprehension and critical thinking were another demonstration of the achievement gap between high performers and their peers. The persistent gap is an indicator that debate is well-suited for gifted learners for several reasons: the level of complexity is higher; pace is faster because less time is devoted to underachieving peers; and students are more likely to be in the company of their intellectual peers than in the remainder of the regular curriculum.

McKee's overall data, however, was not sufficiently explained, and as it stands, raises more questions than it answers. The questions of why student's reading and thinking skills declined in the years between grades 8 and 11 requires much more attention.

McKee's second research question of interest to the current study was, "What are the perceptions of high school AP teachers regarding a possible relationship between academic debating and the acquisition of higher-level, critical-thinking skills" (p. 46)? Independent sample *t*-tests were used to determine if significant statistical differences existed between the attitudes of AP teachers in schools with and without debate. In a like manner, the current study also seeks to determine attitudes of AP teachers in schools with and without debate programs

regarding critical thinking and other 21st century skills, with particular focus on gifted and advanced students.

After obtaining a list of AP teachers from the South Dakota Department of Cultural Affairs, and after taking information from individual district websites, surveys were mailed to 104 AP teachers. Of the 104 teachers, 75 practiced in schools with debate and 29 practiced in non-debate schools. Total return was 59.6% of debate school surveys and 66.1% of non-debate school surveys. The following table (2.5) reports results for the McKee survey of AP teacher attitudes toward debate and critical thinking in debate and non-debate schools.

Table 2.4

McKee Differences in Advanced Placement Teacher Attitudes Regarding Critical Thinking in Debate and Non-debate Secondary Schools

Question category	*N*	*M*	*SD*	*t*	*p*
Importance of developing crit think					
Non-debate	42	4.67	.48		
Debate	82	4.71	.60	-.38	.70
Crit think to conduct library research					
Non-debate	42	4.40	.50		
Debate	73	4.55	.50	-1.48	. 14
Crit think & info processing should not be taught					
Non-debate	42	2.02	.92		
Debate	73	1.74	.80	1.73	.09
Debate is valuable and should be in 2ndary schools					
Non-debate	42	3.76	.88		
Debate	78	4.21	.90	-2.59	.01*
Debate has few benefits; detracts from academics					
Non-debate	42	2.12	.89		
Debate	82	1.77	.77	2.27	.03*
Debate teaches analysis & evaluation of difficult material					

Non-debate	42	4.02	.52		
Debate	78	4.06	.67	-.34	.74
Debate does not teach crit think or research skills					
Non-debate	42	1.81	.71		
Debate	78	1.61	.59	1.61	.11
Debate teaches the reasoning process					
Non-debate	21	3.90	.54		
Debate	37	4.11	.61	-1.27	.21
Other programs are better at developing crit think					
Non-debate	21	2.95	.67		
Debate	37	2.73	.80	1.07	.29
Debate should be offered in secondary school					
Non-debate	21	3.62	.80		
Debate	24	3.98	1.04	-1.38	.17
Best way to teach crit think is a specialized course					
Non-debate	21	2.90	1.04		
Debate	41	2.56	1.00	1.26	.21
A good education teaches open-mindedness					
Non-debate	20	4.25	.79		
Debate	37	4.46	.69	-1.04	.30
Critical-thinking skills teach open-mindedness					
Non-debate	21	4.00	.89		
Debate	37	4.16	.65	-.80	.43
Extra-curriculars are a vital part of learning					
Non-debate	21	4.20	.95		
Debate	41	4.59	.63	-1.89	.06
Critical thinking is another passing fad					
Non-debate	21	2.00	.89		
Debate	41	1.61	.70	1.88	.06
Skilled crit thinkers analyze, synthesize & organize					
Non-debate	21	4.43	.51		
Debate	37	4.41	.55	.16	.88
Debaters out-perform non-debaters in class					
Non-debate	41	3.20	.64		
Debate	78	3.28	.95	-.59	.60

* $p < .05$

Although the majority of McKee's results showed no significant difference between AP teachers' attitudes toward debate and critical thinking in debate and non-debate schools, his results bear closer examination. The failure to demonstrate any significant difference was often the fault of the questions asked. The nature of the questions also undervalued shared beliefs. Examination of means and raw data revealed more about teachers' attitudes than did paired sample *t*-tests.

Several questions related to 21st century thinking and reading skills showed no significant difference because the questions were poorly designed and were unlikely to give significantly different results in any population. For example, when asked, "The teaching of critical-thinking skills should be an important component of any high school program" (combined $N = 62$), 100% of teachers agreed or strongly agreed. Likewise, 100 % of teachers agreed that "Students should learn to develop basic reasoning skills such as analysis, synthesis, organization, and information processing in the high school setting": 100% of teachers agreed that "Students with well-developed critical-thinking skills should be able to effectively analyze, synthesize, and organize the materials with which they come in contact"; 100% of teachers agreed that "Learning techniques of effective research, including library skills such as the use of many different types of materials is important for high school students"; 100% of teachers agreed that "High school students should be able to evaluate sources of information in order to ascertain their credibility." The McKee/Barfield study did not show significant differences between debate and non-debate AP teachers because it did not ask questions upon which reasonable people could disagree. If critical thinking is a "passing fad", it has been passing for over 2,000 years.

There were several questions of interest in McKee (2003) which provided support for debate from both debate and non-debate school AP teachers. First, 100% (*M* =4.21) of AP debate school teachers and 81% (*M* =3.76) of non-debate school teachers believed that "Interscholastic debating is a valuable academic activity". The majority of secondary teachers, regardless of their school classification, believe that debate has merit as an academic pursuit. McKee's reported AP teacher attitudes toward the salubrious effects of participating in academic debate were in concert with the empirical results reported by Wade & Zorwick, 2009, Williams, McGee, & Worth, 2001, and Inoue & Nakanto, 2004

All teachers surveyed also had a very favorable attitude toward the effectiveness of debate in teaching critical-thinking skills. 86% (*M* =4.11) of AP debate school teachers and 81% (*M* =3.90) of non-debate school teachers believed that "Interscholastic debate is a highly effective way to teach the reasoning process to high school students". Conversely, 95% (*M* = 1.61) of AP debate school teachers and 81% (*M* = 1.81) of non-debate school teachers indicated their positive regard for debate as an effective teacher of critical-thinking skills when they disagreed with the statement, "Interscholastic debating is not an exceptionally effective method for teaching critical-thinking skills". The majority of debate and non-debate school AP teachers believed that debate is an effective teacher of the valuable 21st century skill, critical thinking. McKee's reported AP teacher attitudes toward the effectiveness of academic debate as a developers of critical thinking skills were in concert with the empirical results reported by Allen, Berkowitz, Hunt and Louden, 1999, Williams, McGee, & Worth, 2001, Inoue & Nakanto, 2004, and Lux, 2012.

Ninety-three percent of debate (M = 4.06) and 95% of non-debate (M = 4.02) school AP teachers also agreed that "Debate teaches student how to read difficult materials in an analytical manner". Conversely, 96% (M = 1.74) of AP debate school teachers and 95% (M = 2.02) of non-debate school teachers indicated their positive regard for debate as an effective teacher of reading/research skills when they disagreed with the statement, "Debate does not teach effective research techniques" . McKee's AP teacher respondents were in concert with Collier, 2005; Dufkin in Snider, 2011; and Fogel, 2011.

In toto, the McKee survey produced two statistically significant results. Close inspection of the first, "Debate is valuable and should be in secondary schools," non-debaters (M = 3.76, SD = .88), and debaters, (M = 4.2, SD = .90, $p < .01$) revealed that the difference was of degree rather than of kind. Advanced Placement teachers from both non-debate and debate schools were favorable in their belief that debate should be offered; debate schools were simply more favorable. Results for the other statistically significant different scores were related in the same way; disparity was a matter of degree rather than of kind. In response to the question, "Debate has few benefits; detracts from academics" non-debaters (M =2.12, SD = .89), and debaters (M = 1.77, SD = .77, $p < .03$). Both non-debate and debate AP teachers disagreed with the statement. McKee's study was paradoxical. In order for an issue to be the topic of a debate, it must be debatable. McKee, a debate researcher, posed 25 survey questions, none of which were reasonably debatable by an audience of teaching professionals.

The important conclusions to be drawn from the McKee/Barfield survey are not of significant divergence but of convergence. Agreement on the efficacy of debate in those two skills areas ranged from a low of 81% to a high of 100%. Advanced Placement teachers did not

have to practice in a debate school, or teach debate themselves, to know that debate is highly effective in teaching critical thinking and advanced reading and analysis skills.

Happ

The third study of direct interest to the current study, and a source for survey development, was Happ (2013). Happ's purpose was to discover "the prevalence of classroom assignments in grades 9 through 12 that rely on the 21st century learning skills of communication, collaboration, critical thinking, and creativity" (p. 1) in the classes of teachers from three high schools (N_1 = 24, N_2 = 29, N_3 = 18, Total N = 72). The study also sought to identify impediments to the development of critical thinking. While the low *N*s made generalization inappropriate, the research questions were nonetheless, topics of interest. Areas of commonality were 21st century skills, critical thinking, and impediments to the development of critical thinking.

In addition to the fact that Happ's purpose was similar to that of the current study, both used the same definition of 21st century skills, a definition which closely parallels the process of debate. According to the Partnership for 21st Century Skills, students should be able to

> analyze and evaluate major alternative points of view and be able to synthesize and make connections between information and arguments. In addition, students should be able to interpret information and draw conclusions, reflect critically, on experiences, and solve different kinds of non-familiar problems. Finally, as a component of thinking critically, students should identify and ask significant questions in order to clarify varying points of view with the purpose of leading to better solutions to problems (Partnership for 21st Century Skills, 2013).

Using a concurrent embedded design, each Happ objective question was followed by an option for survey participants to provide their insight into the perceived student benefits of the tasks described in each of the 15 survey items, as well as the challenges and impediments encountered by the teacher when 21st century skill assignments were attempted within the classroom. Four of the current study's survey questions addressing critical thinking, collaboration and communication were taken directly from the Happ study, and a concurrent embedded strategy design was used in part. Unlike the Happ study, the current study posed several rank/order questions, and provided respondents with only seven (7) opportunities for open responses.

The four (4) shared survey items were as follows:

1. Critical thinking. I provide opportunities for my students to interpret information and draw conclusions based on thorough analysis of text at least several times per month.
2. Collaboration. My students gain practice working effectively and respectfully within a team environment at least several times per month.
3. Collaboration. I provide opportunities for my students to engage in work requiring shared responsibility for accomplishing common goals at least several times per month.
4. Communication. At least once a month most of my students are required to present their work in front of an audience.

Results of Happ's study largely confirm that teachers are addressing the 21st century skills: critical thinking, communication, and collaboration. Of the 71 teachers participating in the survey, 93% were very positive in their agreement that they provided multiple text-based critical-thinking opportunities.

Participants in Happ's survey also demonstrated their support for the importance of the 21st century skill of collaboration through their pedagogical practices. Of the 71 teachers participating in the survey, 76.1% reported that they provided frequent opportunities for collaboration in team environments. Of the 71 teachers participating in the survey, 71.4% reported that they reported that they structured instruction so that students shared responsibility for accomplishing common goals.

Survey participants self-reported less optimistic evaluations of their practices in developing communication skills through presentations made to authentic audiences. Of the 71 teachers participating in the survey, 59.6% reported that they disagreed or strongly disagreed that, "At least once a month most of my students are required to present their work in front of an audience". This is doubly concerning because teaches indicated that they provided opportunities for critical thinking and collaboration several times per month, while 60% indicated that they did not provide opportunities for presenting work before an audience even *once* a month.

Thurman

Thurman's 2009 study was also of direct interest to the current study, and a source for survey development because it shared many foundational studies and constructs of interest with the current study. Areas of commonality were, AP teachers, critical thinking, and impediments to the development of critical thinking.

Thurman relied on results from McKee's 2003 study of AP teachers' attitudes toward the effectiveness of debate in teaching critical thinking skills to inform her own research. Like McKee's and Barfield's earlier studies, teachers at both the secondary and collegiate levels agreed that the teaching of critical thinking skill was very important. Thurman reported results

from her 5 point Likert scale. Both high school and college English instructors agreed that incorporating critical thinking activities and questions into their lesson plans is important (High School *M*=4.6l, *SD* = .494; College *M*= 4.61, *SD* = 5.95).

Variations amongst the mean scores of teachers of high school juniors and seniors, high school teachers of AP juniors and seniors, college teachers of freshmen and sophomores and college teachers of advanced freshmen and sophomores were slight and statistically insignificant (HS/J/S, 4.69; HS AP/JS. 4.80; C F/S, 4.56; C Adv F/S, 4.67; $F = 0.32$; $p = 0.81$) regardless of years of experiences, highest degree earned, teaching level, or average class size.

Because impediments to critical thinking were an area of interest to both the Thruman and current studies, Thurman's results are reproduced in Table 2.6.

Table 2.5 *Differences in Perceptions of Obstacles to Teaching Critical Thinking Skills Based on Teaching Level*

Survey Item	HS J/S	HS/ AP/ JS	Mean C F/S	CADV F/S	*F*	*p*
Lack of knowledge	3.11	3.40	3.54	3.50	0.71	.55
Pressure/standardized test scores	3.83	3.60	3.15	3.33	1.88	.14
Pressure/curriculum requirements	3.66	3.75	3.35	3.08	0.84	.48
Belief/high ability classes	2.90	3.40	2.88	3.25	0.49	.69
Class size	3.93	3.60	3.65	3.82	0.31	.82
Class diversity	3.52	2.40	2.88	3.17	1.66	.18
Lack of planning time	3.69	3.60	3.12	3.73	1.42	.25
Insufficient resources	2.96	3.40	2.92	3.25	0.47	.70
Difficulty in creating tests/papers	3.03	3.80	2.42	2.36	3.88	.01
Difficulty in grading tests/papers	3.55	4.80	2.77	3.08	5.08	.01
Limited professional development	3.34	3.40	3.54	3.08	0.49	.69

* denotes significant differences at < .05. HS J/S = High School Junior/Senior HS AP/JS=High School Advanced Placement/Junior Senior C F/S=College Freshmen/Sophomore C Adv F/S=College Advanced Freshmen/Sophomore. Thurman, p. 61.

In her conclusion, Thurman reported, "High school junior/senior English instructors believe that class size, pressure to improve scores on standardized tests, lack of planning time, pressure to meet curriculum requirements, and difficulty in grading tests and papers that require critical thinking were the most significant obstacles" (p. 75) to the development of critical thinking. Closer inspection of the data revealed noteworthy differences between regular and AP-trained high school teachers, the population of interest to the current study. Table 2.7 isolates high school teachers' responses.

Table 2.6

Differential Responses to Regular and AP High School Teacher Attitudes toward Impediments to the Development of Critical Thinking

Impediment	regular *M*	AP *M*	Difference
Lack of knowledge	3.11	3.4	0.29
Pressure/standardized test scores	3.83	3.6	0.49
Pressure/curriculum requirements	3.66	3.75	0.09
Belief/high ability classes	2.9	3.4	0.5
Class size	3.93	3.6	0.33
Class diversity	3.52	2.4	1.12
Lack of planning time	3.69	3.6	0.09
Insufficient resources	2.96	3.4	0.44
Difficulty in creating tests/papers	3.03	3.8	0.77
Difficulty in grading tests/papers	3.55	4.8	1.25
Limited professional development	3.34	3.4	0.06

Examination of isolated results reveals a large differences in secondary teachers' attitudes toward impediments to developing critical thinking in an area vital to gifted education – ability grouping. Teachers in regular classrooms find class diversity much more problematic than do AP teachers whose classes tend to have less diversity in ability. Conversely, AP teachers reported greater difficulty in creating and grading critical thinking-related assessments.

The current study partially replicated the Thurman study by using some of the impediments to developing critical thinking. The following categories were retained: lack of knowledge, pressure/standardized test scores, pressure/curriculum requirements, and insufficient resources. Impediments were divided into school-based and student-based impediments. The current study also used a four-point forced-choice Likert rather than the 5-point scale used by Thruman.

Conclusions

The needs of the gifted have long been ignored. It is incumbent upon local school districts, states, and the federal government to respond in a variety of ways to the academic needs of high performing students. There is a clear need for educational investment in innovative approaches, backed by empirical evidence, to meet the needs of high achieving students. There is a large body of evidence which supports the effectiveness of debate in a number of areas of academic and social improvement. Officials should use that information to identify and replicate practices that sustain and improve high levels of performance amongst our most talented students. The review of literature provides ample empirical evidence which supports the assertion that debate provides both the academic rigor and learning environment necessary to meet cognitive, social, and affective needs of gifted learners. Evidence also supports the claim that participation in debate develops 21st century skills: critical thinking, communication, and collaboration. Because debate is offered in the regular curriculum, it provides extend learning opportunities throughout the school year, week, and day without the burden of adding additional staff and facilities beyond those which are already in place.

The structure of the literature review here undertaken was to first examine the construct of giftedness, the school-based needs of gifted learners, and debate's ability to meet those needs. The availability of programs for gifted students in American secondary schools is largely limited to Advanced Placement which is available to anyone who chooses to register. AP classes are limited in their ability to meet many of the cognitive, social, and emotional needs, at appropriate levels of depth, complexity, breadth, pace, and independence, sufficient for gifted learners.

That being said, advocates for gifted education have not been successful in securing adequate federal assurances for a free and appropriate education which is modified for gifted learners' needs, and maximizes their educational potential. Cash-strapped school districts are both unwilling, for fear of appearing elitist, and unable to provide fiduciary parity to these exceptional students. Since special programs are unlikely, policy-makers, districts, educators, parents, students, and advocates must look for avenues within the regular curriculum to optimize the gifted students' potential.

The second issue examined in the literature review was gifted students' need for critical thinking in particular and communication and collaboration, 21st century skills, in keeping with the needs of all new generation students. A confluence of circumstances ranging from pressure to increase scores of low performing students, the insufficient pace of the typical classroom, lack of independence, need for peers of similar ability, and advanced need for cognition have combined to create a secondary school environment which fails to meet the academic needs of gifted students and fails to develop their skills, particularly critical thinking, to their fullest potential.

The third question of concern in this study was the appropriateness of debate as a content area which will meet the unique needs of gifted students within the structure of the regular high school. Thirty-two studies reviewed herein concluded that debate develops advanced levels of critical thinking, communication skills, promotes collaboration, improves participants' self-esteem, raises GPA, and SAT scores, and/or develops skills and dispositions which will serve gifted individuals well in their adult lives. The preponderance of evidence rendered by that collection of studies merits serious consideration. Conversely, there is little substantive evidence that would disabuse one of his faith in the ability of debate to improve critical thinking.

Allen, Berkowitz, Hunt and Louden confirmed that 60 years of quantitative and qualitative research, in the form of both longitudinal and cross-sectional studies, have confirmed the efficacy of debate in developing critical-thinking skills. Allen et al concluded that

> regardless of the specific measure used to assess critical thinking, the type of design employed, or the specific type of communication skill training taught, critical thinking improved as a result of training in communication skills…Participation in forensics demonstrated the largest improvement in critical thinking scores whether considering longitudinal or cross-sectional designs (1999, p. 27).

The secondary literacy skills used in debate incorporate complex reading materials into both instructional time and out of school competitions. Students use their secondary reading skills across the curriculum, so improvements in critical thinking and advances made through analyzing complex texts are not isolated to the debate classroom. Debate is a discipline that prepares and motivates students to excel at school-based learning. The intellectual rigor of debate makes it an appropriate engagement for gifted and advanced students.

Debate meets the main credo of instruction for academically talented students: students must be provided with content which is greater in both depth and complexity in order to meet their academic needs. In keeping with Van Tassel-Baska's "nonnegotiables", students should be placed with their intellectual peers and allowed the opportunity for self-directed acceleration (2005). Instructional differentiation is not sufficient for gifted students. It is not instructional methodology which must be modified for gifted students; it is the *content* which must be modified in order to lift the ceiling for advanced learners. Debate also satisfies the current focus on project based instruction (Reger, 2006), provides multiple means of expression, and can be an avenue for creativity. Debate provides experiential learning which is used by the learner in a concrete and immediate way. Text-to-world learning is the ultimate goal of education.

Participation in debate is also a vehicle for meeting Gagne``s goal of transforming outstanding natural abilities – giftedness - into outstanding knowledge, the content of debate, and skills – talent - the development of well-structured arguments and persuasive delivery. "Talent development is formally defined as the systematic pursuit by talentees, over a significant and continuous period of time, of a structured program of activities leading to a specific excellence goal" (2010, p. 84). Debate is intrinsically suited to Gagne``s model as well because debate sets forth clear methods for goal-identification and goal attainment, the "motivation" and "volition" of Gagne``s theory.

Students with special needs – both the gifted and the learning disabled – gain unique benefits from their experiences in special programs. Such programs often satisfy needs that are not, or cannot, be addressed efficiently by typical educational curriculum. In addition to increasing academic rigor in a highly independent environment, debate students experience

positive outcomes in terms of preparedness for the workforce and occupational success. Socially, students develop in positive ways, learning group communication and collaboration skills while exploring how to negotiate complex relationships (Minch, 2006, p. 9). Programs and curriculum appropriate to maximize the potential of gifted students should be endorsed and supported to the same measure that special programs designed to maximize the potential of resource students are endorsed and supported.

Equally important in terms of life-long learning, text-to-world education, and 21st century skills, is the experiential learning which debate provides. Students must use advanced reading and critical-thinking skills to organize, analyze, and synthesize a wide variety of non-fiction texts. In a very immediate context, debaters apply the information which they have amassed in real time interactions with others. The "event" of preparing persuasive arguments based on evidence, communicating information in a compelling, authentic manner, defending one's position, and refuting that of a worthy adversary before a judge, is rarely replicated in the normal classroom. Debate offers the possibility of total intellectual engagement, without limits, and provides fertile ground for the growth of the gifted mind.

The review of literature produced three core issues to be addressed in the current study: AP teacher beliefs which translate into practice, academic needs of gifted learners, and debate as an avenue to meeting those needs. In order to address those issues, a survey instrument was developed to determin beliefs and examine how they are manifested in the classroom. AP teachers were selected as the target population because AP teachers are those most likely to have gifted students in their classrooms. The questions which grew from the literature review are

"What are the priorities, attitudes, and pedagogy of AP teachers toward critical thinking, gifted learners, and debate?"

It is neither the intent of the current study to deny the usefulness of AP courses, nor to suggest that AP can be replaced with debate. The purpose of the study was to proffer empirical evidence that debate is another readily available option for meeting the cognitive, social, and emotional needs of gifted learners.

CHAPTER 3: METHODS

Introduction

The overarching purpose of this study was to address the problem of limited options within the standard high school curriculum for meeting the 21st century needs of gifted and advanced secondary students. Specifically, the purpose was threefold. First, the study sought to demonstrate that debate is a viable platform for meeting the 21st century critical-thinking needs of gifted and advanced students within the confines of the regular high school curriculum. The second purpose was to investigate the self-reported beliefs and attitudes of AP teachers on the topics of critical thinking, other 21st century skills, methods used to facilitate and assess critical thinking, impediments to effective development of critical thinking, how teachers evaluate debate as an option for gifted learners, and the comparative efficacy of debate vis a vis an individual AP class in meeting the needs of gifted learners. Finally, the effects of several independent variables upon attitudes was examined. Chapter three has several sections: (a) research questions, (b) research design, (c) participants, (d) instrumentation, (e) data collection, and (f) data analysis.

Research Questions

1. What are the instructional priorities of AP teachers?
2. What do AP teachers believe are impediments to developing critical thinking in the AP classroom?
3. What pedagogical methods do AP teachers us to address critical thinking in their classrooms?

4. How do students manifest 21st century skills in the AP classroom?
5. How do AP teachers evaluate debate as an option for gifted students?
6. Does participation in a debate-oriented survey create a positive attitude toward debate?
7. Do AP teachers see debate or an AP class as a more effective method for developing 21st century skills?
8. Is there a difference in AP teachers' attitudes toward debate based on area of AP certification, preparation in gifted education (GT), school and community sizes, and availability of special programs (debate and GT) in their schools?

Research design

The review of literature established some academic needs of gifted learners, specifically for depth, breadth and complexity, and the need of all students to develop the 21st century skills, critical thinking, communication and collaboration. The review of literature also established the dearth of funding for gifted programs, particularly at the secondary level, and the paucity of secondary program offerings, other than AP, for gifted students. Special attention was devoted to research indicating that participation in academic debate develops critical thinking along with communication and collaboration skills.

The survey instrument collected both quantitative and open-ended responses from participating AP-trained teachers. The survey of AP teachers' priorities for critical thinking and 21st century skills in their classrooms; AP teachers' beliefs re: impediments to developing critical thinking; AP teacher practices for developing and assessing critical thinking; AP teachers' attitude toward debate as an avenue to meeting the academic needs of gifted learners; the

comparative efficacy of debate vs. a single AP class in developing those skills; and, the likelihood that AP teachers will recommend debate to their gifted learners was subjected to quantitative analysis. Open-ended responses were coded and addressed. The study also sought to examine the effects six (6) independent variables on teachers' attitudes and behavior. The six independent variables were school and community size, presence or absence of special training in gifted education, the presence or absence of gifted programs and of debate programs, and teacher area of AP training.

Instrumentation

Two fundamental considerations underlie the choice of a measurement instrument. Instruments can be measures of conventional knowledge, skill or attitude tests, clinical simulations, or survey questionnaires. Instruments can measure concepts, psychomotor skills or affective values. Validity is concerned with the extent to which an instrument measures what it is intended to measure. Reliability is the ability of an instrument to produce consistent results across populations (Tavakol, 2011, p. 53).

Considering Tavakol's statement, the researcher developed an embedded response survey designed to collect quantitative data and to allow participants opportunities for open response as well. Development of the survey instrument replicated techniques and elements from four earlier studies. McKee's 2003 instrument, largely drawn from Barfield's 1989 instrument, was an optimal choice for two reasons. First, the reliability of scores produced by the instrument have already been verified by its designers who determined that the scores produced by the instrument were valid in terms of content validity. Second, McKee's survey focused on both the population of interest - AP teachers - and the constructs of interest – critical thinking and debate. McKee

also used the presence or absence of debate in the respondent's school as an independent variable. Despite its reported reliability, validity, and conceptual compatibility, the survey was inappropriate for replication *in toto*. Therefore, many questions were cut, and additional questions were taken from Profetto-McGrath (1999), Happ (2013), and Thurman (2009). New questions were also designed. The resultant questionnaire used a 4-point Likert scale (Barfield/McKee used 5-points), embedded response questions (Thurman), rank/order items, dichotomous response and open response items in addition to collecting categorical data on the respondents and their schools.

Empirical evidence supports the claim that debate develops critical thinking, hones communication skills and provides opportunities for collaboration. The vernacular of the day refers to critical thinking, communication and collaboration as 21st century skills, so 21st century skills were added as a construct of interest. Questions were reworded in order to encourage respondents to consider the needs of gifted students, the range of 21st century skills, the construct of critical thinking, the merits of debate compared to a single AP class, and the likelihood of recommending debate to gifted learners. All questions comparing the performance of debaters and non-debaters were eliminated. Comparative focus was shifted from debaters vs. non-debaters to the effectiveness of two courses – debate and a single AP class in providing gifted learners with 21st century skills.

Because the study built upon earlier studies, some methods used in the antecedent studies were replicated while others were altered. Unlike the McKee study which collected mailed paper surveys, data was collected using Survey Monkey, a large commercial data collection service. Methods of statistical analysis used in the original McKee studies, independent samples

t-tests were replicated, but a one-way analysis of variance, and correlations, were also conducted in an attempt to create a work of greater depth. Finally, the current study was also predictive in intent.

Survey design was the first step in the empirical section of this study. Construction of the questionnaire was a multi-step process. Peer review was undertaken between each phase of the development.

When developing his survey instrument, Barfield had a panel of debate experts review his questions in order to ensure clarity and completeness (1994, p. 53). The current study used two separate panels to address the constructs of interest. Using a panel of seven drama, communication, and forensics practitioners, item content and *prima facie* validity for the instrument were established in the following manner. Panelists were given 40 strips of paper, each bearing what the author intended to be a debate, critical thinking, gifted or AP oriented question. Without knowledge of the research questions, each panelist identified question topics and sorted the questions into appropriate groups. Panelists were instructed to focus only on topic selection, not on their agreement or disagreement with the content. Questions that the panelists did not designate as belonging to a research question category were eliminated. Questions which were assigned to two different categories more than twice were deemed ambiguous and were eliminated. Questions which the author and/or panelists deemed unclear were also eliminated.

Because the population of interest to the survey was AP teachers and the problem target of the study was gifted learners, a second panel of five AP teachers who are also certified in gifted education was used to review the questionnaire. A number of wording changes were made at the suggestion of the second panel.

There were also practical differences between the current study and those upon which it was based. The current study was designed to be predictive as well as descriptive. Keeping focus on the practitioner orientation of this study, respondents were asked if they would recommend debate to their gifted learners, and were also offered the opportunity to make unstructured responses. The inclusion of these questions in the study was an effort to link theory to actual practice (Bain, Bourgeois & Pappas, 2003). Simply participating in the survey may have heightened AP teachers' awareness of the benefits debate offers gifted students. Hopefully, that awareness will be transformed into the actual practice of recommending debate to gifted students.

Opportunities for comment and an open-ended question at the close of the survey met a twofold goal. First, they provided AP teachers who are in actual practice an opportunity to express their opinions and expertise on both pedagogy and impediments to effective instruction. Important information about the nature of actual instruction was gleaned in this manner. Secondly, the comments of AP teachers may generate questions which could lead to new avenues of academic investigation and thereby expand the research knowledge base.

Once the individual questions were selected, the next step in the survey design process was a pilot test in order to ensure reliability. Barfield tested his instrument's reliability by administering it to the same group of school administrators at a two week interval. "When the two tests were compared, there was a 95.4% agreement between the scores on the first sitting and the second sitting. The instrument was determined to be reliable" (McKee, 1994, p. 52).

The current study used a similar method to measure reliability. AP teachers from a convenience sample completed the 4-point Likert scale survey twice over a two week interval

thus supplying data for a test re-test analysis. The range for Likert responses was 1 = Strongly disagree, 2 = Disagree, 3 = Agree, and 4 = Strongly agree. A total of nine AP teachers participated in the pilot testing of the initial instrument. Only six teachers, however, completed both testing cycles ($N_1 = 6$, $N_2 = 9$). The small N of this test-retest protocol precluded validity beyond the purpose of a pilot study.

Inspection of raw scores and group means for the pre and post test revealed a cluster of scores in the middle of the scale. Few respondents either strongly disagreed or strongly agreed with an item. Because responses were anonymous, matching of pre and post data was not possible. Therefore, the researcher conducted a series of independent sample t-tests to explore potential differences in responses from the two administrations. The results revealed statistically significant differences between pre and post means for two items: "AP is better for personal awareness" $t(14) = 2.36$, $p = .03$ and "Gifted and Talented students should receive unique instruction" $t(14) = 2.343$ $p = .053$. The results of the independent t-tests prompted the following changes. The first question was reworded changing personal growth to self-confidence. The second was removed from the survey as were the leadership and creativity questions because they were out of the bounds of the study.

Independent variables were set via the collection of demographic information in the closing segment of the survey. The current study had six independent variables. Respondents were asked if they were AP trained in the liberal arts and/or sciences and mathematics. Resultant data were used to determine if differential attitudes toward critical thinking and debate existed between AP teachers of the arts and sciences. Secondly, respondents were asked if debate was offered in their school and if special programs for academically gifted students were offered in

their school. Two other demographics of interest were school setting, rural, suburban or urban, and school size, small, medium, and larger. Finally, respondents were asked if they had any training in gifted education. Resultant data may indicate if the presence or absence of gifted and talented and/or debate programs influence AP teacher attitudes toward the efficacy of debate.

After final approval, the survey was converted to an electronic form through Survey Monkey. Survey items were grouped by research questions. Questions moved from general statements about teacher goals through a series of questions about critical thinking in the classroom to questions designed to have AP teachers make comparative evaluations of the benefits of AP classes with the benefits of debate for gifted and advanced students. Several items were reverse coded, and therefore, required recoding when response codes were entered. Scores were recorded as interval data in order to facilitate statistical comparison.

The electronic survey was headed by an introductory paragraph which served as both a request for participation and informed consent. The introduction explained the purpose of the study, how the data will be used, the appropriate human participant admonitions and guarantees, and author contact information.

Data Collection

The following procedures were used to collect data for the AP teacher attitudes study. The current survey, which appears in Appendix A, was electronically delivered via Survey Monkey to AP teachers in a single state. Data were collected over the course of a six-week period. Distribution consisted of an initial request for participation followed by two push notices at two week intervals. In order to protect the confidentiality of institute attendees, participants

were solicited to participate in the study directly by the university's Center for Gifted Education.

Because the current study is a partial replication of the McKee (2003) study, it is important to note that current data were delivered and collected electronically, and the McKee's survey was delivered and collected through the mail.

McKee mailed paper surveys to 104 AP teachers inviting them to participate, and a follow-up mailing was done 30 days later. Seventy-five of the AP teachers taught in schools with highly active debate programs and 29 participants were drawn from schools which did not have debate programs. At the end of the collection period, 62 of 104 (59.6%) surveys were returned, with 41 (66.1%) from debate school AP teachers and 21 (33.9%) from non-debate school AP teachers (McKee, p. 56 – 65). McKee's 60% survey return rate is quite robust. McKee's rate of return vastly exceeded the 12% obtained by the current study. A total of 1,732 attendees from the selected university's 2014 and 2015 summer AP Institute training sessions were emailed and asked to complete the survey online through Survey Monkey. Response rates were far less than expected.

In order for a survey to produce stable results, there should be 10 to 20 times as many respondents as there are variables. The AP teacher attitudes survey had a total of six independent variables; therefore, 120 respondents were required to ensure reasonable results. Two hundred-and-one AP teachers responded to the survey, thereby comfortably meeting participant requirements for reliability.

Population and Sampling

The population of interest was AP teachers in a mid-sized southern state. The sample was AP teachers from around the state who attended a summer AP Institute at one of the state's

centrally located universities. State policy requires that AP teachers are trained or re-trained every five years, so the participants attending any given summer institute are representative of the state's AP teachers as a whole. Permission was obtained from the center organizing and conducting the AP summer institute to contact participants, and permission to conduct the study was granted by the university's Institutional Review Board.

Data Analysis

The AP teacher attitudes study examined the effects of six independent variables: debate (presence or absence of), gifted programs (presence or absence of), gifted training (presence or absence of), area of AP teacher training (liberal arts, sciences or both), school size (small, medium, large), and school setting (rural, urban, suburban) on six dependent variables. The six dependent variables of interest were AP teachers' attitudes and practices in providing a collection of educational outcomes, debate, and meeting gifted students' needs. Dependent variables follow: teacher perspectives on impediments to effective instruction, pedagogy for developing and assessing critical thinking, how students manifest critical thinking and collaboration, efficacy of debate in meeting the unique school-based needs of gifted and talented students, likelihood of recommending debate to gifted learners, and preference for AP class or debate for developing 21st century skills.

Once aggregated, the survey data was subjected to a variety of analyses. First, the data was screened for unreasonable responses, uneven *N*, and reverse coded survey questions were re-coded. Descriptive statistics were then reported. Group means, (central tendency) and standard deviations (variability) were reported in tabular form.

In order to answer the question, "What differences, if any, exist in the perceptions of AP teachers regarding the research questions based on the independent variables of school and community size, area of AP certification, training in gifted education, and presence of gifted and/or debate programs?" three types of data have been reported. For research questions in which respondents were asked to rank/order priorities, descriptive statistics were reported. Research questions posed in Likert or dichotomous format produced group means so independent samples *t*-tests were conducted.

Correlations between the independent and dependent variable group means were examined for research question 3, 4, 5, and 7. The purpose of correlations was to determine if there is a relationship between independent and dependent variables, how strong the relationship is, and in what direction the variables are related. Pearson's *r* was reported for each set of correlations. In each test, the instructors' AP training group acted as the independent variable, and the composite mean for each Likert response category was the dependent variable. Finally, each combination which resulted in a single dichotomous response, i.e. "I will recommend debate to my gifted students", was subjected to analysis. Table 3.1 provides a list of analyses to be applied to each research question.

Table 3.1

Quantitative data analysis variables, instrument, and methods

Research Question	Independent Variables	Dependent Variable	Instrument	Data Analysis
1(a)		Curriculum priorities	AP teacher survey	Descriptive statistics
1(b)		Personal priorities	AP teacher	Descriptive statistics

			survey	
2(a)	AP training	School-based impediments	AP teacher survey	Descriptive statistics Independent *t*-test Pearson's *r*
2(b)	Area of AP training	Student-based impediments	AP teacher survey	Descriptive statistics Independent *t*-test Pearson's *r*
3 (a)	Area of AP training	Critical thinking pedagogy	AP teacher survey	Descriptive statistics Independent *t*-test Pearson's *r*
3(b)	Area of AP training	Critical thinking assessment	AP teacher survey	Descriptive statistics Independent *t*-test Pearson's *r*
4(a)	Area of AP training	21st Century Analysis of text to interpret information and draw conclusions	AP teacher survey	Descriptive statistics Independent *t*-test
4(b)	Area of AP training	21st Century Structured collaboration	AP teacher survey	Descriptive statistics Independent *t*-test
5	Area of AP training	Debater for gifted learners	AP teacher survey	Descriptive statistics Independent t-test

6	Area of AP training	More likely to recommend debater to GT	AP teacher survey	Descriptive statistics
7.	Area of AP training	Better developer of 21st century skills	AP teacher survey	Descriptive statistics Independent t-test
8	School size Community size AP certification GT training GT program Debate program	Attitudes toward debate as an avenue to meeting the needs of gifted learners.	AP teacher survey	Descriptive statistics ANOVA

.

McKee's (2003) study used independent sample *t*-tests to determine if a statistically significant difference in attitudes existed between schools which had debate programs and those which did not. The current study contained five categories in addition to the presence or absence of debate: school and community size, area of AP certification, and special training in gifted education.

The survey was broken into subscales, each subscale relating to a particular research question: priorities, impediments, 21st century skills, critical thinking and collaboration, needs of the gifted, efficacy of debate, and likelihood of recommending debate to gifted learners.

The current study also sought to determine the likelihood of AP teachers, working in debate and non-debate schools, recommending debate to their gifted and advanced students. The

predictive component is unique to the McMath study. A possible limitation to the validity of such a prediction may be decay of commitment over time.

A final area of difference between Profetto-McGrath, Barfield/McKee, Thurman, and the current study was provision of open-ended response opportunities for AP teachers. Like open-ended responses in the Happ study, responses were categorized, examined for trends, and reported. The reported opinions of practicing AP teachers who participated in the McMath survey may lead to new areas of study.

Significance of all measures was set at a level of $p < .05$. Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 21.

CHAPTER 4: RESULTS

Introduction

The current study was designed to explore AP teachers' attitudes toward critical thinking vis a vis gifted learners and debate. The survey was electronically distributed to 1,732 AP Summer Institute attendees. Fifteen were returned as undeliverable, reducing the sample to 1,717 AP trained teachers. Two-hundred-two teachers (12%) completed the survey. The AP Teacher Attitudes Survey addressed eight research questions. Participants complete rank/order, Likert, dichotomous, and open-ended response items.

1. What are the instructional priorities of AP teachers?
2. What do AP teachers believe are impediment to developing critical thinking in the AP classroom?
3. What methods do AP teachers use to address critical thinking in their classrooms?
4. How do students manifest 21st century skills in the AP classroom?
5. How do AP teachers evaluate debate as an option for gifted students?
6. Does participation in a debate-oriented survey create a positive attitude toward debate?
7. Do AP teachers see debate or an AP class as a more effective method for developing 21st century skills?
8. Is there a difference in AP teachers' attitudes toward debate based on area of AP certification, preparation in gifted education (GT), school and community sizes, and availability of special programs (debate and GT) in their schools?

Quantitative results were organized into several sections beginning with data entry, coding, and screening. Descriptive statistics for the demographic items follow. Analysis results

are presented for each research question and any of its sub-categories. Discussion of open-ended responses, which were collected using a concurrent embedded strategy are included in Chapter 5.

All quantitative results were obtained using Statistical Package for Social Sciences (SPSS) version 21.

Data entry

The quantitative segment of the study evaluating the effectiveness of debate as an option for meeting the critical thinking needs of gifted and talented learners was obtained via a survey distributed through Survey Monkey. Tabular results were delivered in excel format. Data were entered both manually and electronically. Of the 73 resulting variables on the survey (see Appendix B), 68 required conversion from analog to numeric form in order to be subjected to statistical analysis. The remaining 5 variables were open-response items which are addressed in the final section of Results.

Coding

Research question #1 asked, "What are the instructional priorities of AP teachers?" and was divided into two scales. Questions RQ1.A and RQ1.B were rank/order questions. Questions RQ1.A and RQ1.B included seven options, therefore, teachers ranked each of the seven priorities on the following scale: 1 = most important, 2 = second choice, 3 = 3rd choice, 4 = 4th choice, 5 = 5th choice, 6 = 6th choice, and 7 = least important.

Research questions numbers two, six and seven were structured in a Likert forced-response format. Four categories of response were available for the research questions "What do AP teachers believe are impediments to developing critical thinking in the AP classroom?",

"How do AP teachers evaluate debate as an option for gifted students?", and, "Does participation in a debate-oriented survey create a positive attitude toward debate?" Responses were coded on a 4-point scale: a 1 = Strongly disagree, 2 = Disagree, 3 = Agree, 4 = Strongly agree.

Research questions three, four, and five also used a four-point Likert forced-response format measuring the frequency of classroom practices and outcomes related to critical thinking and gifted learners. The coding for those categories was 0 = Never, 1 = Seldom, 2 = Monthly, 3 = Several times per month.

Research question #8, an evaluation of the preferability of an AP or a debate class for developing a series of skills, called for dichotomous response. Preference for AP was coded as 0 and preference for debate was coded as 1.

Screening

The data was screened visually for unusual or missing responses. No unusual responses were found. Missing responses were coded as 9, a value which did not appear on any of the response scales.

Demographic Information

Demographic information on the respondent pool acted as the independent variables in the current study. Demographics included school and community size, and area of AP training, The demographic data which were collected to act as independent variables were measured by categorical response or dichotomous response. School and community size were categorized as follows: Small < 350 = 1, Medium 350 – 1,000 = 2, Large > 1,000 = 3, and Rural – less than

2,500 =1, Suburban – 2,500 – 50,000 = 2, and Urban – greater than 50,000 = 3 respectively. Area of AP certification was also categorical: Liberal Arts = 1, Sciences = 2, and Both = 3. The remaining three categories of response, special training in gifted education, the presence or absence of special programs for gifted students, and the presence or absence of debate in the school of each respondent, were dichotomous with No = 0 and Yes = 1.Table 4.1 summarizes demographic information. Observations regarding each fixed factor follows the summary table.

Table 4.1

Demographic Category	*N*	Percentage
School Size		
Small	31	15.7
Medium	106	53.8
Large	60	30.5
Community Size		
Rural	41	20.3
Suburban	106	47.5
Urban	60	28.7
Area of AP Training		
Liberal Arts	120	53.5
Sciences	84	35.6
Both	12	5.9
No Reply	9	4.5
Special Training in Gifted		
No	86	42.6
Yes	111	55.0
No Reply	4	4.5
Debate Offered in School		
No	124	61.4
Yes	71	35.1
No Reply	6	3.0
Special Programs for Gifted		
No	50	24.8
Yes	147	72.8
No Reply	4	2.0

Note. Demographic categories used as fixed factors in quantitate analysis

School and Community Size. Community size paralleled school size. Visual inspection of the relative distributions of small, medium and large schools and small, medium and large communities suggests a positive relationship between the two factors. Predictably, a significant degree of correlation, (r = .333, p < .01) existed between school and community size.

Area of AP training. The College Board offers a total of 37 AP examinations for consideration for college credit or advanced placement in collegiate coursework. Of the 37 examinations, 26 (70.2%) are in the domain of liberal arts. The remaining 11 (29.7%) are in mathematics and the sciences.

Special training in gifted education. Participant-reported frequency of special training in gifted education, 55%, was quite remarkable. According to the state Department of Education, only 1,609 (4%), of the state's 37,162 teachers are certified in gifted and talented education (Williams, personal communication, August 24, 2015).

Debate offered in respondent's school. In assessing the attitudes of AP teachers toward debate, and also in asking if they would recommend debate for their gifted students, it was important to ascertain the percentage of teachers who practiced in schools that offered debate. As in the preceding category, special training in gifted education, teacher responses were remarkable in their wide departure from expected results. Thirty-five and one-tenth (35.1%) of responding AP teachers reported teaching in schools which offered debate, however, according to the state chair of the National Speech and Debate Association, only 26 schools in the state participate, at any level, in debate events.

Special programs for gifted learners? The final category of demographic information sought to determine the percentage of respondents who practiced in schools which offered special programs for gifted and talented learners. Although AP is often considered sufficient differentiation for gifted learners, in the context of the current survey, it is not considered a special program for gifted learners. Special programs for gifted learners would include GT seminars, honors, or other classes which restrict enrollment to only highly academically qualified students.

Survey Results

Following are the results for each of the eight quantitative research questions and sub-sections addressed by the study. The survey was designed to have a theoretical funnel shape, leading participants from broad, general questions about educational goals to direct questions about the comparative efficacy of debate and a single AP class in developing critical thinking and 21st century skills. In order to establish neutrality, all response possibilities, here and throughout the remainder of the survey, were listed in alphabetical order.

Research question #1

What are the instructional priorities of AP teachers? Respondents were asked to rank/order their priorities. Research question #1 was sub-divided into two categories. The intent of the separation into RQ1 A and RQ1.B was to distinguish between the practices and principles of AP educators. RQ1.A asked AP teachers to rank "highest priority for my curriculum." Response options for RQ1.A included challenging students to achieve at their personal best, college readiness, developing critical thinking, meeting Common Core standards, preparing students for AP end-of-course exams, preparing students for PARCC exams, and

teaching content. Research question RQ1.B asked respondents to rank their "personal educational priorities", and also had seven options – career readiness, college preparation, communication skills, content, critical thinking, self-actualized adulthood, and standard test preparation. Research question RQ1.A related to priorities operationalized in the classroom, and thus reflected educational practices. Question RQ1.B reflected individual educator's philosophical evaluation of the purpose of education, and thus reflected educational principles.

In order to produce interpretable results, each of the seven options for RQ1.A and RQ1.B was converted into an individual variable. Frequencies demonstrated the proportion of teachers (percentage) who held each of the variables as their highest to lowest priority. Analysis of results demonstrated that educators have clear priorities both in practice and in principle. Furthermore, educator priorities are not always perfectly aligned with those of their districts. A summary of frequency distribution percentages for RQ1.A.1-7 is reported in Table 4.2.

Table 4.2

Research question 1.A.1-7 - Reported percentages for AP teacher ranking of "highest priorities for my curriculum"

Priority	Ranking 1st	Ranking 2nd	Ranking 3rd	Ranking 4th	Ranking 5th	Ranking 6th	Ranking 7th
Challenge	**43.1**	22.3	10.4	8.9	7.9	2.0	0.5
College Readiness	8.9	13.4	**27.2**	24.3	11.4	5.4	3.0
Critical Thinking	26.2	**35.6**	18.8	9.4	4.0	0.5	0.5
CCSS	1.5	2.0	3.5	8.4	23.8	**47.5**	6.4
AP Exams	12.4	8.9	13.4	**21.3**	18.3	15.3	5.4
PARCC Exams	0.0	1.0	1.0	3.0	4.5	11.9	**71.8**
Subject	6.9	12.9	20.3	19.8	**23.3**	8.9	4.5

Content

Challenge. Challenge is appropriate at all levels of education. Teaching to the zone of proximal development is the most common instructional method for both whole groups and individual differentiation.

College readiness. A fundamental assumption underlying the development of the AP curriculum is that the majority of participants intend to go to college. In light of the fact that AP courses are designed to be the equivalent of an entry level college courses, parents and students are reasonable in their expectation that college readiness is an instructional priority.

Development of critical thinking. Critical thinking is a central interest of both the current study and contemporary educational dialogue. It is also a consistent focus of AP, the National Association for Gifted Children, and the National Forensic League.

AP end-of-course exams. The standardized examinations which are given by the College Board in May of each year are important to both students and parents because students can receive college credit for AP courses taken in high school. Individual universities decide what they will use as a minimum acceptable score, usually a 3 or a 4. Universities also decide if they will award credit at all, or will merely use AP exams to direct placement decisions. Regardless of their use, universities encourage students to pursue the most rigorous curriculum available at their school. That usually means AP. It is therefore counter-intuitive that AP teacher respondents did not give great import to AP end-of-course exams.

PARCC exams. Another test category in the curricular importance ranking section of the survey was preparing student for PARCC exams. The acronym stands for Partnership for Assessment of Readiness for College and Careers. PARCC was intended to replace individual

state standardized test with a single test based on Common Core State Standards. Using PARCC, students across the nation would be assessed on the same standard. It became clear to many states, however, that they would not do well on the new standard. Test results were also long in coming. So long that some states opted out of the PARCC testing program before their test results even arrived. The state under study so moved. The decision may have been a wise one because AP teachers overwhelmingly ranked PARCC as their lowest curricular priority.

RQ1.B. What are AP teacher's highest personal educational priorities? The second category AP teachers were asked to rank was designed to reflect AP teachers' philosophical approach to the purpose of education. As such, there were seven possible priorities listed, career readiness, college preparation, communication skills, subject content, critical thinking skills, self-actualization, and standard test preparation. Each factor was given an identifier; RQ1.B.1 – 7.

RQ1.B.1-7

A summary of frequency distribution percentages for RQ1.B.1-7, my highest personal educational priorities, is reported in Table 4.3. Possible personal priorities for teachers were presented in the following order.

Table 4.3

Research question 1.B.1-7 - Reported percentages for AP teacher ranking of "highest personal educational priorities"

Priority	Ranking 1st	Ranking 2nd	Ranking 3rd	Ranking 4th	Ranking 5th	Ranking 6th	Ranking 7th
Career readiness	4.0	8.4	10.4	13.9	**25.7**	20.8	8.9
College preparation	12.4	13.9	**20.3**	18.8	18.3	7.4	2.5
Communication	10.9	**19.8**	23.3	18.8	12.9	6.9	1.0
Subject content	15.3	11.9	13.9	**21.8**	10.9	13.4	5.0

Critical thinking	**41.1**	28.2	15.3	5.4	3.5	2.0	0.5
Self-actualization	11.4	9.4	7.9	9.9	12.4	**28.7**	13.4
Standard test prep	2.0	2.5	3.0	6.4	8.9	12.4	**59.4**

Career readiness. Much emphasis is placed on career and college readiness in the current discourse which swirls around Common Core and its companion, PARCC.

College readiness. Results indicate that, as can be reasonably expected, AP teachers place greater importance on college readiness than on career readiness.

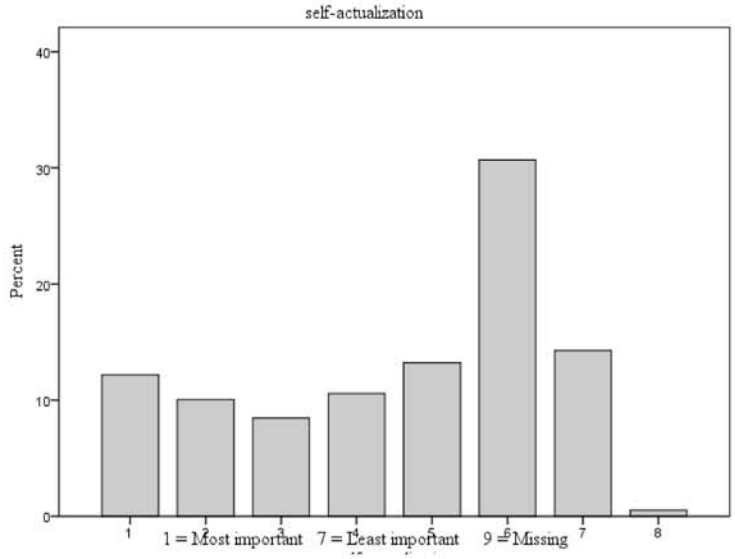
Communication skills. Communication skills, along with critical thinking, were ranked most highly by both the Partnership for 21st Century Skills and Secretary of Education, Arne Duncan.

Subject content. Subject content was included in both priority categories, because teaching content is what teachers "do". Few individuals venture into careers as secondary teachers if they are not interested in and enjoy sharing information about their chosen content concentrations. Frequency distributions of content considerations in RQ1.A.7 and RQ1.B.4 did not exactly mirror each other. Frequencies were widely distributed across the response spectrum, and the shapes of the distributions were quite similar. Importantly, Pearson's product moment correlation revealed a statistically significant correlation between the two response opportunities; $r = .47$, $p < .01$.

Critical thinking skills. As previously mentioned, critical thinking skills are in the forefront of current educational dialogue. Survey results indicated that AP teachers share that valuation of critical thinking with other stakeholders.

Self-actualization. Figure 4.1 provides graphic expressions of the ranking distribution. Inspection of the figure reveals a non-normal U-shaped distribution. Despite its U-shape, the

Standard test preparation. AP end-of-course exams and PARCC exams were given



4.1 Bimodal tendency in AP teacher ranking for self-actualization

individual categories. Other routinely given standard tests include the Iowa Basic Skills, SAT, and ACT test. The state from which responses were drawn will replace PARCC with ACT.

AP teacher rankings of standard test preparation were very similar to rankings reported for the PARCC exam. Analysis indicated that the two were highly correlated, $r = .41$, $p < .01$. Although results were not as dramatic, teacher ranking of the importance of standardized test preparation and preparation for the AP end-of-course exam were also correlated at a statistically significant level; $r = .29$, $p < .01$. AP teacher respondents were consistent in the priority given to standardized test preparation.

Research question #2

What do AP teachers believe are impediments to developing critical thinking in the AP classroom? Research question #2 was posed in an effort to solicit AP teachers' beliefs regarding the causes underlying the current popular conception that schools are failing to develop critical thinking. Survey participants were asked, on a 4-point Likert forced choice scale, what circumstances they believe act as impediments to developing critical thinking in secondary students. The range for Likert responses was 1 = Strongly disagree, 2 = Disagree, 3 = Agree, and 4 = Strongly agree. Impediments were divided into two sub-categories; RQ2.A.1-6, impediments which pertain to school conditions, and RQ2.B.1-4, impediments which emanate from the students themselves. Levene's test for equality of variance amongst school-based impediments was violated for RQ2.A.2, insufficient materials or resources, $F = 4.70$, $p = .03$, and RQ2.A. 6, excessive re-teaching, $F = 6.17$, $p = .01$. Levene's test for equality of variance was not violated for any student-based impediment to the development of critical thinking.

RQ2.A.1-7

Six school-related impediments were evaluated in category RQ2.A. A summary of AP teacher attitudes toward school-related impediments, as expressed on a 4-point Likert scale, is displayed in Table 4.4.

Table 4.4

Research question 2.A.1-6 - Reported means, standard deviations, and 95% confidence intervals for AP teacher attitudes toward school-based impediments to the development of critical thinking.

			95% Confidence Interval	
	M	*SD*	Lower	Upper

Content ill-suited	2.04	.95	1.91	2.17
Insufficient materials or resources	2.47	.98	2.33	2.60
School disruptions	**3.21**	1.09	3.06	3.36
Too much content	2.86	1.02	2.71	3.00
Too much test emphasis	**3.24**	1.04	3.09	3.38
Re-teaching	3.00	1.21	2.84	3.17

School-related impediments are a set of circumstances which may negatively impact a teacher's, or the institution's ability to attain some goal, in this case, the development of critical thinking. School-based impediments may spring from district financial circumstances or matters of policy. Impediments inherent in the school context may also include inappropriate curriculum, toxic climate, or too many administrative interdictions and disruptions. Respondents moderately disagreed that the content of AP classes is ill-suited to the development of critical thinking. Respondents were neutral in two categories, insufficient materials and/or resources, and too much content. Respondents moderately agreed that school disruptions, too much emphasis on testing, and excessive re-teaching act as impediments to the development of critical thinking in the AP classroom. The frequency distribution for too much time lost to testing was the most acutely non-normal distribution of those reported in this subset. The frequency distribution demonstrates negative skewness of (-.73). (*SE* = .17, *M* = 3.18, Mode = 4). Negative skewness (-.73)/.17 = (-4.29).

Independent sample *t*-tests were run to determine if a statistically significant difference in attitude toward school-based impediments existed between AP liberal arts teachers and AP science teachers. Levene's test for equality of variances was violated for two categories:

insufficient materials or resources, F (178) = .4.70, p = .03, and re-teaching, F(176) = 6.17, p = .01. Results of the independent sample t-tests appear in Table 4.5.

Table 4.5

RQ2.A. 1-6 - Independent samples t-test results for differential attitudes of AP-trained liberal arts or science teachers toward school-based impediments to the development of critical thinking.

School-based impediments to critical thinking	AP LA *M(SD)*	AP SCI *M(SD)*	*t(df)*	*p*	Cohen's *d*
Content ill-suited to CT	1.92 (.78)	2.13(0.86)	-1.70(178)	.09	.38
Insufficient mtls or resources	2.42(0.94)	2.40(0.76)	0.11(178)	.91	.02
School disruptions	3.12(0.79)	3.13(0.86)	-0.06(177)	.96	.01
Too much content	2.76(0.85)	2.82(0.93)	-0.48(178)	.63	.07
Too much test emphasis	3.20(0.89)	3.13(0.86)	0.59(178)	.66	.08
Re-teaching	2.75(0.88)	2.99(0.78)	-1.85(176)	.07	.29

RQ2.B.1-4

The second set of conditions which may impact the development of critical thinking in secondary students were those related not to school conditions, but to factors which emanate from students themselves. AP teachers were asked to indicate their level of agreement that the following student-related factors act as impediments to the development of critical thinking: excessive time demands of extra-curricular activities; frequent discipline-related interruptions; students are poorly prepared for AP coursework; and teachers have too little control of student selection for enrollment in AP classes.

A summary of AP teacher attitudes toward school-related impediments, as expressed on a 4-point Likert scale, is displayed in Table 4.6.

Table 4.6

Research question 2.B.1-4 - Reported means, standard deviations, and 95% confidence intervals for AP teacher attitudes toward student-based impediments to the development of critical thinking

Student-based impediments	*M*	*SD*	95% confidence interval	
			Lower	Upper
Extracurricular demands	2.99	1.07	2.84	3.14
Student discipline disruptions	2.42	1.24	2.25	2.60
Students unprepared for AP	2.97	1.04	2.82	3.11
No control of students assigned to AP	2.73	1.36	2.54	2.92

AP teachers were consistent in their evaluation of student-based impediments to the development of critical thinking. They moderately agreed that all stated student-based factors act as impediments. Independent samples *t*-tests were run to determine if AP teacher training in the liberal arts or sciences affected attitudes towards student-based impediments to critical

thinking. There were no violations of Levene's test for equality of variance. Independent samples t-tests results are reported in Table 4.7.

Table 4.7

Research question 2.B.1-4 - Independent samples t-test results for differential attitudes of AP liberal arts or science trained teachers toward school-based impediments to the development of critical thinking.

School-based impediments to critical thinking	AP LA *M(SD)*	AP SCI *M(SD)*	*t(df)*	*p*	Cohen's *d*
Extracurricular demands	2.95(.76)	2.88(.79)	.87	.51	.09
Discipline	2.24(.95)	2.30(.90)	-1.03	.30	.16
Students unprepared for AP	2.88(.82)	2.93(.88	-.41	.69	.06
No control assignment to AP	2.58(.96)	2.51(.88)	.55	.59	.08

Independent samples *t*-tests revealed no statistically significant differences in the attitudes of AP trained liberal arts, and AP trained science and mathematics teachers regarding student-based factors acting as impediments the development of critical thinking. As with RQ2.B.1-6, AP teachers' attitudes were in accord,

Research question #3

What pedagogical methods do AP teachers use to develop critical thinking? Respondents were asked to indicate the frequency with which they used a variety of pedagogical methods. The options provided were selected to represent common practice, recent trends in pedagogy, instructional modalities which address a wide range of learning styles, and skill levels. Response options were Never = 0, Seldom = 1, Monthly = 2, and Several times per month = 3. Research question #4 was sub-divided into two categories. The intent of the separation into RQ3.A and

RQ3.B was to distinguish between methods used by AP teachers to develop critical thinking, and methods used by AP teachers to assess critical thinking.

A summary of AP teacher practices in developing critical thinking, expressed in percentages, is displayed in Table 4.8.

Table 4.8

Research question 3.A. 1-7 - Reported frequency, expressed in percentages, of instructional practices used by AP teachers to develop critical thinking.

Instructional method	Never	Seldom	Monthly	Several times per month
Debate and/or Socratic chairs	17.8	28.7	35.1	15.8
Direct instruction in critical thinking	9.4	31.3	57.2	2.0
Dramatizations	16.8	50.5	24.3	4.5
Independent study	4.5	18.8	35.6	37.6
Lecture	1.5	15.8	31.2	48.0
Projects	2.5	19.8	44.6	31.2
Research	18.8	51.3	24.3	2.5

Results for RQ3.A indicated that dramatizations and research were the most infrequently employed instructional practices. Dramatization was seldom or never used by 67.3% of respondents, and research was seldom or never used by 70.1% of respondents. Independent sample *t*-tests were run to determine if a statistically significant difference in frequency of use existed between AP liberal arts teachers and AP science teachers. Results of the independent sample *t*-test, with no violations of Levene's test for equality of variances, appear in Table 4.9.

Table 4.9

Research question 3.A. 1-7 - Independent samples t-test results for differential instruction in critical thinking based on AP teacher liberal arts or science training.

Instruction for Critical	AP LA	AP SCI

Thinking	*M(SD)*	*M(SD)*	*t(df)*	*p*	Cohen's *d*
Debate/Socratic Chairs	1.81(0.91)	1.04(0.92)	5.54(177)	<.01*	.84
Direct instruction in CT	2.47(0.70)	2.49(0.65)	-0.20(177)	.84	.03
Dramatizations	1.27(0.76)	1.03(0.71)	2.08(174)	.04*	.33
Independent study	2.15(0.80)	2.04(0.92)	0.83(175)	.41	.13
Lecture	2.12(0.82)	2.61(0.34)	0.08(175)	<.01*	.81
Projects	2.06(0.79)	2.08(0.77)	-0.17(177)	.87	.95
Research	1.28(0.67)	0.87(0.70)	3.90(175)	<.01*	.60

*p** < .05

The second subset of pedagogical practices, RQ3.B.1-7, examined by the survey focused on assessment methods rather than instructional methods. Response options were the same as for RQ3.A: Never = 0, Seldom = 1, Monthly = 2, and Several times per month = 3.

A summary of AP teacher practices in assessing critical thinking, expressed in percentages, is displayed in Table 4.10.

Table 4.10

Research question 3.B. 1-7 - Reported frequency, expressed in percentages, of methods used by AP teachers to assess critical thinking.

Instructional method	Never	Seldom	Monthly	Several times per month
Debate and/or Socratic chairs	28.7	26.7	30.2	10.4
Essay	12.9	19.3	41.6	22.3
Independent presentations	4.0	32.2	42.6	17.8
Lab reports	47.5	23.3	15.3	9.9
Objective tests	3.0	16.3	46.5	31.2
Products	10.9	23.8	43.1	18.8
Research papers	24.3	49.5	22.3	1.0

The vast majority of AP respondents, 77.7%, used objective tests at least monthly to assess critical thinking skills in their students. Almost all teachers used objectives tests, and most respondents used them often. Conversely, despite the fact that 84 respondents classified

themselves as science teachers and another 12 indicated certification in both liberal arts and sciences, lab reports were the most infrequently (70.8% never or seldom) used method of assessment.

Independent samples *t* tests revealed significant differences in the frequency with which liberal arts and science AP teachers used the aforementioned methods of assessing critical thinking. Levene's test for equality of variance was violated for essay ($F = 9.92$, $p = .02$) and lab reports ($F = 5.59$, $p = .02$), but results were sufficiently robust to accommodate the violation. Results are displayed in Table 4.11.

Table 4.11

Research question 3.B. 1-7 - Independent samples t-test results for differential assessment of critical thinking based on AP teacher liberal arts or science training.

Assessment method	AP LA *M(SD)*	AP SCI *M(SD)*	*t(df)*	*p*	Cohen's *d*
Debate/Socratic chairs	1.61(0.93)	0.71(0.85)	6.47(174)	<.01*	.50
Essay	1.99(0.85)	1.53(0.99)	3.21(174)	<.01*	.50
Independent presentations	1.81(0.77)	1.70(0.80)	.89(175)	.37	.14
Lab reports	0.38(0.65)	1.60(1.08)	-8.48(102)	<.01*	1.10
Objective tests	1.83(0.81)	2.49(0.57)	-6.02(176)	<.01*	.94
Products	1.83(0.92)	1.58(0.89)	1.82(175)	.07	.28
Research papers	1.14(0.70)	0.83(0.70)	2.91(175)	<.01*	.44

p < .01*

Results for RQ3.A. 7, research papers as instruction in critical thinking, revealed that 51% of AP teachers used research papers in an instructional capacity. Results for RQ3.B.7, research papers as assessment tools, revealed that 49.5% of AP teachers used research papers in an

assessment capacity. Analysis disclosed a significant correlation between the two uses; $r = .60$, $p < .01$.

Research question #4

How do students manifest 21st century skills in the AP classroom? Twenty-first century skills were divided into two subsets, RQ4.A.1-5, activities designed to operationalize higher order thinking skills (HOTS), and RQ4.B.1-4, activities designed to foster collaboration. The first subset, RQ4.A, sought to determine the frequency of activities which focus on the higher order thinking skills, analysis, synthesis and evaluation. Teachers were asked to report how frequently students in their AP classrooms demonstrated the ability to interpret information and draw conclusions based on thorough analysis of text in authentic scenarios. Response categories were Never = 0, Seldom = 1, Monthly = 2, and, Several times per month = 3. Five specific cross-curricular activities, argument development, data analysis, laboratory experiments, oral presentations, and project-based assignments, were evaluated.

Unlike earlier categories which were primarily school-based, research question #4 was designed to transition to real world skills which college graduates are likely to need in their professional lives. Each of the aforementioned activities calls upon deep content knowledge, is cross-curricular, and operationalizes both critical thinking and a variety of intelligences employed in several communication modalities. A summary of the reported frequency with which AP teachers engaged students in specific higher-order-thinking dependent activities follows. Frequency is reported in percentages in Table 4.12.

Table 4.12

Research question 4.A.1-5 - Reported frequency, in percentages, of AP teacher responses to "How do students manifest 21st century skills in the AP classroom?"

Method of engagement	Never	Seldom	Monthly	Several times per month
Argument development	5.4	20.3	36.6	34.2
Data analysis	9.4	23.3	31.7	32.7
Laboratory experiments	49.0	18.4	13.9	13.9
Oral presentations	6.9	26.2	43.8	19.4
Project-based assignments	4.0	27.7	41.6	21.3

Research question 4.A.2, asked how often students engaged in data analysis. Data here was interpreted in the broadest sense, and included not only numeric reduction of information, but also information acquired from all modalities – observation, text, emotional sensitivity, etc. Problem-based learning (RQ4A.5) was also interpreted in the broadest sense and could include projects as diverse as robotics, Model UN and designing period costumes.

An independent samples *t*-test was run to determine if a significant difference existed between ways students demonstrate 21st century skills in AP liberal arts and AP science classes. Levene's test for equality of variance was violated in two modalities, data analysis and laboratory experiments. Table 4.13 displays test results.

Table 4.13

Research question 4.A.1 = 5 = Independent samples t-test for differential manifestation of critical thinking in the AP classroom based on AP teacher liberal arts or science training.

CT Manifest in the classroom via	AP LA *M(SD)*	AP SCI *M(SD)*	*t(df)*	*p*	Cohen's *d*
Argumentation	2.29(0.77)	1.61(0.90)	5.35(175)	<.01*	.81
Data analysis	1.71(1.03)	2.26(0.76)	(-4.06)(171)	<.01*	.61
Lab experiments	0.32(0.68)	1.84(1.05)	(10.60)(103)	<.01*	1.72
Oral presentations	1.88(0.89)	1.65(0.80)	1.72(174)	.09	.27

Problem based	1.90(0.80)	1.81(0.85)	0.68(171)	.50	.12

$p^* < .01$

The practice of interest in the second sub-set of questions, RQ4.B.1 – 4, was collaboration. How do students manifest the 21st century skill of collaboration (structured) in the AP classroom? Collaboration has taken on an increasingly significant role in modern education with its emphasis coming not only from the Partnership for 21st Century Skills, but also from educational consulting firms including High Schools That Work and America's Choice. Teachers were asked to report how frequently students in their AP classrooms engage in collaboration in a variety of modalities. Response categories were Never = 0, Seldom = 1, Monthly = 2, and, Several times per month = 3. Unlike other research question categories, the majority of responding AP teachers reported using each of the collaboration skills at least monthly or more frequently. Frequency of collaborative activities, reported in percentages, follow in Table 4.14.

Table 4.14

Research question 4.B. 1-4 - Frequency of AP teacher use of collaboration in the classroom.

Collaborative activity	Never	Seldom	Monthly	Several times per month
Independent group roles	3.0	16.3	38.3	40.1
Problem finding	3.0	14.4	31.7	49.0
Cooperative teams	1.5	8.4	27.7	59.9
Presentation with an audience	4.0	17.8	42.1	33.2

All responding AP teachers reported frequent collaboration. The second category in the subset collaboration was student engagement in problem-finding. Problem finding is an essential component of both problem-based learning and research, learning modalities queried in RQ4A.

Both require consistent application of higher-order thinking skills. An independent samples *t*-test was run for the use of collaborative activities. The only category with statistically significant differences was cooperative teams which also violated Levene's test of equality of variance, $F = 27.62$, $p < .01$. AP science teachers used cooperative teams statistically more frequently than did AP liberal arts teachers. Results are displayed in Table 4.15.

Table 4.15

Research question 4.B. 1-4 - Independent samples t-test for differential use of collaborative activities in the AP classroom based on AP teacher liberal arts or science training.

Collaborative activities	AP LA *M(SD)*	AP SCI *M(SD)*	*t(df)*	*p*	Cohen's *d*
Independent group roles	2.29(0.79)	2.07(0.87)	1.73(177)	.08	.26
Problem finding	2.26(0.87)	2.34(0.77)	(-0.62)(177)	.54	.10
Cooperative teams	2.34(0.81)	2.72(0.48)	(-3.58)(175)	< .01*	.57
Presentation to audience	2.12(0.79)	2.04(0.87)	.63(176)	.53	.10

*$p < .01$

Research question #5

How do AP teachers evaluate debate as an option for meeting the needs of gifted students? Like the preceding research questions, the focus of the survey narrowed again in research question #5. Just as classroom dialogue moves from general to specific, and from lower-order thinking skills to higher-order thinking skills, the questions in RQ5 focused respondents' attention on debate, a variable of interest to this study, as an educational option for gifted learners. AP teachers were asked to indicate their level of agreement with a number of statements specifically related to gifted learners, debate, and AP classes. The range for Likert responses was 1 = Strongly disagree, 2 = Disagree, 3 = Agree, and 4 = Strongly agree. A summary of AP teacher attitudes toward is displayed in Table 4.16.

Table 4.16

Research question 5.1-6 - Reported means, standard deviations, and 95% confidence intervals for AP teacher attitudes toward debate as an option for meeting the academic needs of gifted learners.

Meeting needs of gifted learners	*M*	*SD*	95% confidence interval	
			Lower	Upper
AP provides sufficient challenge for gifted learners	3.25	.64	3.16	3.34
Debate is well-suited to meet the needs of gifted students	3.07	.65	2.98	3.16
Special programs should be provided for gifted learners	3.15	.71	3.05	3.25
AP is sufficiently flexible for independent study by gifted learners	2.93	.75	2.83	3.04
Debate offers greater depth and complexity than most classes	2.86	.71	2.76	2.97
Debate's format of evidence-based argument is ideal for the development of critical thinking	3.07	.65	2.98	3.16

Responses to statements in RQ5 showed far less variability than reported for previous research questions. The majority of AP teacher respondents agreed, or strongly agreed, with all items in RQ5. Results also indicated cognitive consistency in responses to RQ1.A.1 and RQ5.1,

Because research question #5 focused on a single construct, it was possible to produce a scale score for the six items, $M = 3.25$. Reliability of the 6 item scale was confirmed by Cronbach's alpha, the coefficient of reliability, $\alpha = .90$, which indicated a high degree of internal consistency. Inspection of the item-total statistics revealed that the removal of no item from the scale would result in a change > .05. Both Varimax and oblique rotation confirmed the presence of a single factor, eigenvalue = 4.01.

An independent samples *t*-test was run to determine if a statistically significant difference existed between the attitudes of AP liberal arts teachers and AP science teachers toward the efficacy of debate in meeting the needs of gifted learners. Levene's test of equality of variance was violated for special programs ($F = 4.27$, $p = .04$) and debate offers greater depth and complexity ($F = 5.94$, $p = .02$). Statistically significant differences existed between AP liberal arts teachers' and AP science teachers' attitudes for three categories: debate well suited for gifted needs; debate offers greater depth and complexity; and debate argument ideal for critical thinking. Results are displayed in table 4.17.

Table 4.17

Research question 5. 1-6 - Independent samples t-test for AP teacher attitudes toward debate as an option for meeting the academic needs of gifted learners

Debate for GT	AP LA *M(SD)*	AP SCI *M(SD)*	*t(df)*	*p*	Cohen's *d*
AP sufficient for GT	3.25(.61)	3.20(.68)	.48(175)	.63	.07
Debate well-suited	3.19(.60)	2.84(.70)	3.57(175)	<.01*	.54
GT needs special programs	3.23(.76)	3.05(.68)	1.54(175)	.12	.24
AP flexible for Independent Study	2.99(.78)	2.81(.73)	1.51(175)	.13	.24
Debate greater depth and complexity	2.95(.68)	2.65(.77)	2.77(173)	<.01*	.41
Debate argument ideal for CT	3.18(.60)	2.88(.66)	3.08(171)	<.01*	.48

*$p < .01$

Research question #6

Does participation in a debate-oriented survey create a positive attitude toward debate for gifted students? An hypothesis of the current study was that participation in a debate-oriented

survey would encourage participants to think of debate as an avenue to meeting the needs of gifted children. Respondents indicated only modest agreement with the statement, "As a result of participating in this survey, I am more likely to recommend debate to my gifted students". The range for Likert responses was 1 = Strongly disagree, 2 = Disagree, 3 = Agree, and 4 = Strongly agree. A summary of teacher responses is displayed in Table 4.18. An independent samples *t*-test revealed no significant difference, $t = .45$, $p = .66$, between the scores of liberal arts-trained AP teachers and science-trained AP teachers.

Table 4.18

Research question 6 - Reported means, standard deviation and 95% confidence interval for AP teacher attitudes toward the impact of participating in a debate-oriented survey.

Effect of participation	*M*	*SD*	95% Confidence Interval	
			Lower	Upper
As a result of participating, I am more likely to recommend debater to my gifted students	2.91	1.49	2.70	3.11

Research question #7

Do AP teachers see debate or an AP class as a more effective method for developing 21st century skills? AP teachers were asked to evaluate the efficacy of a single AP class to a debate class vis a vis eight different variables. It was expected that AP teachers would automatically prefer AP to debate, but it was hoped that participation in the survey would lead respondents to consider the merits of debate in fulfilling some educational goals. The dichotomous response options were coded as follows: AP is more effective = 1, debate is more effective = 2. Frequencies are reported as percentages in Table 4.19

Table 4.19

Research question 7 - Summary of frequency distributions, reported as percentages of AP teacher beliefs regarding the comparative efficacy of a single AP course or a debate course in fulfilling a series of desirable educational outcomes.

Debate better for	*N*	%
Collaboration	187	41.1
Critical thinking	188	28.6
Evaluation and judgment	188	46.2
Interest in attending college	191	8.4
Fostering positive school interest	189	11.6
Oral communications	189	84.1
Self confidence	188	60.1
Synthesis	189	37.6

An independent samples *t*-test was run to determine if a statistically significant difference exists between the attitudes of AP liberal arts teachers and AP science teachers toward the efficacy of debate in a number of desirable educational outcomes. Levene's test of equality of variance was violated for collaboration ($F = 14.06$, $p < .01$), self-confidence, ($F = 6.14$, $p < .01$) and synthesis, $F = 13.88$, $p < .01$). Table 4.20.

Table 4.20

Research question 7 - Independent samples t-test for AP teacher liberal arts and science trained preference for debate or a single AP class in producing a series of desirable educational outcomes.

Outcome	AP LA *M(SD)*	AP SCI *M(SD)*	*t(df)*	*p*	Cohen's *d*
Collaboration	1.48(.50)	1.32(.47)	2.03(167)	.04*	.33
Critical thinking	1.26(.44)	1.30(.46)	(-.61)(168)	.54	.09
Evaluation	1.46(.50)	1.48(.50)	(-.25)(168)	.80	.04
College interest	1.08(.27)	1.09(.29)	(-.37)(170)	.72	.04
School interest	1.27(.45)	1.22(.41)	.85(169)	.40	.12
Oral communications	1.84(.37)	1.88(.33)	(-.73)(169)	.47	.11

Self-confidence	1.65(.48)	1.52(.50)	1.68(168)	.09	.27
Synthesis	1.29(.45)	1.53(.50)	(-3.29)(169)	.01*	.50

Research question #8

Research question #8 asked, "Is there a difference in AP teachers' attitudes toward debate based on area of AP certification, pre148-paration in gifted education (GT), school and community sizes, and availability of special programs (debate and GT) in their schools?" A one-way analysis of variance was conducted to compare the effects of each of the quasi-independent variables on attitudes toward the efficacy of debate in meeting the academic needs of gifted learners. In order to facilitate evaluation, three factors from the teacher attitudes toward debate category were combined to create a single scale score. The three questions were: Debate is well-suited to meet the needs of gifted students; Debate offers greater depth and complexity than most classes; and Debate's format of evidence-based argument is ideal for the development of critical thinking. Cronbach's alpha for the resulting Debate for GT needs scale was ($\alpha = .80$), indicating high reliability.

Assumptions.

Independence of observations was assumed for all groups based on research design. All members of the sample population, AP Summer Institute participants from 2014 and 2015 were queried. Participants completed surveys independently.

The assumption of normality was violated for every group. Participants were not randomly assigned to groups, but were assigned based upon pre-determined independent variables. Report follows: area of AP certification, liberal arts $W(103) = .92$, $p < .01$, sciences $W(65) = .91$, $p < .01$; school size, small $W(27) = .91$, $p < .05$, medium $W(86) = .91$, $p < .01$, and

large $W(55) = .93$, $p < .01$; community size, small $W(36) = .90$, $p < .01$, medium $W(84) = .93$, $p < .01$, large $W(48) = .91$, $p < .01$; special training in gifted education, no $W(77) = .90$, $p < .01$. no $W(91) = .94$, $p < .01$; debate offered in your school, no $W(107) = .93$, $p < .01$, yes $W(61) = .92$, $p < .01$; does your school have a special program for gifted students, no, $W(49) = .92$, $p < .01$, yes, $W(138) = .93$, $p < .01$.

RQ8.1 – area of AP teacher certification. A one-way ANOVA was conducted to determine if teachers' training in AP liberal arts or AP science and mathematics influenced attitudes toward debate as an avenue to meeting the needs of gifted learners. Levene's test for equality of variance was not violated; *Levene*$(1, 170) = 1.08$, $p = .30$. The means of the two groups were as follows: liberal arts, 3.11 ($SD = .52$), and sciences, 2.79 ($SD = .08$). The ANOVA was significant [$F(1, 170)$] = 13.67, $p < .01$. Effect size as measured by omega squared =.08. Therefore, only 8% of the variability of scores was accounted for by teacher area of AP training.

RQ8.2 – preparation in gifted education. A one-way ANOVA was conducted to determine if teacher preparation in gifted education influenced attitudes toward debate as an avenue to meeting the needs of gifted learners. Levene's test for equality of variance was not violated; *Levene* $(1, 186) = .01$, $p = .92$.The means for the two groups were as follows: no training, $M = 2.98$, $SD = .58$; yes, $M = 3.02$, $SD = .55$. The ANOVA was not significant. $F(1, 186) = .26$, $p = .61$. Teacher training in gifted education did not significantly influence attitudes toward debate for gifted learners.

RQ8.3 – School size. A one-way ANOVA was conducted to determine if school size influenced attitudes toward debate as an avenue to meeting the needs of gifted learners. School

size had three levels, small < 350 student, medium 350 – 1,000, and large > 1,000. Levene's test for equality of variance was not violated; *Levene*(2, 185) = .06, *p* = .94. Means and standard deviations for the three groups were: small, *M* = 3.0, *SD* = .55; medium, *M* = 3.03, *SD* = .055; large, *M* = 2.96, *SD* = .57. The ANOVA was not significant. *F*(2, 185) = .28, *p* = .76. Tukey post hoc tests revealed no significant group differences. School size did not significantly influence attitudes toward debate for gifted learners.

RQ8.4 – Community size. A one-way ANOVA was conducted to determine if community size influenced attitudes toward debate as an avenue to meeting the needs of gifted learners. Community size had three levels, rural < 2,500 residents, sub-urban 2,500 – 50,000 residents, and urban > 50,000 residents. Levene's test for equality of variance was not violated; *Levene*(2, 182) = 1.72, *p* = .57. Means and standard deviations for the three groups were as follows: rural, *M* = 2.91, *SD* = .54; sub-urban, *M* = 3.03, *SD* = .62; urban, *M* = 3.01, *SD* = .06. The ANOVA was not significant. *F*(2, 182) = .57, p = .57. Tukey post hoc tests revealed no significant group differences. Community size did not significantly influence attitudes toward debate for gifted learners.

RQ8.5 – Is debate offered in your school? A one-way ANOVA was conducted to determine if the presence or absence of a debate course in the respondents' schools influenced attitudes toward debate as an avenue to meeting the needs of gifted learners. The independent variable had two levels, no, debate is not offered in my school, and yes, debate is offered in my school. Means and standard deviations for the three groups were as follows: no, *M* = 2.97, *SD* = .55; yes, *M* = 3.07, *SD* = .60. The ANOVA was not significant. *F*(1, 185) = 1.34, p = .25. The

presence or absence of a debate course in the respondent's school did not influence attitudes toward debate as an avenue to meeting the needs of gifted learners.

RQ8.6 – Is there a special program for gifted students offered in your school? A one-way ANOVA was conducted to determine if the presence or absence of a special program for gifted learners in the respondents' schools influenced attitudes toward debate as an avenue to meeting the needs of gifted learners. The independent variable had two levels: no, my school has no special program for gifted learners, and yes, my school has a special program for gifted learners. Means and standard deviations for the two groups follow: no, $M = 3.04$, $SD = .45$; yes, $M = 2.99$, $SD = .60$. Levene's test for equality of variance was not violated; $Levene(1, 185) = 2.30$, $p = .61$. The ANOVA was not significant. $F(1, 185) = .26$, $p = .61$. The presence or absence of a special program for gifted students in the respondent's school did not influence attitudes toward debate as an avenue to meeting the needs of gifted learners. Table 4.21 provides a tabular summary of ANOVA results.

Table 4.21

Research question 8 - Summary ANOVA results for the effects of 6 independent variables upon teacher beliefs regarding the comparative efficacy of a single AP course or a debate course in fulfilling a series of desirable educational outcomes.

Quasi Indi Variable	*M*		*SD*	*F*	*p*
Area AP cert	LA	3.11	.52	13.6	< .01
	Sci	2.79	.08	7	
Prep in GT	No	2.98	.58	.26	.61
	Yes	3.02	.55		
School Size	Small	3.0	.55	.28	.76
	Medium	3.03	.55		
	Large	2.96	.57		

Community size	Rural	2.91	.54	.57	.57
	Sub- U	3.03	.62		
	Urban	3.10	.60		
Debate offered	No	2.97	.55	1.34	.25
	Yes	3.06	.60		
Special GT	No	3.04	.60	.26	.61
	Yes	2.99			

CHAPTER 5: DISCUSSION

Introduction

Chapter 5 summarizes the research project and imparts meaning, in terms of the purpose of the study, to data and results reported in Chapter 4. Discussion of the findings interprets results, makes implications, and draws conclusions based upon the review of literature, analysis of the survey results, and links between the two. Subsequently, recommendations for practice are proffered as are suggestions for additional study. Chapter 5 includes (a) summary, (b) quantitative overview, (c) discussion of quantitative findings, (d) implications for practice and for additional research, and (e) conclusions.

Summary of the study

Overview of the problem

The underlying problem which led to the undertaking of the current study is the dearth of options, other than AP, within the standard curriculum for meeting the needs of gifted and advanced secondary students. The central hypothesis of this study is that debate is an avenue to meeting the advanced critical thinking needs of gifted learners while developing the 21st century skills, communication and collaboration simultaneously.

Purpose and research questions

Strategically, the purpose was threefold. The first purpose was to discover AP teachers' (those most likely to have gifted students in class) beliefs and practices vis a vis critical thinking and how they evaluate debate as a method of meeting the needs of advanced learners. To that end, a survey instrument was developed to quantitatively investigate the priorities, beliefs, attitudes and practices of AP teachers on the topics of critical thinking, other 21st century skills,

methods used to facilitate and assess critical thinking, impediments to effective development of critical thinking, and the comparative efficacy of debate vis a vis an individual AP class in meeting the needs of gifted learners. Secondly, analysis examined the effects of a series of independent variables, the presence or absence of debate in the respondent's school, the presence or absence of a special gifted program in the respondent's school, community size, school size, teacher's area of AP training (liberal arts or sciences and mathematics), and finally the presence or absence of special training in gifted education upon teacher's beliefs and practices. The third and final purpose, also addressed quantitatively, was to predict the likelihood of AP teachers recommending debate as a curricular option for their gifted and advanced students. A series of eight research questions emerged.

1. What are the instructional priorities of Advanced Placement teachers?
2. What do AP teachers believe are impediments to developing critical thinking in the AP classroom?
3. What pedagogical methods do AP teachers use to address critical thinking?
4. How do students manifest 21st century skills in the AP classroom?
5. How do AP teachers evaluate debate as an option for gifted students?
6. Does participation in a debate-oriented survey create a positive attitude toward debate?
7. Do Advanced Placement teachers see debate or an AP class as a more effective method for developing 21st century skills?
8. Is there a difference in Advanced Placement (AP) teachers' attitudes toward debate based on area of AP certification, preparation in gifted education (GT), school and community sizes, and availability of special programs (debate and GT) in their schools?

Review of methodology

Research questions were addressed quantitatively by a survey of AP teacher's attitudes. The AP teacher attitudes survey was a partial replication of McKee's 2003 study and an advancement of Profetto-McGrath, Happ, and Thurman's studies into the domain of academically gifted secondary students. Some survey items were taken from each of the four earlier critical thinking studies (Profetto-McGrath, McKee, Happ, Thurman) and additional original questions were added. *Prima facie* validity of the survey was established by two separate peer review groups, one a group of educators both AP trained and certified in gifted education teachers, and the other a group of experienced communication/forensics teachers. Test/retest using a small convenient sample of AP was used to establish reliability.

The survey used a concurrent embedded strategy design in order to collect both quantitative and qualitative information simultaneously. The survey included several item formats: rank/order, Likert, dichotomous, categorical, and embedded open responses. The survey was delivered via Survey Monkey to 1,732 AP-trained teachers, and was completed by 201 (12%) respondents.

AP teacher demographics were used as independent variables and included the following information: school size, community size, area of AP certification (liberal arts or sciences), teacher training in gifted and talented education, special GT program in school, debate present in school. Dependent variables were teachers' goals, perceived impediments to the development of critical thinking, pedagogy for critical thinking, academic needs of gifted learners, attitudes toward the comparative efficacy of AP and debate in meeting the needs of gifted learners, and the likelihood of recommending debate to gifted learners. Statistical analysis included

independent sample *t*-tests, frequency distributions, Pearson's *r*, Cronbach's alpha, and one-way analyses of variance.

Discussion of Findings

Independent variables

Six factors acted as independent variables in the current survey of AP teachers' attitudes. They were school size, community size, area of AP training, and the presence or absence of special programs for gifted students in the respondent's school, special training in gifted education for the respondent, and presence or absence of debate in the respondent's school. Frequencies for the first three independent variables were unremarkable.

School and community size. Findings were unremarkable. Community size paralleled school size. A significant degree of correlation, ($r = .333$, $p < .01$) existed between school and community size.

Area of AP certification. Area of AP certification was also unremarkable. The College Board offers a total of 37 Advanced Placement examinations for consideration for college credit or advanced placement in collegiate coursework. Of the 37 examinations, 26 (70.2%) are in the domain of liberal arts. The remaining 11 (29.7%) are in mathematics and the sciences. Training was similar in the sample population; 53.5% were trained in the liberal arts, 35.6% in mathematics and science, and 5.9% reported being trained in both an AP liberal arts and an AP mathematics and science area.

Special training in gifted education. Participant-reported frequency of special training in gifted education, 55%, was quite remarkable. According to the state Department of Education,

only 1,609 (4%), of the state's 37,162 teachers are certified in gifted and talented education (Williams, personal communication, August 24, 2015). The disconcerting conclusion drawn from survey results was that the majority of respondents were ill-informed on the topic of gifted training. First, respondents were unaware that special training in meeting the needs of gifted learners goes far beyond the requirements for standard teacher certification. Teachers licensed in gifted education must take a minimum of 18 graduate level hours specifically in gifted education, and they must also pass a separate Praxis exam. More importantly, being AP-trained is *not* part of training in gifted education. The failures which contributed to this misconception are spread across the profession. Apparently, university departments of Education are not making collegians aware that gifted students are a subpopulation with distinct needs. District level superintendents and building administrators are not ensuring that the needs of all subpopulations are being met, and equitable funding for gifted education, particularly at the secondary level, is not being provided at the federal, state, or local level. GT directors are not getting the word out to school faculties through professional development, and individual classroom teachers are not keeping abreast of developments and problems within their profession. All of these systemic failures are spawned by the lack of national import allocated to gifted learners.

Debate offered in respondent's school. In assessing the attitudes of AP teachers toward debate, and also in asking if they would recommend debate for their gifted students, it was important to ascertain the percentage of teachers who practiced in schools that offered debate. This study was also a partial replication of McKee's 2003 study which surveyed AP teachers in debate and non-debate schools. As in the preceding category, special training in gifted education, teacher responses were remarkable in their wide departure from expected results.

Thirty-five-and-one-tenth (35.1%) of responding AP teachers reported teaching in schools which offered debate. There are 468 high schools (393 public, 75 private) in the state; 35% = 164 schools. According to the state chair of the National Speech and Debate Association, however, only 26 schools (5%) in the state participate, at any level, in debate events.

Special programs for gifted learners in respondent's school. Finally, 72.8% of respondents reported that special programs for gifted learners were offered at their secondary schools. This figure too is highly questionable. Since less than three cents of every federal $100 spent on pre-collegiate education goes to gifted education (Winner, 1996, para 5), it is highly unlikely that 72.8% of respondents work in schools with special programs for gifted learners other than AP. Unlike the preceding two categories, the presence or absence of debate and special training in gifted education, the researcher was unable to confirm the actual number of special programs in the state for gifted learners. Because AP is considered to be sufficient differentiation for gifted learners, the State Department of Education does not track special programs for gifted students in secondary school.

The disparity between the facts and teachers' beliefs regarding, their own GT training, the presence or absence of debate in their home schools, and the presence or absence of special programs for gifted learners, is alarming at best. The researcher has no explanation for the egregious gap between teachers' perceptions and the facts.

Research question #1

Research question #1 asked, "What are the instructional priorities of Advanced Placement teachers?" The question was sub-divided into two categories, curricular and personal

priorities. Participants were asked to rank/order their priorities. Discussion of findings is presented in order from highest to lowest ranked priority. RQ1.A related to priorities operationalized in the classroom, and thus reflected educational practices. Survey participants ranked their curricular priorities from the most important to the least important as follows: challenge, critical thinking college readiness, AP end-of-course exams, subject content, CCSS, and PARCC exams. The category "challenge" received the greatest proportion of highest curricular priority rankings. The majority (65.4%) of AP respondents ranked challenge as their first or second highest instructional priority. The high priority given to challenge is appropriate both for gifted education and for AP courses. Challenge is also in keeping with several approaches to differentiation including Vzgotsky's Zone of Proximal Development, and N. Robinson and Aldrich's Optimal Match.

The category chosen most frequently as teachers' 2nd highest curricular priority was "critical thinking". The importance of developing critical thinking in their students very closely approximated the importance given to challenge as 61.8% of respondents ranked the development of critical thinking as their first or second highest priority.

Similar results were obtained for RQ1.B which asked AP teachers to rank their personal educational priorities. AP-trained teachers ranked their highest personal educational priorities as follows: critical thinking, communication, college preparation, subject content, career readiness, self-actualization, and standard test preparation. The majority of respondents (69.3%) ranked critical thinking as their highest personal educational priority. AP teachers demonstrated a high level of consistency, $r = .50$, $p < 01$, in the level of commitment devoted to developing critical thinking.

As with challenge, the high priority given to the development of critical thinking is appropriate for both gifted education and AP, however, a caveat for interpreting this finding is advised. The current popularity of critical thinking in the daily lexicon of contemporary education may have influenced teachers' responses.

Mid-range priority was given, in order of descending frequency, to college readiness, AP end-of-course exams, and subject area content. Respondents also gave mid-range personal import (ranked 5th) to career readiness. The attention paid to college readiness over career readiness is appropriate in courses designed specifically for college-bound students, those most likely to be enrolled in AP classes.

Results for AP exams and standardized exams were contradictory in response to RQ1.A, curricular priorities, and RQ1.B, personal educational priorities. Respondents ranked tests 5th and last respectively. The mid-range curricular priority attributed to AP end-of-course exams has *prima facie* validity, but in fact, does not reflect the degree of emphasis placed upon AP test success evident in AP training courses, and the amount of classroom time devoted to test-taking instruction. AP teacher training courses emphasize the importance of the AP end-of-course exams, and spend roughly 25% of instructional time teaching prospective and current AP teachers how to teach to the AP exam format and how to grade open responses in the AP testing format. Training participants are encouraged to use the AP written test grading format, 1 – 9, in assessing student work. Throughout training, participants practice both recognizing and developing strategies which result in higher AP test scores. AP teachers are also encouraged to use old AP open response items for in-class practice. It is therefore counter-intuitive that AP teacher respondents did not attribute great import to AP end-of-course exams.

The low priority indicated by respondents also belies another fact. AP is test-driven, and test results lead to concrete rewards. Universities encourage applicants to pursue the most rigorous curriculum available; that usually means AP. Institutions also expect AP students to pass the exams. AP courses are undertaken with the expectation that students will be rewarded for their extra efforts by receiving college credit, resulting in direct financial savings, or some other concrete validation. Both parents and students are reasonable in their expectation that passing the end-of-course AP exam is a high priority for all AP courses. Teachers who allocate low import to passing AP end-of-course exams are not teaching the course with fidelity to one of the original purposes for the creation of AP.

It is also ironic that AP-trained teachers apparently do not think of AP end-of-course exams as standard tests. In response to RQ1.B, 59.4% ranked standard test preparation as their lowest personal educational priority.

More important and alarming was the relative unimportance allocated to subject area content. The entire education system is predicated upon the assumptions that students will learn science in science classes, literature in literature classes, and history in history classes. Despite the prevalence of these long-standing expectations, AP teachers ranked teaching subject content as their 5th of 7 educational priorities The greatest incongruity between the stated and manifest functions of classroom AP teachers lies in the disparity between teacher ranking of the importance of subject content and actual classroom practices. Although teachers ranked subject content as their 5th instructional priority and 4th personal priority, the vast majority of instructional time in any classroom is, or should be, devoted to subject content.

There are several possible explanations for the disparity between the stated and manifest priorities of classroom teachers. Frist, one possible explanation for the apparent low priority allotted to subject content by AP teachers is that teachers may have been propagandized by the current mantra in education: critical thinking. Just as districts across the country are re-naming schools STEM schools in response to the economic demand for more science, technology, engineering, and mathematics college graduates, AP teacher respondents may have reflexively ranked challenge and critical thinking as their first priorities because they have been awash in professional development focused on critical thinking. It is unfortunate that the current mantra does not include a baseline which notes that students must have a firm grasp of content before any critical thinking can take place.

A second possible explanation is that teachers, as a group, like to have the "right" answer. In the current educational climate, challenge and critical thinking are the "right" answers. Unfortunately, they are superficial answers which demonstrate little understanding of what critical thinking actually consists. Just as many can repeat that the universe was created through a "big bang" without understanding any of the physics involved, so too can teachers respond that challenge and critical thinking are their highest priorities without understanding the cognitive functions underlying critical thinking. While "challenge" is not difficult to create (ask students something they do not know), engaging the elements of critical thinking is more complex because critical thinkers must activate deep understanding of information. The source of the information necessary for higher-order thinking is subject content.

The low priority allocated to subject content is even more alarming when one considers the two final categories, Common Core State Standards and Partnership for Assessment of

Readiness for College and Careers. CCSS and PARCC have become a bane to many teachers and districts, and are as hotly debated as was No Child Left Behind.

PARCC was intended to replace individual state standardized tests with a single test based on the CCSS. Using PARCC, students across the nation would be assessed on the same standard. It became clear to many states, however, that they would not do well on the new test. Test results were also long in coming. So long, that some states opted out of the PARCC testing program before their test results even arrived. The state under study so moved. As of June 30, 2015, only seven states and the District of Columbia remained in the PARCC consortium (Kays, 2015).

Another contradiction is inherent teacher ranking of their curricular and personal educational priorities. AP teachers overwhelmingly ranked CCSS and PARCC as their lowest curricular priorities, yet many districts require the use of standards-based instruction, and the CCSS are those most frequently used. Additionally, most new textbooks are aligned to the CCSS. Hence, despite the low priority AP teachers claimed to attribute to CCSS, the textbooks from which they teach, and the lesson plans which they write and presumably follow, are designed to operationalize the CCSS.

The low curricular and personal importance of standardized test preparation as ranked by AP-trained teachers stands in direct opposition to the priorities of districts across the country. AP end-of-course exams, PARCC, SAT, and ACT exams are standardized tests, all of which are given great import by districts, parents, and some students. Many districts, straining for data-driven-instruction, have increased rather than decreased the number of standardized tests

administered. Despite increasing pressure to accept the reality of increased testing, AP teachers still hold their import in low regard.

Two factors, communications and self-actualization had results which differed from other responses. Communication was reported as ranking 2nd (19.8%) only because there was such a large divide between critical thinking, which was ranked as first or second by 69.3% of respondents, and all other possibilities.

Self-actualization was an "outlier," the most clearly abstract of the functions of education included in the survey. Abraham Maslow defined self-actualization as the quest of reaching your full potential and being connected with the world (Cherry, 2015). It is certainly the goal of education as a whole. Results for self-actualization were very flat indicating that respondents were unclear as to the meaning of the phrase, did not know where to place it on the continuum, or habitually do not think of self-actualization as an educational goal.

Analysis of research question #1 results revealed that considerable conflict exists between teachers stated priorities and practices manifest in the classroom. AP classes are indeed challenging for most enrollees, but critical thinking is not the most important aspect of the typical classroom, AP or otherwise. Content is, and should be, the main event in the typical classroom. Only in a course such as debate is the honing of critical thinking skills habitually manifested, examined by an authentic audience, and then practiced again. Students are taught how to conduct topical research, how to construct arguments, how to use evidence strategically, how to address the stock issues, how to work in collaborative groups, and how to deliver their arguments effectively. Like music or basketball, students are taught the basics, and then practice, practice, practice, incorporating more advanced techniques as rapidly as their ability

and motivation allows. Content is student-selected and secondary to the critical thinking process. Academic debate students are virtually *never* tested on the content. They are judged on their effective application of critical thinking in the format of argument construction.

Research question #2

Research question #2 asked AP teachers to indicate their level of agreement that a list of school and student-based factors act as impediments to developing critical thinking. There were no statistically significant difference in attitudes between AP liberal arts and AP science-trained teachers. Impediments are circumstances or behaviors which negatively impact a teacher's, or the institution's, ability to develop critical thinking in the classroom. In order of agreement, respondents indicated that too much test emphasis, school disruptions, re-teaching, too much content, and insufficient materials or resources all act as impediments to the development of critical thinking. Neither content nor insufficient materials nor resources were perceived as impediments to the development of critical thinking.

AP-trained teachers agreed, or strongly agreed, with the greatest frequency of any survey category, that there is too much testing. Even the current president of the United States (October 24, 2015) expressed the belief that schools are devoting too much time to testing, but the practice continues to expand rather than contract.

According to Hagopian, (2015, October 30), "The average student today is subjected to 112 standardized test between preschool and high school graduation." The current demand for accountability in the form of high-stakes, end-of-course exams has increased testing exponentially. But that number does not accurately reflect the actual amount of instructional time impacted by high-stakes testing. The PARCC test is part of the CCSS model. PARCC tests, like

end-of-course tests before them, are so important for both students and the credibility of districts that students now take tests to prepare for tests. No tests have been removed. Even states which re-thought their decisions to join the partnership and have since withdrawn have simply replaced PARCC with another high-stakes test. Schools still administer standard measures like the Iowa Basic Skills. The expansion of testing has forced some schools to take teachers out of classrooms and assign them part or full time test-coordinator responsibility. Added to the testing crucible is the new demand for data-driven instruction at the classroom level. Many districts now require all teachers to give content pre and posttests frequently each quarter. Additionally, some districts have added school-wide mathematics and reading pre and posttests. All of these tests take time away from classroom instruction. The result is often a rush to "cover" the material without much time left for analysis – the tender of critical thinking. This may be especially true in AP classes where teachers have indicated that they believe there is too much content for the time allotted to teaching and learning, and the teachers have no control over the test content.

School-wide, district-wide and state-wide testing is something which classroom teachers cannot control. No ear is leant to their frustrations. Their students are also in a crucible unrequired by many students. AP students, from no later than their junior years, are taking more tests than their career-bound peers. Most are taking the ACT and/or SAT multiple times; they are taking AP end-of-course exams *in addition* to state-level proficiency exams in algebra I, geometry, biology and language. Many universities require SAT subject tests and once optional writing samples have now become *de rigueur.* It is routine for college-bound students to be enrolled in after-school and summer public and private test-prep classes. Secondary students are

over-whelmed with testing. The loftier the student's collegiate goals, the greater is his testing burden. Students who do not consider the tests "high-stakes" and who do not see their futures as dependent upon test results are merely subjected to multiple tests; college-bound students are enslaved by them.

With almost universal agreement, $p = .96$, school disruptions closely followed excessive testing as the chief impediment to the development of critical thinking. The pendulum may swing to reduce standardized testing, but the exigencies which continuously interrupt classroom activities are not likely to be reduced. The ever-blaring intercom, ringing phone, district-mandated testing, assemblies, field trips, student-group meeting, fire drills, etc. all act to undermine the academic environment required for teaching. Teachers' inability to stem the tide of interruptions exacerbates their frustration, but most school-based disruptions are simply the nature of the beast.

Teacher responses for school disruptions and too much test emphasis acting as impediments to the development of critical thinking indicated very strong feeling in the AP-trained teacher population. Although teacher complaints about school disruptions have been a long-playing record, the chorus of protest about excessive testing began with NCLB and became a cacophonous wail when compounded by demands for accountability and data-driven instruction.

AP teachers agreed that excessive time devoted to re-teaching unprepared or ill-prepared students acts as an impediment to developing critical thinking. Excessive time spent re-teaching was unique to the set of questions. It was a condition unrelated to content, pace, testing, or routine disruptions. Instead, it addressed the daily problem of time taken away from making

progress through the curriculum by having to re-teach content which the students should have had before they arrived in the AP classroom. In the context of this survey, re-teaching was classified as a school-based problem because districts are under pressure to demonstrate equity in class assignments, and are evaluated based on AP registration. The result has been that guidance departments frequently register unprepared students in advanced courses. The fact that 67% of respondents agreed or strongly agreed that time lost to re-teaching was a school-based impediment to developing critical thinking confirmed that the problem was not only significant in the minds of practicing professionals, but also placed blame on the school rather than the students themselves. Only 5.4% of respondents strongly disagreed that re-teaching acts as a school-based impediment to developing critical thinking.

Of particular interest to the current study was AP teachers' responses to the matter of too much content. Two-thirds (65.8%) of respondents agreed or strongly agreed that AP classes required too much content. This was an important area of concern because, "many of the courses, particularly in the sciences and history, have also been criticized for overwhelming students with facts to memorize and then rushing through important topics" (Drew, 2011, January 7). In the quest for rigor, depth is sometimes sacrificed in order to gain breadth. Only 5.5% of respondents strongly disagreed with the statement that the amount of content to be covered in an AP class precluded the opportunity to develop critical thinking.

It is a distinct possibility that the problem is not with the curriculum, but with the participants. The pace of any class is slowed by unprepared students, and the result is a rush to "cover" the curriculum. Reduced pace and sacrifice of depth are particularly relevant to

academically gifted students. Heeding both teachers' quantitative and open responses, there can be little doubt that there are too many unprepared students enrolled in AP.

AP-trained respondents indicated that all student based options, extracurricular demands, unprepared students, lack of teacher control of student assignment and discipline issues acted as impediments to the development of critical thinking. "Extra-curricular activities" is an inclusive term which casts a wide net for any activities which occur outside the context of the classroom environment. The time demands of school-related extra-curricular activities are familiar to anyone who has been on a high school campus after 3:30. Football, cheerleading, band, play, choir, and even debate practices extend far beyond the normal school day. Game and tournament days require additional travel and competition time. Many schools require volunteer hours in community support activities. Throngs of students enroll in ACT and SAT prep classes which require both considerable time and expense. Non-school related extra-curricular activities include dance, music, tennis, tae kwon do, scouting, and the like. Additionally, many students are active in their church communities. Others have part-time jobs or after-school child-care responsibilities. Finally, students devote time to household chores, their social lives, and recreation. It was not surprising, therefore, that the majority of Advanced Placement teachers (70.8%) believed that time consumed by extra-curricular activities acted as an impediment to the development of critical thinking. Like school-based impediments to the development of critical thinking, student-based impediments are also beyond teacher control. Teachers must also accept the fact that like school-based interruptions, extra-curricular activities are also the nature of the beast. It would be both unreasonable and unhealthy for teachers, administrators and/or parents to expect school to be the only concern of adolescents.

The perception that AP classes are burdened by too many unprepared students was strong and consistent throughout the survey. Sixty-nine and two-tenths percent of respondents agreed under-prepared students posed an impediment to the development of critical thinking. That sentiment was also oft-repeated in open response segment of the survey. RQ2.B.3 was significantly correlated ($r = .46$, $p <. 01$) to RQ2A.6, too-much time is spent re-teaching. The correlation confirms that AP teacher dissatisfaction with inappropriately assigned or prepared students is both high and wide-spread. AP-trained teachers also agreed that their lack of control regarding registration of students in AP acts as an impediment to developing critical thinking. Registration practices are an area in which classroom teachers have little control. Correlation with RQ2.B.3 was high, $r = .511$, $p < .01$. Coupled with a packed syllabus and pressure to perform adequately on the AP end-of-course exam, many AP teachers many feel squeezed between the burden of unprepared students and the press of high-stakes exams.

The high percentage of AP teachers who bemoan the effects of having ill-prepared students enrolled it their classes also exposes the dilemma of the gifted student. Once again, he must slow to the pace of less able students unless his teacher or school is willing to differentiate the curriculum or provide special programs for gifted learners. Such is not usually the case because State Departments of Education consider AP sufficient differentiation for gifted learners and do not require any additional modifications. Academic debate circumvents the problem of multiple learning and motivation levels in the classroom because students self-select rigor, pace, depth, and level of engagement.

Student discipline issues are germane to the current study because the exercise of critical thinking requires reflection, an intellectual process difficult to continue in the face of constant

disruptions. Every moment devoted to activities as diverse as collecting tardy slips to breaking up fights consumes instructional time and learning time.

For over 20 years, Gallup's measure of attitudes toward public school "has identified 'lack of discipline' as the most serious problem facing the nation's educational system" (Cotton, 1988, p. 2). *Teaching Interrupted,* a 2004 study of teacher attitudes (p. 43) reported that 97% of teacher participants indicated that good student discipline and behavior are one of the most important prerequisites to having a successful school. Of the 725 teachers who participated in the study, 30% indicated that discipline was one of their "top problems" while 20% ranked discipline and behaviors among their least important concerns. Results of the current study paralleled national results: 38.3% of participating AP teachers agreed or strongly agreed that disciplinary issues acted as impediments to the development of critical thinking, while 19.9% strongly disagreed that frequent discipline issues acted as an impediment to critical thinking.

Although there was some level of agreement that student discipline issues acted as impediments to critical thinking, it was the least problematic category for AP teacher participants. Since students elect to enroll in AP classes rather than be assigned to them, and because AP students tend to be more academically motivated than the general student population, student discipline should not be a major factor. The assumption was confirmed by teacher responses.

Table 5.1, a list of teacher comments, exposes AP classroom teachers' high levels of frustration with the large number of unprepared students who are assigned to their AP classes.

Table 5.1

AP teacher open responses on issues which impede the development of critical thinking in the AP classroom.

No filter to placement in AP classes

Teaching AP skills is like starting over Improper AP Placemen2

Improper AP Placement

Pre-planning time spent documenting how/why you will teach your course.

Most students today will not read outside the classroom.

Science background is weak in knowledge and understanding.

Students come unprepared academically and face shock when AP demands are placed in front of them.

Each student has a unique situation as a home life. Teacher must have empathy and a concerned heart to be most successful in today's classroom.

Lack of preparation in lower grades

Pre-AP teacher not AP

No excuses in life.

I think there should be student choice in enrolling for AP classes- some schools are missing out on competent AP students because they are "weeded out" before getting to prove their skills and talent.

Open enrollment often means that classes have many students not invested.

Student absences

Culture which encourages "bottom line", i.e. just turn something in; critical thinking is alien to this part of the state

Central office incompetence at most schools

Lack of student motivation

Too many put in AP that are not ready

Success based on ENROLLMENT. Think about that for a moment.

Poor student motivation, poor previous academic expectations and poor parental academic preparation

Not enough true AP students in AP classes

Once again no excuses.

No art program to speak of

Who is watching the AP exam pass rate?

District and state level administrators need to be aware that teachers are not blind to the political forces which are driving the push to expand AP reenrollments. The attempt to "look good" on school report cards comes at a cost – teacher dissatisfaction. The level of teacher frustration with poorly prepared students is palpable. Twelve of the twenty-four comments, 50%, directly cited under-prepared students in AP classes. The practice of enrolling under-prepared students in Advanced Placement classes does not improve a school; it just waters down the level of rigor in the classroom. The practice simultaneously exacerbates the problems of gifted and advanced learners who once again must wait for their less academically inclined peers to catch on. It is easy to determine if a particular school's AP enrollment practices were deceptive. If AP enrollment increased and the percent of students passing the AP end-of-course exams declined, the school debased its Advanced Placement program. If enrollment increased and the percentage of students passing the AP end-of-course exams remained constant or

increased, the school was wise in its decision to expand enrollment. A reported by Malkus (2016), over 2,000 schools, mostly rural and high-poverty, who have struggled with AP, have dropped their AP offerings. Academic debate may be an excellent avenue for meeting the needs of gifted learners, as well as a variety of online acceleration options.

Research question #3

Research question #3 asked AP-trained teachers what methods and/or instructional and assessment practices they used to address critical thinking in their classrooms. Teachers reported using the following instructional practices, from most frequently to least frequently used: lecture, projects, independent study, direct instruction in critical thinking, debate and/or Socratic chairs, dramatizations, and research papers to develop critical thinking. Liberal arts-trained AP teachers used debate/Socratic chairs, dramatizations and research papers at statistically more frequent levels than did AP science-trained teachers. Conversely, AP science-trained teachers used lecture statistically more frequently than did AP liberal arts-trained teachers. .

Lecture is the most commonly used instructional format and is used in some measure across all disciplines, but was used with statistically greater frequency by AP science-trained teachers. The researcher has no data to explain the reason for such a large difference in the use of lecture. One can speculate that liberal arts teachers have been more effective in moving from the lecture-based classrooms to ones that employ groups and alternative instructional practices more widely than have AP science teachers. A reasonable explanation for the difference is that AP mathematics classes fall into the sciences. Many mathematics classes do not lend themselves to a non-lecture format as easily as many AP liberal arts classes do. Mathematics are sequential in nature, and students cannot succeed in upcoming segments without mastering prior content.

Such a circumstance usually means that the most capable person in the room, hopefully the teacher, must lead instruction rather than having heterogeneous groups "discovering" the content for themselves. In such high-stakes circumstances, educators are hesitant to stray from traditional strategies.

Lecture is used in academic debate classes only in the early stages as students learn the stock issues, debate formats, how to make cut cards, citation style, claims and warrants, etc. Once students learn the basic elements of a debate, they spend the remainder of their time honing their skills, conducting practice rounds, critiquing each other's arguments, etc. Lecture is virtually absent from upper level debate classes. A well-functioning debate class is characterized by a high level of student-directed activity.

AP teachers also self-reported being frequent uses of project-based learning. PBL is popular in contemporary classrooms because projects can provide opportunities for creativity, call upon non-verbal intelligences, allow for some kinesthetic activity, offer multiple opportunities for differentiation, are collaborative, activate higher-order thinking, and provide students with an alternative way to demonstrate knowledge. Projects cause less long-term disruption than do dramatizations, especially if the projects are made outside of class. Projects are also adaptable to more subject areas than are dramatizations, but also slow the pace of instruction. Both methods also provide for presentation in front of an audience. It was, therefore, not surprising that 76.1% of AP teacher respondents reported using projects as a method of developing critical thinking at least once or more frequently each month, and only *2.5*% did not use projects as an instructional method.

A clear majority of AP teachers, 72.3%, also reported using independent study at least monthly or several times per month, and only 4.5% indicated that they do not use independent study. Results were in keeping with NAGC guidelines for gifted learners. True independent study is a highly recommended form of differentiation for gifted students who are able to move through the curriculum more rapidly than their peers. Independent study should also allow for self-selection, an important factor in gifted education. Independent study is the primary mode of knowledge acquisition in academic debate. All students work independently or in cooperative groups as they search for evidence to support their arguments.

RQ3.A.2 sought to determine the frequency of direct instruction in critical thinking in the AP classroom. The ability to think critically is essential to survival, therefore, it is one of the highest goals of education. Critical thinking skills are necessary not only for the survival of the individual, they are necessary for the survival of the race as a whole. Children are taught critical thinking from the earliest age, and should continue to expand their skills as they mature. The import of developing critical thinking skills cannot be underestimated.

Results were very encouraging for all stakeholders. No AP teacher respondents reported never providing direct instruction in critical thinking, and only 9.5% reported only seldomly providing instruction. The largest response category, 57.2%, reported giving direct instruction in critical thinking several times per month. AP teachers 100% response rate for direct instruction in critical thinking indicated that educators, districts, policy-makes, and the public at large, are of one mind in assessing the importance of critical thinking.

Data also provided evidence that there was consistency between the stated and manifest principles and practices of AP teachers regarding critical thinking. Results obtained for RQ1.B,

which asked AP teachers to rank their personal educational priorities, indicated that the majority of respondents (69.3%) ranked critical thinking as their highest personal educational priority, and 59.2% provided direct instruction in critical thinking at least monthly.

Academic debate teachers provide continual direct instruction in critical thinking by coaching through Paul and Elder's (Figure 2.5) elements of thought, all of which must be addressed in argument construction. Debate continuously pushes participants to evaluate (Bloom's higher- level) the reliability of their sources, argument arrangements and impacts, as well as vulnerability to attacks. Debate preparation provides daily critical thinking practice.

Surprisingly, 50.9% of respondents reported using debate or Socratic chairs as a method for developing critical thinking and increasing depth at least monthly. Though both are ancient techniques, Socratic chairs has lately undergone a resurgence in popularity as a method of developing critical thinking. A contributor to the rising popularity to the two related methods is increased demand for the 21st century skills. Many districts now require teachers to employ Socratic chairs. Science teachers used debate and Socratic chairs at a statistically significant lower frequency than did liberal arts teachers. Cohen's $d = .84$ indicated that there was a large difference between the means in standard deviation units for AP liberal arts and AP science teachers. Results were not surprising in that science and mathematics are heavily dependent upon facts which are not debatable while works of art, literature, and human events are more open to multiple interpretations. Academic debate teachers make frequent use of Socratic chair's group format for early debate training.

Results for RQ3.A.3 – how frequently do you use dramatization to develop critical thinking? - were markedly different than those for direct instruction in critical thinking.

Dramatization operates at the highest levels of Bloom's taxonomy, and accommodates both Gardner's theory of multiple intelligences and a variety of learning styles. Dramatization is a popular method of developing critical thinking because it requires multi-sensory input from a number of students, is collaborative, and adds the element of kinesthetics to the usual classroom mix of skills. Dramatizations allow for creative input from a large number of participants and also develops both social and leadership skills. They also accommodate some of the less academic talents of students, and are thereby inclusive and provide multiple opportunities for both success and differentiation. Dramatizations also appeal to proponents of 21st century skills because they rely on oral communication skills and are presented to an audience. That being said, the low overall response rates for its use are reasonable. Sixteen and eight-tenths (16.8%) of respondents reported that they never use dramatizations, and only 4.5% use them often. Differential use of dramatizations between AP liberal arts and AP science teachers was also intuitive. Liberal arts teachers employ dramatizations at a statistically more frequent rate, $p < .05$. Cohen's d was also small, (d = .33), a reasonable finding considering that neither independent group used dramatizations frequently.

Despite their many assets, dramatizations are cumbersome, time-consuming, do not lend themselves equally well to all disciplines, and frequently create a new set of discipline issues. Other factors which limit the use of dramatization in the AP classroom are it cannot move quickly through content, and does little to increase positive student outcomes on the end-of-course AP exams. Conversely, academic debate classes continuously engage in "mini" dramatizations.

The final instructional method evaluated for teaching critical thinking in the AP classroom was research papers. Like dramatization, research papers are quite time-consuming, (only 26.8% reported requiring research papers frequently) and therefore, it was not expected that teachers would require research papers several times per month or even monthly. It is, however, reasonable that students work on a research over a period of several weeks, so writing a single research paper requires sufficient class time as to be considered "frequent". Much of the writing may be completed out of class, so instructional pace should not be slowed. While providing depth, research papers have certain limitations in their ability to accommodate anything other than text-based learning styles. Multiple intelligences and a wide variety of learning styles are not well-served by research papers either. Nonetheless, research papers are appropriate for gifted and advanced learners. All levels of Bloom's taxonomy are activated when producing a research paper, particularly synthesis. It was, therefore, alarming that 70.1% of AP-trained survey respondents seldom or never used research papers. Although there was a statistically significant difference in the frequency of use for AP liberal arts and AP science ($p < .01$), neither group lived up to expectations.

The infrequent use of research papers was a grave finding. Universities expect students to have research writing experience, particularly those who have been engaged in the AP curriculum. Failure to require research papers is a transgression against fidelity to Advanced Placement as a curriculum which purports to offer college level rigor. Despite the many drawbacks to research papers in high school, they are the *sin qua non* of all AP Literature, Language, social science, and science courses. Research papers are the tender of the collegiate

liberal arts curriculum. The AP student who arrives at college without having learned how to write a research paper will be at a severe disadvantage.

Research question #3's second subset of survey items asked AP teachers how frequently they used a variety of methods for assessing critical thinking. Responses, in order of frequency were objective tests, independent presentations, essays, products, debate/Socratic chairs, laboratory reports, and research papers.

Results for RQ3.B.5 indicated that the vast majority of AP-trained respondents, 77.7%, used objective tests at least monthly to assess critical thinking skills in their students. This is not a surprising statistics as objective tests are the most common assessment format in school, particularly at the secondary level. AP science teachers assess critical thinking with objective tests at a statistically greater frequency ($p <. 01$) than do AP liberal arts teachers. Cohen's d = .94 was quite large indicating a large difference in standard deviation units. One possible explanation for the differential use of objective tests between AP-trained liberal arts and AP science teachers is that more assessment methods are easily applied in the liberal arts than are available to the sciences.

When considering the preponderance of objective testing in the AP classroom, one should bear in mind that both the SAT and the ACT, admissions tests taken by college-bound students, are primarily objective, as are most AP and state end-of-course exams. AP teachers were not under-preparing their students for tests-to-come by relying on objective tests to measure critical thinking skills. Unfortunately, many objective tests, both teacher-made and prepared tests, tend to focus on thinking at the lower end of Bloom's taxonomy, particularly knowledge

and comprehension. It is hoped that AP-trained teachers have also received training in devising tests which operationalize all levels of Bloom's taxonomy.

The ability to make independent presentations (RQ3.B.3) is a 21st century skill, communication. Expression in a variety of modalities is also an important component of critical thinking. Practice in making independent presentations builds self-confidence and leadership skills while simultaneously providing students with an alternative to paper and pencil assessment. As in debate, independent presentations in AP classrooms give students experiences with authentic audiences. Public presentations also teach students to think rapidly on their feet, to be able to make quick analyses of new input, and to use a variety of scenarios to explain content and answer questions on their topics. Only 4% of respondents indicated that they never used this important assessment method; 60.4% indicated that they use independent presentations frequently. There was no significant difference in the frequency with which AP liberal arts and AP science teachers used independent presentations. The result bode well for diversification of instructional and assessment practices in the sciences.

Essays, the third most frequently used assessment method, are frequently used in conjunction with other testing methods. AP-trained liberal arts teachers used essays to assess learning statistically more frequently ($p <. 01$) than did AP-trained science teachers. This was a reasonable finding, for language, literature, and social science teachers are more likely to use essays than are physics and chemistry teachers.

Many districts require the development of portfolios of student writing. The use of essays has certain advantages over longer, outside of class assignments. Teachers can be relatively certain that the work they receive is the student's own, and teachers can address

writing skills. Essays are time consuming, and are not easily adaptable to multiple intelligences and/or divergent learning styles. Competent essay writing, however, is essential for collegiate success.

Products can be used as both an instructional method and as an assessment tool. Product design and construction incorporates a variety of skills and represents a significant expenditure of both instructional and student time. Distributions of responses to product use as an instructional method and product use as an assessment tool were similar. For example 75.8% of responding AP teachers reported using projects monthly or more often to develop critical thinking, and 61.9% reported using products monthly or more often as assessment tools. Results from analysis revealed a significant correlation between the two uses; $r = .52$, $p < .01$. An important drawback to products is that the best products are most frequently produced by students with the most money to devote to materials, and with the parents most inclined to "help" construct student projects.

Products are rarely, if ever, used in a debate class. Visual aids are not permitted in debate tournaments, so they are irrelevant in a debate class. In this manner, AP courses which require the frequent production of products are superior to debate classes.

A surprising 40.6% of responding AP teachers reported using debate or Socratic chairs to assess critical thinking at least monthly. Results were surprising because debates can be time-consuming for whole-class assessment. Socratic chairs involve more students simultaneously, but may still pose assessment problems.

There was a statistically significant difference in the frequency with which AP liberal arts teachers and AP science teachers ($p <. 01$) used debates and Socratic chairs. As with debate's use

as an instructional method, results were not surprising in that science is heavily dependent upon facts which are not debatable while works of art, literature, and human events are more open to multiple interpretations. Results were encouraging; many AP teachers recognize the efficacy of debate and Socratic chairs in developing and assessing critical thinking.

Results for teacher-reported use of laboratory reports were surprising and disappointing in that higher use of lab reports for the purpose of assessment by AP science teachers was expected. The preponderance of AP teachers, 47.5%, never use laboratory reports for assessing critical thinking. In a population heavily laden with liberal arts respondents, such results would not be surprising. Thirty-five and six-tenths (35.6%) of participants in the current study, however, self-reported being trained in AP science and another 5.9% reported being trained in both AP liberal arts and AP sciences with a resultant 41.5% science-trained sample. Only 9.9% of responding AP teachers reported using laboratory reports several times per month. As one would expect, there was a statistically significant difference ($p <. 01$) in the frequency with which AP liberal arts and science teachers use of laboratory reports. Cohen's $d = 1.10$, revealed a very large difference in standard deviations units. It can be assumed that most AP liberal arts teachers had few laboratory experiment upon which to report.

Such a low percentage of science teachers reporting frequent use of laboratory reports was unfortunate for many reasons. Like debate in the liberal arts curriculum, laboratory experiments and reports are ideal developers of critical thinking in the sciences. Writing a laboratory report engages the higher levels of Bloom's taxonomy, particularly analysis and syntheses. The process can provide appropriate depth, complexity, and independence to gifted learners. The process can also move gifted learners to their zone of proximal development.

Some additional advantages of experimentation are: discovery learning is highly effective; lab experiments incorporate many modalities of learning and accommodate many learning styles; and laboratory experiments are multi-sensory. The most important facet of laboratory experiment, however, is direct, real-world experience. No amount of text adequately describes dropping a sliver of lithium into a beaker of water, and no number of diagrams can suffice for actually cutting in to your first frog. Moreover, a vital 21st century skill is communicating laboratory finding to others in both written and oral reports. A laboratory experiment without a lab report is not, in effect, a complete thought.

The most disappointing result was AP teachers' infrequent use of research papers. The majority of AP teachers, 73.7%, reported using research papers only infrequently. Infrequent use of pedagogy which supplies depth, breadth, complexity, and engages higher-order thinking skills is unfortunate. Debate students engage in every facet of the research paper process. The only difference is that debaters are graded on the oral rather than written presentation of their research.

There is a great deal of similarity between independent study and the production of a research paper. In fact, the research paper is often the culmination of independent study. That condition prompted the researcher to examine the relationship between AP teachers' reporting the use of independent study and those reporting the use of research papers. Recall that the majority of teachers reported using independent study, but research papers were the method used least frequently for both instruction and assessment. As suspected, results were contradictory. Figure 5.1 graphically illustrates the contradiction.

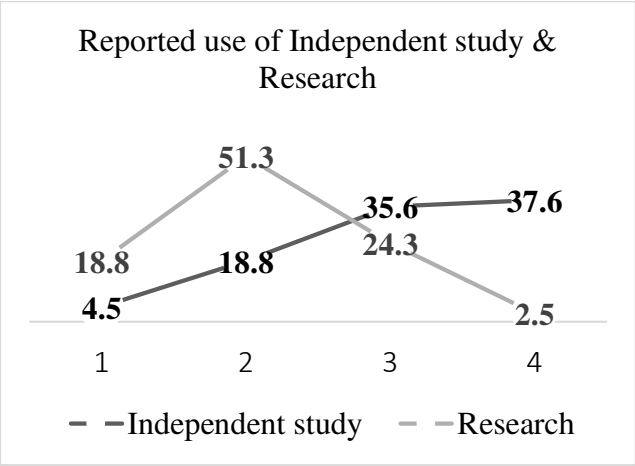


Figure 5.1. Contradictory results for independent study and research

These contradictory results prompt at least two important questions. First, what constitutes "independent study" in an AP class? Is it highly independent, in-depth inquiry into topics of learners' choosing, or is it all students working independently at their desks completing the same work? Secondly, if students were not reporting the results of their independent study in research papers, how were they demonstrating their command of knowledge gained?

Research question #4 also provided respondents with the opportunity to submit open-ended responses the question, "What methods do AP teachers use to address critical thinking in their classrooms?" Table 5.2 provides a list of open responses.

Table 5.2

AP teacher open responses to methods of addressing critical thinking

Cooperative learning groups.
I just don't know how to do all of these.
I teach Studio Art so there are no "tests", just portfolios.

Cooperative learning, peer instruction, presentations

Writing one's explanation and then explaining it!

Whole class is doing Art portfolio

I use lecture, but not in the sense there isn't any discussion. I lay out the information and we have discussion or arguments as a group whole. Socratic seminars would take too much time.

Peer tutoring

Online-blended instruction

Computer base learning should be added to the list for consideration.

Student led learning with outline of expectations

Teacher responses were both gratifying and elucidating. Teachers across the state are creative in their pedagogic approaches. Of particular interest to the researcher was student-lead learning with outline of expectations. Also, respondents were correct in suggesting that blended and completely computer-based instruction (sometimes a form of independent study) should have been included as response options.

Responses also reminded the researcher that definitions within the field of Education are not standardized. For example, the researcher conceives of cooperative learning as a grouping strategy rather than as an instructional method. If the assignment is, “Dramatize the Indian Removal Act of 1830”, whether students each write their own scripts, work in pairs, or in cooperative groups, the pedagogic method for developing critical thinking is the same, dramatize.

Another example of semantic variance resulting in confusion was omputer-based and blended learning formats evoking a dual response. On the one hand, computer-based and blended learning formats may be conceived as vehicles of delivery, not the stimulus which is to activate critical thinking. Whether in the classroom, or in a computer lab, or at home, the research paper activates critical thinking. Seen from another perspective, computer-based and blended learning can indeed be appropriate for gifted learners if it allows acceleration and avenues to greater depth and complexity.

One method mentioned as a way of providing instruction in critical thinking rankled the researcher: peer tutoring. Many advocates for meeting the academic needs of gifted and talented learners find peer tutoring a giant step away from providing the depth, breadth, and complexity appropriate for gifted learners. Instead of being able to move forward through the curriculum, much of which they already know, bright students are stripped of their learning opportunities, and are shackled to the pace of the weakest students, those who they are trying to remediate. Providing remediation is not the responsibility, obligation, or optimal use of gifted learners' academic time. "The best way to learn something is to teach it", is an old saw used to justify a practice born of desperation; teachers do not have the time to provided one-on-one remediation to lagging students, so they commandeer able students to the task. Peer tutoring is an appropriate after-school volunteer activity for bright students who are so inclined; it is completely inappropriate when it is just another version of sit around and wait.

Teacher open responses also revealed a flaw in the current survey. Classroom discussion is definitely a time-honored way of drawing students into critical thinking. Discussion should

have been included as a method of developing critical thinking. It is also assumed that discussion is common practice in all classrooms.

Research question #4

Research question #4 shifted focus from teacher behaviors to student behaviors: how do students manifest real world skills which college graduates are likely to need in their professional lives student? RQ4.A.1-5 enumerated activities designed to operationalize higher-order thinking skills (HOTS) analysis, synthesis and evaluation with communication as the end goal. Communication skills were operationalized via argument development, data analysis, oral presentations, project-based assignments, and laboratory experiments. Survey results indicated that AP teachers provided instruction with great intentionality. They used a variety of real-world modalities in their classrooms with admirable frequency. More than 65% of respondents reported frequent student engagement in every category except laboratory experiments. One-hundred percent of debate students engage in argument development, data analysis, oral presentations and project-based assignments. Laboratory experiments are not conducted in debate class.

AP survey participants demonstrated a high degree of consistency between stated and manifest functions; 68.3% of AP teachers ranked critical thinking as their highest or second highest educational priority (RQ1.B.5), and 70.8% reported frequent student engagement in argument development. Liberal arts AP teachers use argument construction with statistically greater frequency than do AP science teachers and AP science teachers use data analysis and laboratory experiment with statistically greater frequency than do AP liberal arts teachers ($p <$ .01).

According to Scott (1994) , "it is crucial for the successful university-level student to understand and master the principles, indeed the concepts that drive the critical thinking skills associated with argumentative writing… a 'reasoned attempt,' that is, an effort based on careful thinking and planning where the appeal is to the mind, the intellect of the audience at hand" (p.1). Argument construction is the planned arrangement of evidence and its practiced presentation, be the mode of expression oral or written. Argument construction encompasses all levels of Bloom's taxonomy. Effective argument construction requires a deep understanding of the both the facts and the implications of issues at hand, the ability to examine an issue from multiple perspectives, and the ability to predict and prepare for attacks on one's positions. Facione (2013) asserted that argument construction is the quintessential critical thinking exercise.

Critical thinkers must be able to comprehend, interpret, and express the meaning and/or significance of data. Data here were interpreted in the broadest sense, and included not only numeric reduction of information, but also information acquired from all modalities – observation, text, emotional sensitivity, etc. Thinkers must be able to identify the intended and actual inferential relationships among statements, questions, concepts and descriptions. Data analysis is required in all aspects of adult life; choosing amongst political candidates, career choices, family finances, and the pursuit of a healthy life style

As was previously discussed in the category of independent presentations (RQ3.B.3) as a method of assessing critical thinking, communication in a variety of modalities is a vital 21st century skill. Oral presentations are not only a primary communication mode, but they can also serve as accommodation for a variety of learning styles, learning disabilities, and multiple

intelligences. Oral presentations also provide students with the opportunity to engage with authentic audiences. Forty-two percent (42%) of AP teacher-respondents reported using oral presentations for assessment; 62.9% reported using them for activation of higher-order and critical-thinking skills.

Evaluation of the preceding data led to an uncomfortable conclusion. One-third of AP teachers are not providing their students with sufficient practice in developing the communication skills necessary for successful participation in the 21st century. While there are a number of ways critical thinking can be developed, there is only one way to develop oral presentation skills – making oral presentations. AP teachers across the curricular spectrum must embrace the importance of 21st century skills and devote class time to developing all four skills.

Like its predecessors in this category, project-based assignments are designed to provide students with practice in real-life scenarios. Problem-based learning is adaptable across the curriculum and can be tailored to anything from debate to Model UN, to robotics, or to designing period costumes for a school play. Despite its obvious advantages, problem-based learning has its drawbacks. In a packed curriculum like the typical AP course, there is not sufficient time for students to "discover" all of the required content. Nonetheless, 62.9% of responding AP teachers reported using problem-based learning once or more a month.

As discussed in RQ3.B.4, laboratory experiments and reports were not the norm in AP classrooms; 49% of AP teachers never used laboratory experiments. Laboratory experiments, however, are not entirely absent for AP classrooms; 27.8% of respondents, predominantly AP science teachers, conducted laboratory experiments once or more often each month. Cohen's d = 1.72 indicated very large difference between the means in standard deviation units for AP liberal

arts and AP science teachers. The comments section of the survey provided no indication of what laboratory experiments and accompanying reports AP liberal arts students were conducting and producing.

Analysis of survey results indicated that AP-trained teachers were models of pedagogic excellence. With the exception of oral presentations, they used an impressive array of instructional formats to optimize communication opportunities in their classrooms. Policy makers and stake-holders should be assured that AP teachers are committed to providing students with the 21st century skills which they will need to compete in the new millennium.

The second subset of survey items designed to discover how students manifest 21st century skills asked teachers how frequently they used four collaborative methods, independent group roles, problem finding, cooperative teams, and presentations to an audience. Over 75% of respondents reported using all four methods frequently or very frequently. Over 80% of responding AP teachers reported that students collaborate in cooperative teams, collaborative groups with independent roles, and collaborative PBL groups at least monthly, and 75.3% indicated that students made monthly presentations to an audience. AP-trained science teachers used cooperative groups more frequently at a statistically significant level ($p < .01$) than did AP-trained liberal arts teachers. One-hundred percent of students in a debate class participate in every form of collaboration.

Although cooperative teams and both popular and common, their efficacy and reliability are often questioned by many teachers for two reasons. First, groups are frequently difficult to keep on task, and second, work is not performed equally by all group members, thus making grading unfair to the more capable students who do most of the work. Exacerbating the problem

of equity and sufficient challenge for gifted learners, districts discourage homogeneous grouping, the format called for by the NAGC, but instead call for "balanced" groups. Balanced groups typically have one high, two middle, and one low ability students in each group. Regardless of teachers' opinions of the educational value of cooperative learning for all students, they are *required* to devote *x* percentage of instructional time to collaborative groups.

As an adaptation, many teachers used independent roles within groups, and students were evaluated on their assigned portion of the workload. Jig-sawing is the simplest form of independent group roles. Students are responsible for reading and reporting on only a small portion of a work. It is then their responsibility to summarize their portion and provide the group with any information it needs from that segment of the whole work under study. Group roles for longer projects can include recorder, fact checker, gatekeeper, materials monitor, editor, analyst, interpreter, etc. Having a designated recorder helps to ensure that all students have notes to study. Assigning specific roles allows the teacher to differentiate based on ability and personality traits. It can only be hoped that roles are assigned so as to be beneficial and challenging to all students involved. The production of notes is important because retention of auditory information is limited. This is an important consideration if students are to be tested over an entire work, only part of which they have actually read.

AP teachers also reported frequent use of problem finding as a collaborative activity. Problem finding is an essential component of both problem-based learning and research, learning modalities queried in RQ4A. Both purportedly require consistent application of higher-order thinking skills. In problem-based learning, student groups usually develop problem solutions by identifying a problem, clarifying the problem, articulate necessary research questions, research

their questions, and finally produce a product that displays their thinking. In the case of debate, the "product" is a well-developed case.

Problem-based learning (PBL) begins to address real-world problems on a manageable scale for secondary school students. *Prima facie* validity suggests a high level of critical thinking engagement in PBL. Unfortunately, the *prima facie* assumption was not confirmed by the work of Mergendoller, Maxwell, and Bellisimo (2002). The researchers identified two important findings on PBL. First, there is no convincing evidence that PBL is any more effective in expanding students' knowledge base than is traditional lecture/discussion which is far less time consuming than PBL. Mergendoller, Maxwell and Bellisimo found, as have countless researchers before them, that the primary determinants of student achievement are academic ability and subject matter interest. Second, PBL may be even less effective with low ability, unmotivated students (p. 5 – 16). In short, PBL may not be the optimal use of students' academic time, and AP teachers should consider reducing, rather than increasing its use.

The final question in collaboration was how often do students make presentations to an audience? Presentation to an audience is a vital real-world skill which is habitually under-employed primarily because live presentations are time consuming. Audience interaction/collaboration in developing ideas is also unpredictable, and therefore, requires both skill and confidence. Debate students build their skills by practicing and increasing the length and competitiveness of debate formats. Like swimming, which cannot be learned from the side of the pool, working with an audience can only be accomplished through presentations and performances. The high reported frequency for presentations with an audience, (75.3%) indicated that AP-trained teachers were mindful of policy-makers' demands for 21st century

skills and were willing to devote class time to both small group and whole class (audience) collaboration.

Research question #5

Research question #5 continued to narrow the focus of the study. Respondents were asked specifically to evaluate the efficacy of debate and an AP class in meeting the specific needs of gifted learners. Results were challenging to interpret because participants responded positively to all questions in the category, thereby making discrimination problematic. This is a design problem shared with McKee's 2003 study.

Research question 5.1 asked AP teachers to indicate their level of agreement with the statement, "AP provides sufficient challenge for gifted learners." The measure of teacher belief about the level of challenge offered in an AP class was important to this survey for two reasons. First, as discussed in the Literature Review, tens of thousands of gifted learners sit in classrooms which do not offer sufficient challenge and do not lead them to perform at the high levels of which they are capable. Secondly, when asked to rank their educational priorities, 43.1% of respondents in this study indicated that challenge was their highest curricular priority, and an additional 22.3% ranked challenge as their second highest priority. Challenge was cumulatively ranked as AP teacher respondent's highest curricular priority by 65.4% of respondents. Since so many respondents ranked challenge as their highest priority, it was important that they also believed that their courses offered sufficient challenge for gifted learners. Overall, 88.2% of AP teachers agreed that AP is sufficient for gifted learners. There was no significant difference in responses of AP-trained liberal arts and science teachers. .

The second statement of RQ5 was "Debate is well-suited to meet the needs of gifted students." The validity of this statement was based upon two assumptions. The first assumption was that teachers do not confuse the short-response, theatrical format of political season televised candidate debates with academic debate. The second assumption was that teachers outside of the communication arts are familiar with the complexity of issues under debate, know what goes in to preparation for an academic debate, the stringency of stock issues, and the high levels of competition typical in secondary debate. Although the assumptions may not always have been met, AP teachers nonetheless agreed that debate is well-suited to meet the needs of gifted students. AP liberal arts-trained teachers agreed that debate is well-suited to meet the needs of gifted learners with a statistically significant greater frequency than did their AP science-trained counterparts. Only 15.4% of AP teacher respondents disagreed or strongly disagreed that debate is well-suited to meet the needs of gifted learners.

Research question 5.3, special programs should be provided for gifted learners, represents the long-held position of the NAGC and other gifted child advocates. It is also the position of the U. S. Congress.

> Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment. These children and youth exhibit high performance capability in intellectual, creative and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools. Outstanding talents are present in children and youth

from all cultural groups, across all economic strata, and in all areas of human endeavor. (Davis, Rimm & Siegle, 2011, p. 18-19)

Advanced Placement teachers were in agreement with both the NAGC and Congress – gifted learners need special programs to meet their learning needs. Eighty-two and seven-tenths (82.7%) of respondents agreed or strongly agreed that gifted students need special programs. There was no statistically significant difference in the attitudes of AP liberal arts and AP science teachers toward the need for special programs.

AP teachers' responses on the matter of sufficient flexibility for independent study showed more variability that other scores. Those who disagreed and those who strongly agreed were roughly equal at 22.8% and 21.3%. The polar positions were noteworthy to the study at hand because independent study is an important option for gifted learners, and it is the most common activity in the debate classroom. It provides all participants, and gifted learners in particular, a way to accelerate through the content of the course, and to delve more deeply into topics than is usually possible within the regular class structure. Independent study optimizes self-selection of content and complexity, factors inherent in debate. Independent study is, however, often difficult for secondary teachers to manage. Unlike the learning center arrangement of primary grade classrooms, secondary classrooms are generally arranged for the most common secondary instructional format, lecture. Schools infrequently allow students the mobility to work on their own during the school day. In the Age of Litigation, teachers and districts are often hesitant to allow students the minimal supervision that is inherent in independent study. Laboratory and library access may be restricted. Unlike most AP classes, both debate and GT seminars are set up for independent study.

Research question 5.5 asked AP teachers if they believed that debate offers greater depth and complexity than do most classes. RQ5.5 directly addressed one of the hypotheses of the current study: debate provides appropriate depth and complexity for gifted learners. Agreement was moderate with AP liberal arts teachers agreeing with the statement at statistically higher levels ($p < .01$) than did AP science teachers.

The core of gifted education is increased depth, complexity, and pace. As discussed in the literature review, debate requires greater depth and complexity than is typical in other courses. Students must have a deep and broad knowledge of the topic in order to develop arguments and prepare defenses for both sides of the issue. Pace is accelerated by the demands of tournament schedules.

A high level of cognitive consistency was evident in survey results. Research question #2 asked AP teachers to rank their educational priorities. Challenge was most frequently ranked first (65.4%) amongst AP teachers' priorities. Of the 192 respondents to RQ5.5, debate offers greater depth and complexity than is typical of most courses, 67.8% of AP teachers agreed or strongly agreed. Depth and complexity are certainly elements of challenge.

A second assertion of the current study, supported by empirical evidence, is that debate' format of argument construction is ideal for developing critical thinking. AP teacher respondents were highly supportive of the study's contention. Eighty and two-tenths (80.2%) of the 192 AP teacher respondents agreed or strongly agreed that debate's format is an ideal method for developing critical thinking. Less than 15% disagreed with the statement. AP liberal arts-trained teachers were more likely ($p < .01$) than their AP science-trained counterparts to strongly support the contention.

Research question #6

Another hypothesis of the current study was that participating in a debate oriented survey would encourage participants to think more deeply and more positively about the possibilities debate offers gifted students. This was particularly true because so many participants thought about debate for gifted students so infrequently that they were incorrect in their assumptions regarding the presence of debate in their own schools. Moreover, it was also a covert *purpose* of the study to encourage AP teachers to consider debate as a possibility for gifted learners and suggest it as a curricular option for their students and staffs. Happily, for both the current study and for gifted learners across the state, 56.4% of respondents agreed or strongly agreed that they were positively influenced by participation in the survey. Both AP-trained liberal arts and AP-trained science teachers reported positive influence equally.

Research question #7

Research question #7 asked, "Do Advanced Placement teachers see debate or an AP class as a more effective method for developing 21st century skills?" The question asked teachers to compare a single AP class, not the entire range of AP courses, with debate as a method of developing or meeting eight educational goals. Results were encouraging for several reasons. First, respondents did not automatically prefer AP to any other possibility. Second, responses encompassed a wide range indicating that participants were not polarized, and that there is room to discuss the efficacy of debate in meeting the critical thinking needs of gifted learners. Finally, AP teacher respondents were highly favorable in their attitudes toward debate as a builder of communication skills and self-confidence, two authentic factors.

AP-trained teachers from both the liberal arts and science overwhelmingly (84.1%) preferred debate for developing oral communication skills, and 61% preferred debate to an AP class in developing self-confidence. The assumption that debate develops oral communication skills certainly has face validity because the speaker is the face of debate. Although outsiders to forensics may not be aware of the amount of research that goes in to preparation for a debate, there can be little question that debate develops public speaking skills. Companion to the development of public speaking skills through debate is the development of self-confidence. Debate students grow tremendously in self-confidence as they progress from speaking in small groups, to speaking before the entire class, to competing against trained adversaries beneath the critical eyes of a judge. Ample anecdotal testimony from speakers as disparate as Malcom X to William F. Buckley support empowerment through debate.

Of the 187 question-respondents, 41.1% believed that debate was more effective than a single AP class in fostering collaboration 46.2% indicated a preference for debate over an AP class in developing evaluation and judgment. In light of the fact that only 26 schools in the state compete in academic debate, these were considered a mid-range response, and were interpreted favorably. AP liberal arts-trained teachers were more likely ($p < .01$) than their AP science-trained counterparts to prefer an AP class over debate for fostering collaboration.

Teachers overwhelmingly (91%) preferred an AP class for developing interest in attending college and fostering a positive school interest (89%). Results were expected because college credit is an inducement for students to register in AP courses.

AP trained teachers also preferred a single AP class to debate for developing critical thinking and promoting synthesis. Only 28.6% and 37% respectively believed that debate was

more effective than an AP class in developing critical thinking and synthesis. It must be assumed that most AP teachers are unaware of the research which supports the efficacy of debate in developing critical thinking. Likewise, the frequent exercise of synthesis in debate preparation must also be underappreciated.

According to Boston University's Center for Teaching & Learning, "Synthesis: Builds a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure" (2016, p. 2). Although synthesis, through the format of argument development, is the core of debate, survey respondents failed appreciate its prevalence in debate. Synthesis is undoubtedly a goal of all classes, both within and without the advanced curriculum. It is, however, a daily activity in the debate classroom.

Research question #8

Research question #8 asked, "Is there a difference in Advanced Placement (AP) teachers' attitudes toward debate based on area of AP certification, preparation in gifted education (GT), school and community sizes, and availability of special programs (debate and GT) in their schools?" The scale score for debate was the dependent variable and each of the above categories acted in turn as independent variables.

Results on of one-way analysis of variance indicated a statistically significant difference ($p < .01$) in the attitudes of AP liberal arts teachers and AP science teachers toward the efficacy of debate in meeting the needs of gifted learners. It was reasonable to expect teachers of the liberal arts to have more positive attitudes toward debate than their math and science counterparts because debate favors verbally gifted students. Teachers of the liberal arts are also more likely to have personal experience with debate, to have participated as judges, and to have

used debate in their classrooms. No other independent variable, teacher preparations in gifted education, school or community size, or the availability of debate or a special program in gifted education affected AP teacher attitudes toward debate as an avenue to meeting the needs of gifted learners.

The current study was undertaken with the specific intent of evaluating debate as a practicable approach to meeting the needs of gifted students within the confines of the regular curriculum, and covertly, to encourage practitioners to recommend debate, as a curricular option, to their gifted students. The final question in the survey of AP teacher attitudes, therefore, solicited open responses from participants: "Please share any additional comments you have regarding gifted education, debate, critical thinking and/or 21st century skills". Table 5.3 reproduces a list of teacher comments.

Table 5.3

AP teacher open responses to methods of addressing critical thinking

What's up with debate?
All teachers need to be encouraged to think outside the box, and constantly looking for new ways to today's learners.
I appreciate your analysis. I am a product of both AP classes and in cross-x and Parli- pro debate in both HS and College. Both areas are essential for development of gifted learners; but based on this survey I would not recommend debate MORE for gifted learners now. There are certain personalities that would not do well in a debate setting.

The choice of debate and AP are not really two separate things. Both go hand in hand with a project based class. Debate happens casually on a daily basis. It does not have to be formalized. Also, students can be gifted without being considered officially gifted by the school.

I hope this helps.

No matter whether AP or Debate, the benefit to the students rests on the teacher and delivery!

In my particular school, which is elementary, students do not have the core knowledge to debate. Also, they have problems expressing themselves without it turning into a huge argument that carries outside the classroom.

We have a new G/T teacher that is wanting to start debate, and I hope he does.

Stop placing students in AP and GT courses when they are not qualified. Calling your school a gifted academy does not make it so.

STATE needs to make sure that all PRE-AP and AP courses have the materials needed to teach the courses.

All students should have access to this.

I'm curious why this study would "pit' AP vs. debate.

I have not seen debate done well in the high school setting. Students like to argue but are not emotionally mature enough to discuss rationally differences in opinion and are unlikely to find enough facts to support their opinion. Our history classes do this and it is a complete waste of time!

It sounds as if you are looking to see which is better, AP or Debate. You are comparing apples to oranges. AP offers a wide range of literary topics and analysis as well as other focused areas, while debate is all about prepping for argument. Argument isn't the only form of analysis nor writing. You should not get rid of one or the other. Students could definitely use both - especially gifted students.

Question #10 is a bit unfair, or perhaps given to either/or thinking. An AP Comp class will accomplish what a debate class will, and more. A debate program gives the opportunity for competition and extracurricular growth. Honestly, I don't think one can be done to the exclusion of the other. If both are available, students will benefit in all of the ways listed in question #10. In addition, the opportunity for "collaboration" or "critical thinking" in either program has more to do with the teacher guiding the students than the program itself.

I teach pre-AP for 8th grade I'm not an AP teacher.

If we don't practice debate in language arts the students do not have access.

I teach in middle school (pre-AP) and we are only required to provide one gifted accommodation per nine weeks to the state.

My answers are skewed based on the learners I have; in other districts, I use different emphases. I probably lowered my critical thinking level to look reasonable. Critical thinking is an ongoing battle here because it is not part of the surrounding culture.

I don't see why one has to choose between AP and Debate. They are both good at developing certain skills.

Tons of emphasis is placed on special education, forgetting that gifted learners are special too. We need to have the same structures, pull outs, co-teachers, and conferences to ensure that our gifted students are not over looked, just because they are good and do their homework.

We have continuous requests for debate in school but not time to have a debate club as it would be after hours when most students are working or involved in extracurricular activities.

My belief that debate offers a better option than AP classes for developing critical thinking skills comes from personal experience. Again, the classroom does not offer me the time I need to prepare students adequately for a debate.

I do not discount the academic virtues of debate, but it has little to no place in AP Physics (the course I teach).

Was not aware of these skills until our new state frameworks were released. Many of these skills were skills I learned on my own and with parental help. This shows that skills reserved for home are now being forced on the school system to handle.

Debate by name, no. Class and group discussions that are in essence small debates yes.

Debates bring up connotations of arguments while discussions are just conversations that may have differing viewpoints. Debates must have opposing views. Discussions can just be about deeper explanation and understanding, even if everyone agrees about the basic idea. Debate does not fit all subjects!

I think that debate is a useful tool within AP classes as well as a good extracurricular activity for students. I don't think that debate alone is enough to push students to the level required for college success.

I find this an interesting comparison, not totally supporting it but would be interested in the rationale behind it.

1. We need to start earlier. 2. REQUIRE that parents attend workshops and training. But good luck with that!

Our school began a gifted program last year with our Freshman class. It worked "okay" but never seemed to catch on with the students.

I believe debate can be a great program and avenue for gifted learners. I use more argent stood (claim, evidence and reasoning) since I'm in the sciences. I believe that it is similar and helps teach critical thinking skills.

Please note that I am an online-blended instructor, and teach in multiple public high schools throughout Arkansas therefore school specific responses may not be helpful.

It is my understanding that we will no longer use the PARCC. Do you know which test will be replacing it?

I Teach AP 2-D design and Drawing

Even AP students come to us lacking basic skills. Many students are not motivated to perform. Getting projects and homework out of many of these children is impossible. AP students are not really AP. Our schools has regular and AP classes. Only 504 and special ed students are in regular classes. All other are AP making the class a joke.

GT should not occur solely in a ELA class. They need a session for debate.

There are some things such as critical thinking skills, collaboration, and evaluation skills that I believe students learn equally well in both AP and Debate classes.

Collaboration is usually ineffective

AP teacher responses produced three clusters of attitudes of particular interest to the current study: needs of gifted students, AP, debate. Though not frequently addressed, several respondents expressed their belief that insufficient attention is paid to gifted learners, that gifted education should not be limited to only English Language Arts classes, and that special classes (GT seminar) should be provided. One wrote,

> Tons of emphasis is placed on special education, forgetting that gifted learners are special too. We need to have the same structures, pull outs, co-teachers, and conferences to ensure that our gifted students are not over looked, just because they are good and do their homework.

AP classes garnered both praise and criticism. "AP offers a wide range of literary topics and analysis as well as other focused areas, while debate is all about prepping for argument" and, "An AP Comp class will accomplish what a debate class will, and more". The criticism of AP were not actually about the AP curriculum or what it does or does not accomplish. Rather AP teachers repeatedly expressed their belief that many of the student in AP classes are improperly placed.

Even AP students come to us lacking basic skills. Many students are not motivated to perform. Getting projects and homework out of many of these children is impossible. AP

students are not really AP. Our schools has regular and AP classes. Only 504 and special ed students are in regular classes. All others are making the AP classes a joke!

Another respondent wrote, "Stop placing students in AP and GT courses when they are not qualified. Calling your school a gifted academy does not make it so". As discussed, these are serious and consistent criticisms of AP as it is practiced. At some level, be it district-wide, between guidance counselors and administrators or between guidance counselors and AP teachers, a dialogue must be opened to address the purpose of AP in its functioning context. If the purpose of AP in a given district is to be maximally inclusive and provide equity, teachers must be apprised of the priority so as to reduce the level of teacher frustration, and teachers should not be held accountable to the unrealistic expectation that most of their AP students will pass the AP end of course exam. If, on the other hand, the district's purpose is to provide, with fidelity, an accelerated, college-like curriculum to advanced learners, greater selectivity must be exercised in student AP placement.

Support for debate was both frequent and strong. Several respondents spoke from personal experience. "My belief that debate offers a better option than AP classes for developing critical thinking skills comes from personal experience. Again, the classroom does not offer me the time I need to prepare students adequately for a debate". Another past debater wrote, "I am a product of both AP classes and in cross-x and Parli-pro debate in both HS and College. Both areas are essential for development of gifted learners." Support for debate did not come only from PA liberal arts teachers. One science teacher wrote, "I believe debate can be a great program and avenue for gifted learners. I use more argent stood (claim, evidence and reasoning)

since I'm in the sciences. I believe that it is similar and helps teach critical thinking skills". Many more AP teachers held that both AP and debate should be available to students.

All comments on debate were not equally laudatory. One respondent wrote, "Students like to argue but are not emotionally mature enough to discuss rationally differences in opinion and are unlikely to find enough facts to support their opinion. Our history classes do this and it is a complete waste of time!" Another expressed a commonly held misconception. "Debate happens casually on a daily basis. It does not have to be formalized". Academic debate is highly formalized, requires great rigor, and has very high standards for acceptable evidence. Debates which happen casually on a daily basis are discussion, not academic debates.

Conclusions

The needs of the gifted have long been neglected. The egregious gap between the recommendations of leaders in gifted education and actual practice in American classrooms was made glaringly clear by an AP teacher survey respondent. "I teach in middle school (pre-AP) and we are only required to provide one gifted accommodation per nine weeks to the state". Local school districts, states, and the federal government need to respond to the ample data on their high performing students. One accommodation per quarter is insufficient intervention. There is a clear need for educational investment in innovative approaches, backed by empirical evidence, to meet the needs of high achieving students. There is a large body of evidence which supports the effectiveness of debate in a number of areas of academic and social improvement. Officials should use that information to identify and replicate practices that sustain and improve high levels of performance amongst our most talented students. Debate provides an empirically based curriculum which broadens access to academically rigorous content at levels of depth,

pace, and independence appropriate for verbally gifted learners. Because debate is offered in the regular curriculum, it provides extend learning opportunities throughout the school year, week, and day. Ample evidence exists that participation in debate provides students with at least four of Arne Duncan's 5 C's of 21st century education: critical thinking, communication, collaboration, creativity, and civic engagement. The secondary literacy skills used in debate incorporate complex reading materials into both instructional time and out of school competitions. Empirical evidence indicates that debate is a program that prepares and motivates students to excel at school-based learning, increases GPA, graduation rates, SAT/ACT scores, and self-confidence. The intellectual rigor of debate makes it an appropriate engagement for gifted and advanced students.

There is ample empirical evidence (Barfield, 1989; Brembeck, 1949; Colbert, 1987; Collier, 2004; Fogel, 2011; Freeley & Steinberg, 2009; Inoue, & Nakano, 2009; Jackson, 1961; Korcok, 2007; Lux, 2012; McKee, 2003; Mezuk, 2009; Mezuk & Anderson, 2013; Mezuk et, 2011; Minch, 2006; Rogers, 2002; Strait, 2008; Wade & Zorwick, 2009; Warner & Bruschke, 2001; and, Williams, McKee & Worth, 2001) confirming the positive effects of debate upon the development of critical thinking. As earlier discussed, Allen, Berkowitz, Hunt and Louden confirmed that 60 years of quantitative and qualitative research, in the form of both longitudinal and cross-sectional studies, have confirmed the efficacy of debate in developing critical-thinking skills. In their meta-analysis, the authors concluded that

> regardless of the specific measure used to assess critical thinking, the type of design employed, or the specific type of communication skill training taught, critical thinking improved as a result of training in communication skills…Participation in forensics

demonstrated the largest improvement in critical thinking scores whether considering longitudinal or cross-sectional designs (1999, p. 27).

The preponderance of evidence rendered by that collection of studies merits serious consideration. Conversely, there is no substantive evidence that would disabuse one of his faith in the ability of debate to improve critical thinking.

The second paradigm of concern in this study is the appropriateness of debate as a content area which will meet the unique needs of advanced and Gifted and Talented students within the structure of the regular high school classroom. It is neither the purpose of the current study to deny the usefulness of Advanced Placement courses, nor to replace them with debate. The purpose is only to assess the attitudes of Advanced Placement teachers, those who are most frequently in contact with gifted and advanced students, about the value of a debate course *vis a vis* a single AP course. It was hoped that participation in the study would cause Advanced Placement teachers to recommend debate in addition to Advanced Placement courses when recommending curricular choices to their gifted students.

Debate meets the main credo of GT instruction: students must be provided with content which is greater in both depth and complexity in order to meet their academic needs. In keeping with Van Tassel-Baska's (2005) "nonnegotiables", students should be placed with their intellectual peers and allowed the opportunity for self-directed acceleration. Instructional differentiation is not sufficient for gifted students.

It is not instructional methodology which must be modified for gifted students; the *content* must be differentiated as well in order to lift the ceiling for advanced learners. Debate also satisfies the current focus on project based instruction (Reger, 2006), provides multiple

means of expression, and can be an avenue for creativity. Project-based instruction may or may not be new jargon for an old process, and most projects never leave the classroom. Debate, however, provides experiential learning which is used by the learner in a concrete and immediate way. Text to world learning is the ultimate goal of education.

Participation in debate is also a vehicle for meeting Gagne``s (2010) goal of transforming outstanding natural abilities – giftedness - into outstanding knowledge, the content of debate, and skills – talent - the development of well-structured arguments and persuasive delivery. "Talent development is formally defined as the systematic pursuit by talentees, over a significant and continuous period of time, of a structured program of activities leading to a specific excellence goal" (p. 84). Debate is intrinsically suited to Gange``s model as well because debate sets forth clear methods for goal-identification and goal attainment, the "motivation" and "volition" of Gagne``s theory.

Students with special needs – both the gifted and the learning disabled – gain unique benefits from their experiences in special programs. Such programs often satisfy needs that are not, or cannot, be addressed efficiently by current educational curriculum. Additionally, students experience positive outcomes in terms of preparedness for the workforce and occupational success. Socially, (Minch, 2006) students develop in positive ways, learning group communication and collaboration skills while exploring how to negotiate complex relationships Programs and curriculum appropriate for gifted students should be endorsed and supplied in the same measure that special programs are provided for resource students.

Perhaps more important in terms of life-long learning, text-to-world education, and 21st century skills are the experiential learning which debate provides. Students must use advanced

reading and critical-thinking skills to organize, analyze, and synthesize a wide variety of non-fiction texts. In a very immediate context, debaters apply the information which they have amassed in real time interactions with others. The "event" of preparing persuasive arguments based on evidence, communicating information in a compelling manner, defending one's position, and refuting that of a worthy adversary before a judge, is rarely replicated in the normal classroom. Total intellectual engagement without limits provides fertile ground for the growth of gifted minds.

Limitations and suggestions

Research question # 6, "Does participation in a debate-oriented survey impact AP teachers' attitudes toward debate?" was ill-conceived in the context of the current study. First, the question garnered no useful information. Regardless of whether or not participation in a debate-oriented survey produced more positive attitudes toward debate, there is no reason to suspect that all AP teachers will ever participate in such a survey. Knowing that participation in a debate-oriented survey did or did not affect AP teachers' attitudes did not advance the over-arching purpose of the study – to offer debate as an avenue to developing 21st century skills at a level of depth, breadth, independence, and complexity appropriate for gifted learners. Research question #6, in its present form would provide relevant information if the purpose of the survey was to explore methods of bringing debate to the attention of AP teachers. It is a question appropriate for organizations such as the National Speech and Debate Association and the International Public Debate Association. Responses might inform them of measures the organization could take to spread debate participation to a wider audience.

Research question #6 could have provided valuable information regarding the relationship between stated beliefs and manifest behaviors of AP teachers if the question was reframed. Research question #6 should have been, "Will you consider recommending participation in academic debate as a curricular option for gifted learners?''

Several questions in the current study allowed for more than one interpretation, may have been confusing to answer, and a few were redundant. When this study is replicated, certain adjustments need to be made. First, a definition for terms which caused confusion, i.e. cooperative learning and independent study, should be established by the survey designer. The current designer did not define all terms for fear of making the survey too time consuming or appearing condescending. Defining terms would reduce the potential for multiple interpretations. Another item which may have been difficult for participants to answer asked how frequently you use research papers for developing and assessing critical thinking. Obviously, high school teachers do not assign several research papers in a single month, however, students certainly can work on a single research paper several times in a single month.

The questions "Do you believe that AP or debate is more effective in developing students'… interest in attending college and…interest or positive attitude toward school were pointless for two different reasons. The answer to "interest in college" was redundant. Students would not register for AP is they were not interested in college. "Interest in school" was pointless because there was insufficient explanation. First, there was no reason to assume that participants were privy to the abundant testimonial evidence re: school interest and debate. Secondly, most participants do not imagine that like many high school football or basketball players, debate is often competitors' most important school-related activity.

The aforementioned limitations were relatively minor, semantic, and could be easily remedied. Three other questions posed major threats to the validity of interpretation of research questions related to them. Specifically, "Is there a difference in Advanced Placement (AP) teachers' attitudes toward debate based on (1) preparation in gifted and talented education (GT), (2) the presence or absence of debate in their school, and (3) the presence or absence of special programs for gifted and talented students in their schools?

According to the State Department of Education, only 1,609 (.04%), of the state's 37,162 teachers are certified in gifted and talented education. It is extremely unlikely that the 111 participants (55%) who reported having special training in gifted and talented education actually undertaken graduate study in gifted education. As a result of respondents' erroneous reporting of their training, using the applicable results of the AP teacher attitudes survey as a basis for any judgments about what GT trained teachers think about either AP or debate is impossible.

The second unanswered research question was, "Is there a difference in Advanced Placement (AP) teachers' attitudes toward debate based on the presence or absence of debate in their schools affect attitudes toward debate?" Misreporting of data by respondents made interpretation of results untenable. Only 27 (6%) of the state's 468 schools have active debate programs, yet 71 respondents (35.1%) reported that debate was offered in their schools. Although the projected error rate was not as acute as for special training in gifted and talented education, basing conclusions on collected data was unfounded.

Finally, 147 respondents (72.8%) reported having special programs for gifted students in their schools. To the extent that one accepts that Advanced Placement is not a "special program for the gifted", but is a collection of more challenging classes which are available to anyone who

chooses to register, 72.8% of the state's secondary schools do not offer special programs for gifted learners. Honors classes, GT seminars, and research classes with restricted admission are rare. No conclusions based on the presence or absence of gifted programs in a respondent's school can be drawn with accuracy.

The researcher was forewarned, during the design of this study, that respondents would not know much about gifted education or special programs, but regarded the forewarning as pessimistic. The forewarning was sagacious, but too narrow. The forewarning should have included misinformation about the prevalence of debate as well.

Returning to one of the studies upon which the current study was based, Barfield/McKee's results comparing AP teacher attitudes in debate and non-debate schools were more accurate. Completed in the time before anonymous electronic survey distribution, Barfield and McKee both knew what schools actually had debate programs when they mailed their surveys. They did not rely on teacher reporting.

The inevitable conclusion to be drawn from the preceding three uninterpretable categories is that advocates for both gifted and talented education, and debate and forensics must mobilize their collective forces to inform relevant stakeholders. Advocates for both gifted learners and debate cannot wait for top-down policy changes to trickle down to their districts. Debate organizations should make gifted education their territorial imperative. Rather than assuming that "gifted tongues" will happen to register for debate classes, debate advocates must be proactive in their efforts to bring more gifted learners into the debate fold. Advocates must reach out to supporters, administrators, guidance counselors, and GT practitioners in concrete ways. Articles in debate and forensics oriented journals will not be sufficiently effective in

delivering the news of debate's effectiveness. Advocates should present their evidence as speakers at state and national curriculum, guidance, and gifted education conferences.

The climate of neglect of gifted students in favor of their struggling counterparts established in the era of NCLB, the power of the Individuals with Disabilities Education Act, and anathema at the appearance of elitism have combined to deny gifted learners their right to receive a free and appropriate education which is modified for their needs, and maximizes their educational potential. Using the narrowest definition of giftedness, the top 2.5%, there are 362,500 gifted secondary students, most of whom are not having their needs for depth, breadth, complexity, pace and independence met. While neither claiming that debate is a panacea nor suggesting that gifted students abandon Advanced Placement classes, the researcher asserts, based on evidence obtained via close document analysis of the Paul-Elder model of critical thinking and the standards of the National Speech and Debate Association (NFL), and a review of literature on the academic needs of gifted learners and the empirical support for debate as a developer of critical thinking skills, that debate is an avenue, within the regular curriculum, for meeting the unique academic needs and developing the 21st century skills of gifted and talented learners. Academic debate is the practice field upon which learners develop the skills required to use evidence to inform and shape public policy in the arena of the public adult world. Schools have a remarkable tool at hand, without new policies, without new programs, without special funding, and without adding new faculty, for meeting the academic needs of verbally gifted students – debate.

REFERENCES

Abrami, P. C., Bernard, R. M., Borokhovski, E., Wade, A., Surkes, M. A., Tamin, R., & Zhang, D. (2008). Instructional interventions affecting critical thinking skills and dispositions: A stage 1 meta-analysis. *Review of Educational Research, 78*(4), 1102- 1134. DOI: 10.3102100346543083260 84

Akerman, R., & Neale, I. (2011). Debating the evidence: An international review of the current situation and perceptions. *CfBT Education Trust.* Retrieved from http://debate.uvm.edu/dcp*df*/ESU-Summary_debatingtheevidence.p*df*

Allen, M., Berkowitz, S., Hunt, S., & Louden, A. (1999). A meta-analysis of the impact of forensics and communication education on critical thinking. *Communication Education 48*(1), 18 – 30.

Alvarado, M. (2007, February 20). More minorities taking AP classes, *The Record*, L1, L2. Retrieved from http://hazelwoodschools.org/SchoolsAndPrograms/High%20Schools/HazelwodCentralHighSchool/AP%20Committee%20Shared%20Documents/Record%20AP%20Article%5B1%5D.p*df*

Arkansas Gifted and Talented Educator. (2015). Legislative update, April 9. Retrieved from http://arkansasgt.weebly.com/gt-advocacyresources.html

Arnold, A. (2010, September 09). Building a creative organization. *Bloomberg Businessweek.* Retrieved from http://www.bloomberg.com/news/articles/2010- 09-09/building-a-creative-organizationbusinessweek-business-news-stock- market-and-financial-advice

Bain, S. K., Bourgeois, S. J., & Pappas, D. N. (2003). Linking theoretical models to actual practices: A survey of teachers in gifted education. *Roeper Review, 25*(4), 166-173. Retrieved from https://iii-server.ualr.edu/patroninfo~S4?/0/redirect=/wamvalidate?url=http%3A%2F%2F0-web.b.ebscohost.com.iii-server.ualr.edu%3A80%2Fehost%2Fdetail%3Fvid%3D5%26sid%3D0521e8ca- bcf2-4c3c-bef1- fcf5910974d6%2540sessionmgr111%26hid%3D121%26bdata%3DJnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl

Barfield. K. D. (1989). A study of the relationship between active participation in interscholastic debating and the development of critical thinking skills with implications for school administrators and instructional leaders. (Doctoral dissertation). Retrieved from http://0-search.proquest.com.iii-server.ualr.edu/pqdtglobal/docview/303671555/A8B94AB8A8774392PQ/9?accountid=14482

Brembeck, William. (1949). The effects of a course in argumentation on critical thinking ability. *Speech Monographs*, 16, 172-189.

Cacioppo, J. T., Petty, R. E., Feinstein, J. A., & Jarvis, B. G. (1996). Individual differences in cognitive motivation. *Psychological Bulletin*, *119* (2), 204 – 214. Retrieved from http://dx.doi.org/10.1037/0033-2909.119.2.197

Callahan, C. M., Moon, T. R., & Oh, S. (2014). Executive summary. *National surveys of gifted programs, 2014.* Charlottesville, VA: National Research \Center on the Gifted and Talented, University of Virginia., Retrieved from

file:///C:/Users/Sandy%20McMath/Documents/dissertation%20notes/2014%20Survey%20of%20GT%20programs%20Exec%20Summ.p*df*

Cassidy, J., & Young, S. (2007). [Test review of James Madison Test of Critical Thinking]. In K. F. Geisinger, R. A. Spies, J. F. Carlson, & B. S. Plake (Eds.), *The seventeenth mental measurements yearbook.* Retrieved from http://0-web.a.ebscohost.com.iii-server.ualr.edu/ehost/detail/detail?vid=6&sid=fbde936b-12ad-42db-942c-2fea0b6676a9%40sessionmgr4005&hid=4114&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#db=mmt&AN=test.2987

Cherry, K. (2015). What is self-actualization: The role it plays in the hierarchy of needs. *About Education.* Retrieved from http://psychology.about.com/od/theoriesofpersonality/a/hierarchyneeds_2.htm

Cleaver, S. (2013). Smart and bored? What do high achievers need? *Scholastic.* Retrieved from http://www.scholastic.com/browse/article.jsp?id=3749384

Cloud, J. (2007, August 16). Are we failing our geniuses? *Time.* Retrieved from http://www.time.com/time/magazine/article/0.9171.1653653.00

Colangelo, N., Assouline, S. G., & Gross, M. U. M. (2004). *A nation deceived: How schools hold back America's students: The Templeton National Report on Acceleration.* Iowa City, IA: Belin-Blank Center. (Volumes 1 and 2).

Colbert, Kent. (1987). The effects of CEDA and NDT debate training on critical thinking ability. *Journal of the American Forensic Association*. *23*, Spring, 194-201. Retrieved from http://debate.uvm.edu/valueofbib.html

College Board. (2014a) Exam fees and reductions: 2014, *AP Central.* Retrieved from http://apcentral.collegeboard.com/apc/public/exam/calendar/190165.html

College Board. (2014b). 10th annual AP report to the nation. Retrieved from http://media.collegeboard.com/digitalServices/p*df*/ap/rtn/10th-annual/10th- annual-ap-report-to-the-nation-single-page.p*df*

Collier, L. (2004, November*). Argument for success: A study of academic debate in urban high schools of Chicago, Kansas City, New York, St. Louis and Seattle*. National Communication Association Convention Conference Proceedings, Chicago, IL

Communication Studies. (2015). What is communication? The definition of communication. *Communication Studies.* Retrieved from http://www.communicationstudies.com/

Conley, D. (2003). *Mixed messages: What state high school tests communicate about student readiness for college*? Eugene, Oregon: Center for Educational Policy Research.

Cotton, K. (1988). Close-up No 9: School wide and classroom discipline. *School improvement research series.* Portland, OR: Northwest Regional Educational Laboratory

Davis, G. A., Rimm, S. B., & Siegle, D. (2011). *Education of the gifted and talented,* (6th ed.). Boston: Pearson.

Dean, K. W., & Levasseur, D. G. (1989). Addressing the needs of academically talented students: A forensics model for the basic public speaking course. *National Forensic Journal, 7* (Fall), 133-142.

Department of Communication Studies. (2015). Dr. James C. McCroskey: Professor Emeritus. West Virginia University. Retrieved from http://comm.wvu.edu/fs/faculty/james-mccroskey

Drew, C. (2011, January 7). Rethinking Advanced Placement. *The New York Times,* ED24. Retrieved from http://www.nytimes.com/2011/01/09/education/edlife/09ap-t.html?pagewanted=all

Duan, X. (2012). Heritability: an underestimated effect in the actiotope model. *High Ability Studies, 23*(1), 51-52. Retrieved from http://0web.b.ebscohost.com.iii-server.ualr.edu/ehost/p*df*viewer/p*df*viewer?vid=5&sid=25c80be6-3a48-4874-a980-61b932ace181%40sessionmgr198&hid=119

Duncan, A. (2012). The power of debate – building the five C's for the 21st century. Remarks of Secretary Arne Duncan to the National Association for Urban Debate League's April 2012 annual dinner. *U. S. Department of Education*. Retrieved from http://www.ed.gov/news/speeches/power-debatebuilding-five-cs-21st-century

Education Commission of the States. (2013). *State Notes*. Education Commission of the States: Denver, CO. Retrieved from http://mb2.ecs.org/reports/Report.aspx?id=922

Edwards, R. E. (2008). *Competitive debate: the official guide.* New York, New York: The Penguin Group.

Elders, L., & Paul. R. (2010). *The thinkers guide to analytical thinking* (2nd ed.). Foundation for Critical Thinking. Retrieved from *http://www.criticalthinking.org/store/products/analytic-thinking/171*

Elders, L., & Paul. R. (2010). *Universal intellectual standards*. Foundation for Critical Thinking, www.criticalthinking.org

Ennis, R. H. (1993). Critical thinking assessment. *Theory into practice, 32*(3), p. 179-186. Retrieved from http://www3.qcc.cuny.edu/WikiFiles/file/Ennis%20Critical%20Thinking%20Assessment.p*df*

Epstein, R. A., Pianko, D., Schnur, J., & Wyner, J. (2011). Are we lifting all boats of only some? Equity versus excellence and the talented tenth. *Education Next,* 46-53. Retrieved from http://educationnext.org/files/ednext_20113_forum.p*df*

Facione, P. A. (2013). Critical thinking: What it is and why it counts. *Insight Assessment*, 2-28. Retrieved from insightassessment.com

Farkas, S., Duffett, A., & Loveless, T. (2008). *High-achieving students in the era of No Child Left Behind*, Parts 1 and 2. Washington, D. C.: Thomas B. Fordham Institute. Retrieved from http://edex.s3-us-west-2.amazonaws.com/publication/p*df*s/20080618_high_achievers_7.p*df*

Finn, C. E., Jr., & Northern, A. M. (2015, February 20). Can gifted education survive the Common Core? [Web log post]. Retrieved from http://edexcellence.net/articles/can-gifted-education-survive-the-common-core

Fogel, E. (2011). Why debate? *New York City great debaters.* Retrieved from http://www.nycgreatdebaters.org/about/why_debate.html

Forensics Common Core Standards [Video]. Available from http://www.nationalforensicleague.org/aspx/video.aspx?id=523&navid=207&pnavid=

Foster, J. F. (2006). Refinements, bridges, and themes in our conceptual foundations: Mystery to mastery: Shifting paradigms in gifted education. *Roeper Review, 30*(2), 1-14. Retrieved from http://www.thefreelibrary.com/_/print/PrintArticle.aspx>id=141755391

Foundation for Critical Thinking. (2013). Defining critical thinking. *A Brief History of the Idea of Critical Thinking*. Retrieved from http://www.criticalthinking.org/pages/defining-critical-thinking/766

Freeley, A. J., & Steinberg, D. L. (2009). *Argumentation and debate: critical thinking for reasoned decision making* (12th ed.). Boston: Wadsworth Cengage Learning. Retrieved from http://books.google.com/books?id=ZR6RxPGlOgQC&pg=PA28&lpg=PA28&dq=definition+of+academic+debate&source=bl&ots=vZbPNUZCOH&sig=tBELNCSv1JToEjedrgR1YOlPbz4&hl=en&sa=X&ei=fsebUvCbJ879oASm7YLABg&ved=0CHsQ6AEwCA#v=onepage&q=definition%20of%20academc%20debate&f=false

Gagné, F. (2008). Talent development: Exposing the weakest link. *Revista Española de Pedagogía, 240,* 221-240. Retrieved from http://0-web.b.ebscohost.com.iii-server.ualr.edu/ehost/p*df*viewer/p*df*viewer?sid=25c80be6-3a48-4874-a980-61b932ace181%40sessionmgr198&vid=8&hid=119

Gagné, F. (2010). Motivation within the DMGT 2.0 framework. *High Ability Studies, 21*(2), 82-199. Retrieved from http://0-web.b.ebscohost.com.iii-

server.ualr.edu/ehost/p*df*viewer/p*df*viewer?sid=25c80be6-3a48-4874-a980-61b932ace181%40sessionmgr198&vid=11&hid=119

Gagné, F. (2012). Comments on the actiotope model. [Peer commentary on the paper]. *High Ability Studies*, *23*(1), 53-55. doi:10.1080/13598139.2012.679092

Gallagher, S. A. (2004). Identifying and serving gifted and talented students: Local education summit simulation. Neag Center for Gifted Education and Talent Development, Spring. University of Connecticut. Retrieved from http://www.gifted.uconn.edu/nrcgt/newsletter/spring05/spring052.html

Gallagher. S. A. (2009). Myth 19: Is Advanced Placement an adequate program for gifted students? *Gifted Child Quarterly 53*(4), 286-288. Retrieved from http://0-gcq.sagepub.com.iii-server.ualr.edu/content/53/4/286.full.p*df*+html?

Garcia-Caro. R. (*Rapporteur*). (2013). Unleashing the potential of children and young people with high intellectual abilities in the European Union. *European Economic and Social Committee: 486th Plenary Session,* (16 and 17, January). Retrieved from http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2013:076:0001:0007:EN:PDF

Glass, K. (2015). The soul of education: How to develop your students' argumentative writing skills. *Educational Research Newsletter and Webinar.* (Spring). Retrieved from http://campaign.r20.constantcontact.com/render?ca=1f4a66d7-4d99-45d6-8a83-a8b2c471341a&c=f6601250-ee81-11e3-b723-d4ae529a7b12&ch=f7f4bc10-ee81-11e3-b972-d4ae529a7b12

Gomez, L. M., & Gomez, K. (2007). Reading for learning: Literacy

supports for 21st-century work. *Phi Delta Kappan*, 89(3), 224-228.

Gouskova, E., & Stafford, F. (2007). Trends in household wealth dynamics, 2003-2005. *Panel Study of Income Dynamics*, public use dataset. Technical series paper #09-03. Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, MI. Retrieved from http://psidonline.isr.umich.edu/Publications/Papers/tsp/2009-03_Trends_in_Household_Wealth.p*df*

Hagopian, J. (October 30, 2015). Obama regrets 'Taking the joy out of teaching and learning' with too much testing. *Common Dream: Breaking news and views for the progressive community.* Retrieved from http://www.commondreams.org/views/2015/10/30/obama-regrets-taking-joy-out-teaching-and-learning-too-much-testing

Haley. A. (1964). *The Autobiography of Malcolm X as told to Alex Haley*. New York: Ballentine Books

Handwer, P., Tognatta, N., Coley, R. J., & Gitomer, D. H. (2008). Access to success: Patterns of Advanced Placement participation in U. S. high schools [Policy information report]. *Educational Testing Service.* Princeton, N.J.: Educational Testing Service. Retrieved from http://www.ets.org/Media/Research/p*df*/PIC-ACCESS.p*df*

Hanson, J. (2000). *Breaking Down Barriers: How to Debate*. Fountain Valley, CA: West Coast Publishing.

Inoue, N., & Nakano, M. (2004, June). The benefits of costs of participating in competitive debate activities: Differenced between Japanese and American college students. Paper presented at Wake Forest University/International Society for the Study of Argumentation

"Venice Argumentation Conference". Retrieved from users.wfu.edu/hazen/Documents/inoue-nakano-paper.doc

"Intermediate Statistics" [Supplemental material]. (2005). In C. Pearson, EDFN 8305, Little Rock, AR: University of Arkansas at Little Rock.

Jackson, T. (1961). The effects of intercollegiate debating on critical thinking (Doctoral dissertation). University of Wisconsin.

Korcok, M. (1997). *The effect of intercollegiate debating on critical thinking ability* (Doctoral dissertation proposal). Florida State University. Tallahassee, FL. Retrieved from http://mailer.fsu.edu/~ewotring/com5312/critical.html

Kyburg, R. M., Hertberg-Davis, H., & Callahan, C. M. (2007). Advanced Placement and International Baccalaureate programs: Optimal learning environments for talented minorities? *Journal of Advanced Academics, 18*(2), 172-215. Retrieved from http://files.eric.ed.gov/fulltext/EJ767449.pdf

Lim, T. K. (2006). Gifted students in a community of inquiry. *KEDI Journal of Educational Policy, 3*(2), 67-80. Retrieved from http://eng.kedi/re.kr

Lomax, R. G. (2007). *Statistical Concepts: A Second Course* (3rd ed.). London, England: Lawrence Erlbaum Associates.

Lux, J. T. (2012). The impact of competition in forensics on future careers (Doctoral dissertation). Retrieved from Paper 32. http://digitalcommons.wku.edu/diss/32

Mayfield, K., & Son, Y. (2012). Providing gifted education services for diverse students: Policy-related issues. *Journal of Cross-Disciplinary Perspectives in Education, 5*(1), 22-30.

McCollister, K., & Sayler, M. (2010). Lift the ceiling: Increase rigor with critical thinking skills. *Gifted Child Today, 33*(1), 41-47. Retrieved from http://files.eric.ed.gov/fulltext/EJ874023.pdf

McKee, K. B. (2003). *The relationship between debate and critical thinking with Advanced Placement teacher perceptions of that relationship* (Doctoral dissertation). Retrieved from ProQuest Information and Learning Company. UMI microform 3100602).

McMath, A. A. (2015). [Conceptual analysis of NFL skills and activities, Common Core State Standards for reading information tests, reading historic texts, language, writing, and speaking and listening and the Paul-Elder model of the elements of thought). Unpublished data.

Mezuk, B. (2009). Urban debate and high school educational outcomes for African American males: the case of the Chicago Debate League. *The Journal of Negro Education, 78*(3), 290-304.

Mezuk, B., & Anderson, S. (2013, April). *New findings from the Chicago Debate League Study*. Presentation made at the National Association of Urban Debate League's National Debate Championship, Washington, D. C. Retrieved from http://urbandebate.org/Portals/0/EmergingResearch/Mezuk%20Studies.pdf

Mezuk, B., Bondarenko, I., Smith, S., & Tucker, E. (2011). Impact of participating a policy debate program on academic achievement: Evidence from the Chicago Urban Debate League. *Educational Research and Reviews, 6*(9), 622-635. Retrieved from http://urbandebate.org/Portals/0/EmergingResearch/Mezuk%20et%20al.p*df*

Minch, K. D. Summers, K., Ed. (2006). The value of speech debate and theatre activities: Making the case for forensics. Indianapolis, Indiana: National Federation of State High School Associations.

Monks, F. J., & Pfluger, R. (2005). Gifted education in 21 European countries: Inventory and perspective. *Gifted in Europe,* 1-172.

Moon, S. M. (2002). Gifted Children with Attention Deficit/Hyperactivity Disorder. In M. Neihart, S. Reis, N Robinson & Moon, S. (Eds.). *The social and emotional development of gifted children; What do we know?* (pp. 193-201). Waco, TX: Prufrock Press.

Morelock, M. J. (1992). Giftedness: The view from within. *Understanding Our Gifted, 4*(3), 11-15. Retrieved from http:www.davidsongifted.org/db/Articles_id_10172.aspx

National Association for Gifted Children. (2004). *Acceleration* [Position Paper]. Washington, D.C.: National Association for Gifted Children. Retrieved from http://www.nagc.org/index2.aspx?id=375

National Association for Gifted Children. (2009a). *Grouping* [Position Paper]. Council of Exceptional Children-The Association for the Gifted. Washington, D.C.: National Association for Gifted Children. Retrieved from http://www.nagc.org/index.aspx?id=4450

National Association for Gifted Children. (2009b). *Growth in achievement of advanced students* [Position Paper]. Council of Exceptional Children-The Association for the Gifted. Washington, D.C.: National Association for Gifted Children.

National Association for Gifted Children. (2011). *State of the states in gifted education: National policy and practices data 2010-2011.* Washington, D.C.: National Association for Gifted Children. Retrieved from http://www.nagc.org/Default.aspx

National Association for Gifted Children. (2014a). Student outcomes for curriculum planning and instruction with evidence-based practices. *Standard 3: Curriculum Planning and Instruction.* Washington, D. C.: National Association of Gifted Children. Retrieved from http://www.nagc.org/resources-publications/resources/national-standards-gifted-and-talented-education/pre-k-grade-12-3

National Association for Gifted Children. (2014b). *State Commitment to Gifted Students.* Washington, D.C.: National Association for Gifted Children. Retrieved from http://www.nagc.org/resources-publications/resources/gifted-education-us

National Association of Urban Debate Leagues. (2013). Overview of the ten year retrospect assessment of urban debate and high school educational outcomes: Evidence from the Chicago Debate League. Retrieved from http://www.urbandebate.org/ChicagoDebateStudyOverview.p*df*

National Center for Learning Disabilities. (2014). What is IDEA? Washington, D.C.: National Center for Learning Disabilities. Retrieved from http://www.ncld.org/disability-advocacy/learn-ld-laws/idea/what-is-idea

National Communication Association. (2015). What is Communication? Washington, D. C.: National Communication Association. Retrieved from www.natcom.org

National Speech and Debate Association. (2016). National Forensic League: Giving Youth a Voice. Retrieved from http://www.speechanddebate.org/pastpolicytopics

. No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002).

Office of Quality Improvement. (2010). *Survey Fundamentals: A Guide to Designing and Implementing Surveys.* University of Wisconsin Press: Madison, WI.

Open Society Foundation. (2011, September 14). Debate programs get $20 million boost on campuses worldwide. Retrieved from https://www.opensocietyfoundations.org/press-releases/debate-programs-get-20- million-boost-campuses-worldwide

Osborne, A., & Parnes, S. in Arnold, A. (2010). Building a creative organization. *Bloomberg Businessweek*, September 09, 2010. Retrieved from http://www.businessweek.com/stories/2010-09-09/building-a-creative-organizationbusinessweek-business-news-stock-market-and-financial-advice

Partnership for 21st Century Skills. (2013). *21st century student outcomes.* Retrieved from http://www.p21.org/storage/documents/P21_Framework_Definitions.p*df*

Paul, R. (Fall, 2004). The state of critical thinking today. *The Foundation for Critical Thinking*. Retrieved from http://www.criticalthinking.org/pages/the-state-of-critical-thinking-today/htm

Phyall, E. (2013, March 22). Teaching gifted students in full-inclusion classrooms. *USC Rossier Online.* Retrieved from http://rossieronline.usc.edu/teaching-gifted- students-in-full-inclusion-classrooms/

Postman, N. (2005). *Amusing ourselves to death: Public discourse in the age of show business.* New York, NY: Penguin Books.

Powell. C., & Nettelbeck, T. (2014). Intellectual curiosity may not incrementally predict academic success. *Personality and Individual Difference*, *64,* 7 – 11. Retrieved from http://ac.els-cdn.com/S0191886914000658/1-s2.0-S0191886914000658-

main.p*df*?_tid=2555bb8e-1b3a-11e4-803d-00000aacb35e&acdnat=1407089907_73ff85555b75ee30b766dee9e8e2ebb9#page=1&zoom=auto,-16,794

Profetto-McGrath, J. (1999). Critical thinking skills and critical thinking dispositions of baccalaureate nursing students (Doctoral dissertation). Retrieved from Proquest. 0-612-39582-0

Putallaz, M., Baldwin, J., & Selph, H. (2005). The Duke University Talent Identification Program. *High Ability Studies, 16*(1), 41-54. Retrieved from http://0-web.b.ebscohost.com.iii-server.ualr.edu/ehost/p*df*viewer/p*df*viewer?vid=3&sid=935dd31e-9e78-4cad- abfa-a842a882a0c8%40sessionmgr114&hid=122

Renzulli, J. S., & Reis, S. (1994). Research related to the school-wide enrichment model. *Gifted Child Quarterly, 38*(1), 7-20. Retrieved from http://www.gifted.uconn.edu/sem/semtriad.html

Reger. B. (2006). How does participation in inquire-based activities influence gifted students' higher-order thinking? (Doctoral dissertation). Retrieved from ProQuest. (3232227)

Robinson, A. E. (2009, November 12). U.S. commitment to gifted students severely lacking, new report finds, *PR Newswire* Retrieved from http://www.prnewswire.com/news-releases/us-commitment-to-gifted-students-severely-lacking-new-report-finds-69845257.htm

Robinson, N., & Aldrich, P. (2016). The optimal match: The Goldilocks solution. U.S. Department of State, Office of Overseas Schools. Retrieved from http://www.state.gov/m/a/os/208875.htm

Rogers, J. E. (2002). Longitudinal outcome assessment for forensics: Does participation in intercollegiate, competitive forensics contribute to measurable differences in positive student outcomes? *Contemporary Argumentation and Advocacy, 23,* 1- 27.

Ross, P. O., Project Director. (1993). *National Excellence: A Case for Developing America's Talent*. U.S. Department of Education, Office of Educational Research and Improvement. Retrieved from http://files.eric.ed.gov/fulltext/ED359743.pdf

Schroeder-Davis, S. (2011). Egalitarianism 2.0 and the assault on aptitude. *Understanding Our Gifted*, *23*(4), 5-15.

Shames, A. (2014, May 6). The "Four Cs" of 21st century education from *Innovative Education for the Creative Mind* [Online forum contribution] in *Entrepreneur The Arts.* Retrieved from http://blog.entrepreneurthearts.com/2010/05/06/the- four-cs-of-21st-century-education/

Silverman. L. K. (1997). The construct of asynchronous development. *Peabody Journal of Education, 72*, (3/4), 36-58. Retrieved from http://www.jstor.org/stable/1493035?origin=JSTOR-p*df*

Smith, L. (2014). *Coaching Debate.* Fawcett, R. G. (Ed.). Kansas City, MO: National Federation of State High School Associations

Snider, A. C. (2006, February 21). Too much success: Debate team faces inadequate resources as a result of success and popularity among students. *The Voice of Edwin.* Retrieved from http://www.uvm.edu/~debate/vofe022106.html

Snider, A. C. (2011). Debate: Key to better academic achievement. Retrieved from http://debate.uvm.edu/debateblog/wdi/Welcome.htm

Snider, A. C. (2011, June). A short guide to competitive debate formats. *Debate Central.* Retrieved from http://debate.uvm.edu/learndebate.html

Spence, M. U. (2005). *Graphic design: Collaborative process. A course on collaboration, theory and practice* (Syllabus). Oregon State University, Corvallis, OR. 15 May, 2005. Retrieved from http://revolutionphiladelphia.aiga.org/resources/content/2/5/7/0/documents/MSpence.p*df*

Statsoft. (2014). Introduction to ANOVA/MANOVA. Retrieved from http://www.statsoft.com/Textbook/ANOVA-MANOVA#ppost

Strait, L. P. (2008). Academic debate as a decision-making game. Inculcating the virtue of practical wisdom. *Contemporary Argumentation and Debate, 29,* 1-37. Retrieved from http://0-web.ebscohost.com.iii-server.ualr.edu/ehost/p*df*viewer/p*df*viewer?sid=deb404fd-c009-4c23-a4f6-0510*df*1506e5%40sessionmgr115&vid=4&hid=112

Subotnik, R. F., & Coleman, L. J. (1996). Establishing the foundations for a talent development school: Applying principles to creating an ideal. *Journal for the Education of the Gifted*, 20, 175-189.

Tavakol, R. D. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education (2),* 53-55. DOI: 10.5116/ijme.4*df*b.8*df*d

Teaching interrupted: Do discipline policies in today's public school foster the common good? (2004). *Public Agenda*. Retrieved from http://www.publicagenda.org/files/teaching_interrupted.pdf

Thurman, B. A. (2009). *Teaching of critical thinking skills in the English content area in South Dakota public high schools and colleges* (Doctoral dissertation). Retrieved from Proquest. UMI Number: 3367643

Tieso, C. L. (2013). Moving the past forward: From Birmingham jail to occupy Wall Street. *Gifted Child Today, 36*(2), 97-113. DOI: 10.1177/1076217512474982

Tumposky, N. R. (2004). The debate debate. *Clearing House, 78*(2), 52-55. Retrieved from http://0-web.a.ebscohost.com.iii-server.ualr.edu/ehost/pdfviewer/pdfviewer?sid=a9f5d7a2-2a14-4197-83bb-045729472e3b%40sessionmgr4005&vid=4&hid=4106

United States Department of Education. (n.d.) Chapter 7: B-1, An educational approach for teaching highly capable/gifted student. In *Count me in: Developing inclusive international schools*. Retrieved from http://www.state.gov/m/a/os/44975.htm

United States Department of Education, National Center for Education Statistics. (2013). Trends in Academic progress: Reading 1971-2012; Mathematics 1973-2012. *The Nation's Report Card.* (NCES 2013-456). Retrieved from http://nces.ed.gov/nationsreportcard/subject/publications/main2012/pdf/2013456. pdf

Van Tassel-Baska, J. (2005). Gifted programs and services: What are the nonnegotiables? *Theory Into Practice, 44*(2) 90-97. Retrieved from

http://www.jstor.org/discover/10.2307/3497027?uid=2&uid=4&sid=21103099368653

Van Tassel-Baska, J. (2008, July). *What works in Curriculum for the gifted?* Keynote address presented at the Asia Pacific Conference on the Gifted. Transcript retrieved from http://hkage.org.hk/en/events/080714%20APCG/01-%20Keynotes%20&%20Invited%20Addresses/1.9%20Van%20Tassel-Baska_What%20Works%20in%20Curriculum%20for%20the%20Gifted.p*df*

Wade, J. M., & Zorwick, L. W. (2009). Assigned advocacy, argumentation, and debate in high school classrooms. *Rostrum 83*(8), 1-3.

Warner, E., & Bruschke, J. (2001). Gone on debating: competitive academic debate as a tool of empowerment. *Contemporary Argumentation and Debate, 22,* p. 1-21). Retrieved from http://0-web.b.ebscohost.com.iii-server.ualr.edu/ehost/p*df*viewer/p*df*viewer?vid=3&sid=a5481bc0-2a91-41c8-9c6c-8ecc7bf47409%40sessionmgr113&hid=125

http://www.aps.edu/rda/documents/resources/Webbs_DOK_Guide.p*df*

White, D. A. (2010). Gifted education: Thinking (with help from Aristotle) about critical thinking. *Gifted Child Today, 33*(3), 14-20.

Williams, D. E., McGee, B. R., & Worth, D. S. (2001). University student perceptions of the efficacy of debate participation: An empirical investigation. *Argumentation and Advocacy, 37*(Spring), 198-209.

Willingham, D. T. (2007). Critical thinking: Why is it so hard to teach? *American Educator, 31*(2), 8-19. Retrieved from http://www.aft.org/pdfs/americaneducator/summer2007/Crit_Thinking.pdf

Wyner, J. S., Bridgeland, J. M., & Dilulio, J. J., Jr. (2007). *The achievement trap: How America is failing millions of high-achieving students from poverty.* Jack Kent Cooke Foundation: Washington, D.C. Retrieved from http://www.jkcf.org/assets/1/7/Achievement_Trap.pdf

YeSIl, R., & Korkmaz, O. (2010). Reliability and validity analysis of the multiple intelligence perception scale. *Education*, *131*(1), 8-32.

Zagursky, E. (2009, April 2). A gift to gifted education. *William and Mary Ideation.* Retrieved from *http*://www.wm.edu/research/ideation/professions/a-gift-to-gifted-education-007.php

APPENDIX A

AP Teacher Attitudes Survey 2015

This study is being conducted by Allison McMath, doctoral candidate in the Department of Educational Leadership at the University of Arkansas at Little Rock, in order to better understand AP teachers' attitudes toward debate, gifted learners, and 21st century skills. Your responses are anonymous, and there are no known hazards or benefits from participation in the structured and open response electronic survey. Your voluntary participation is accepted as informed consent.

This study, protocol #16-001, has been reviewed and approved by the University of Arkansas Little Rock's Institutional Review Board. The Board has determined that this study meets the ethical obligations required by federal law and University policies. If you have any questions or concerns, please contact the Investigator.

Allison McMath
College of Education & Health Professions
2801 S. University Ave
Little Rock, AR 72204-1099
axmcmath@ualr.edu

Thank you for your contribution to continuing research into effective practices in gifted education.

1. Please rank/order the following with 1 being the most important. As an AP teacher, my highest priority for my curriculum is:

- Challenging students to achieve at their personal best
- College readiness
- Developing critical thinking
- Meeting Common Core standards
- Preparing students for AP end of course exams
- Preparing students for PARCC exams
- Teaching content

2. Please rank/order the following with 1 being the most important. As an AP teacher, my highest personal educational priority is:

- Career readiness
- College preparation
- Communication skills
- Content
- Critical thinking
- Self-actualized adulthood
- Standard test preparation

3. Please indicate your level of agreement with the statement that each of the following are school-related impediments to developing critical thinking in your AP class(es).

	Strongly disagree	Disagree	Agree	Strongly agree
Content ill-suited to critical thinking	○	○	○	○
Insufficient or inappropriate materials or equipment	○	○	○	○
Loss of teaching time due to school-related disruptions	○	○	○	○
Too much content for time allowed	○	○	○	○
Too much emphasis on tests	○	○	○	○
Too much time re-teaching skills from prior courses	○	○	○	○

Other (please specify)

4. Please indicate your level of agreement with the statement that each of the following are student-related impediments to developing critical thinking in your AP classroom.

	Strongly disagree	Disagree	Agree	Strongly agree
Extra-curricular demands on student time	○	○	○	○
Frequent discipline-related interruptions	○	○	○	○
Students poorly prepared for AP coursework	○	○	○	○
Too little control of students enrolled in AP	○	○	○	○

Other (please specify)

5. Please indicate how frequently you use each of these instructional methods in your AP classroom.

	Never	Seldom	Monthly	Several times per month
Debates/Socratic chairs	○	○	○	○
Direct instruction in critical thinking	○	○	○	○
Dramatizations	○	○	○	○
Independent study	○	○	○	○
Lecture	○	○	○	○
Project based learning	○	○	○	○
Research papers	○	○	○	○

Other (please specify)

6. Please indicate how frequently you use each of the following assessment methods in your AP classroom

	Never	Seldom	Monthly	Several times per month
Debate/Socratic chairs	○	○	○	○
Essay tests	○	○	○	○
Individual presentations	○	○	○	○
Lab reports	○	○	○	○
Objective tests	○	○	○	○
Products	○	○	○	○
Research papers	○	○	○	○

7. Please indicate how frequently students in your AP classroom demonstrate their ability to interpret information and draw conclusions based on thorough analysis of text in authentic instructional scenarios

	Never	Seldom	Monthly	Several times per month
Argument development	○	○	○	○
Data analysis and reduction	○	○	○	○
Laboratory experiments	○	○	○	○
Oral presentations	○	○	○	○
Project-based assignments	○	○	○	○

8. Please indicate how frequently students in your AP classroom engage in structured collaboration

	Never	Seldom	Monthly	Several times per month
Independent roles are established	○	○	○	○
Students engage in problem finding	○	○	○	○
Students work in teams	○	○	○	○
Work is presented to an audience	○	○	○	○

9. Please indicate your level of agreement with each of the following statements regarding gifted learners.

	Strongly disagree	Disagree	Agree	Strongly agree
AP provides sufficient challenge for gifted learners.	○	○	○	○
Debate is well-suited to meet the needs of gifted students.	○	○	○	○
Special programs should be provided for gifted learners.	○	○	○	○
AP is sufficiently flexible for independent study by gifted learners.	○	○	○	○
Debate provides greater depth and complexity than do most classes.	○	○	○	○
Debate's format of arguments based on evidence is an ideal method for developing critical thinking.	○	○	○	○
As a result of participating in this survey, I am more likely to recommend debate to my gifted students.	○	○	○	○

10. For each of the following items, please indicate if you believe that AP or debate is more effective in developing students'...

	Advanced Placement	Debate
Collaboration skills	◯	◯
Critical thinking skills	◯	◯
Evaluation and judgment	◯	◯
Interest in attending college	◯	◯
Interest in or positive attitude toward school	◯	◯
Oral communication skills	◯	◯
Self confidence	◯	◯
Synthesis of multiple works, sources, points of view	◯	◯
Written communication skills	◯	◯

11. What is your school size?

- ◯ Small - less than 350 students
- ◯ Medium - 350 - 1,000 students
- ◯ Large - greater than 1,000 students

12. What is your community size?

- ◯ Rural - population less than 2,500
- ◯ Sub-urban - population between 2,500 and 50,000
- ◯ Urban - population greater than 50,000

13. What is your area of AP certification

- ◯ Liberal Arts
- ◯ Sciences
- ◯ Both

14. Have you had special training in gifted education?

- ◯ Yes
- ◯ No

15. Is debate offered in your school?

- ◯ Yes
- ◯ No

16. Does your school have a special program for gifted learners?

- ◯ Yes
- ◯ No

17. Please share any additional comments you have regarding gifted education, debate, critical thinking, and/or 21st century skills.

Done