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Critical and Creative Thinking in General Education: A Descriptive Case Study

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**CRITICAL AND CREATIVE THINKING IN GENERAL EDUCATION:
A DESCRIPTIVE CASE STUDY**

A Dissertation
Presented to
The Faculty of the School of Education
The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirement for the Degree
Doctor of Education

By
Nicholas R. Marsella
September 26, 2018

CRITICAL AND CREATIVE THINKING IN GENERAL EDUCATION:

A DESCRIPTIVE CASE STUDY

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Dedication

To Maria - my traveling companion for the last 50 years - our children - and for the next generation - Jonathan Gabriel.

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I had two reasons for entering the EPPL program. The first reason was selfish - to renew my spirit and to continue along the path of being a life-long learner. The second reason was to gain proficiency as a higher education practitioner to help other first-time students and to contribute in some small way to the mission of higher education. My education has truly opened doors and I hope to help others.

To William & Mary – “Thanks for giving me a chance.”

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Abstract

As part of a strategic planning effort begun in 2008, the College of William & Mary began the process of reviewing and changing its general education program. Approved by the faculty in 2013, the university is implementing an innovative curriculum called the “College Curriculum,” designed in part to help students acquire knowledge and develop the skills and habits of critical and creative thinking. The purpose of this study was to investigate the institution’s and faculty’s understanding of how the new curriculum addressed student development of critical and creative thinking. This descriptive case study provided a review of the literature on general education, critical and creative thinking; a review of key documentation; and structured interviews with faculty and other members of the community with an understanding of the problem.

Lattuca and Stark’s (2009) academic plan model provided a theoretical frame to analyze the data, determining that the impetus for initiation of the curriculum review was primarily driven by internal forces within the college. Using established governance procedures, the faculty played the leading role in its development and approval to include establishing the goal of developing critical and creative thinking as key principle in the curriculum. However, based on the research, there is a lack of coherence among the faculty as to what, when, and how these critical skills are developed. The findings indicated a need to develop and share a plan among the faculty and students of what constitutes these competencies and how they are developed through the college curriculum.

Keywords: critical thinking, creative thinking, general education, assessment, liberal arts

CRITICAL AND CREATIVE THINKING IN GENERAL EDUCATION:

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CHAPTER 1: INTRODUCTION

Though recent enrollment in American colleges and universities has dropped from its historical high of more than 21 million in 2010, enrollment is projected to be more than 23 million students by 2025 (Hussar & Bailey, 2017). In the fall 2016, approximately 8.7 million students attended 4-year public institutions (National Center for Education Statistics [NCES], 2017). Even though college enrollment is projected to increase, the debate continues among policy makers, students, parents, and scholars regarding the cost, benefits, and outcomes from completing a 4-year college program (Arum & Roksa, 2011a; Crabtree & Seymour, 2015).

With recent family incomes stagnant, the rising price of higher education has increasingly placed a burden on students and their families. According to the NCES (2016), average tuition, fees, room and board for the 2015-2016 academic year at public institutions were estimated to be \$16,757, which represents an increase of 34% over a span of 10 academic years. This rise in college expenses determines who goes to college. As reported by the College Board, only 58% of low-income students and 62% of middle income students enroll in college immediately upon graduation from high school as opposed to 82% of high school graduates from the highest income families (Ma, Pender, & Welch, 2016).

Today, more than 7 in 10 college graduates have student loan debt totaling in aggregate some \$1.3 trillion dollars, which now exceeds all credit card and auto loan debt within the United States (Calderon & Jones, 2016). Student debt depends upon many

factors to include the financial aid, tuition, fees, and boarding costs per institution and type of institution (public vs. private). For example, according to the U.S. Department of Education (2016) College Scorecard, the average debt incurred by a William & Mary (hereafter referred to as W&M) undergraduate borrower is approximately \$19,500. In comparison, this is the same level of debt as a graduate of the University of Virginia and less than the nearly \$24,000 debt incurred for a graduate of Virginia Polytechnic Institute and State University, which are notably all public Virginia institutions.

Value of Higher Education

Even though the prices associated with a college education account in part for the public's dissatisfaction with higher education, there are many voices within education, business, and government who have questioned the value of higher education. Former President of Harvard University, Derek Bok noted college and universities accomplish far less than they should for their students (Arum & Roska, 2011a). Others, such as Hersh and Keeling (2011), concluded rather harshly that a college degree no longer certifies that the individual is capable of achieving intellectual depth; possesses the skills required for the workplace; or has demonstrated personal maturity.

A 2011 Pew Research Center survey showcased the questioning of the value of a college education. They found that 57% of Americans polled stated colleges failed to provide good value for the money spent and 75% of those surveyed noted college was too expensive and unaffordable for most Americans (Pew Research Center, 2011). Even though popular opinions matter, research data continue to reflect the value of a college degree. Pointedly, college graduates earn more, pay more taxes, have increased levels of

employment and increase their chances to move up the socioeconomic ladder than those without a college degree independent of major (Ma et al., 2016).

Critical to this discussion regarding the value of higher education is the perception of the role and mission of higher education among educators, policy makers, parents and students. For some, the purpose of a 4-year college education is to gain work-related skills and knowledge, whereas for others, the purpose of a college education is to primarily aid a student's growth both personally and intellectually (Chickering, 2010). In a 2011 Pew Research Center survey of 1,055 college presidents from both 2- and 4-year institutions on the purpose of a college education, the leaders were evenly split on their views. Approximately 50% of respondents stated the role of college was to promote intellectual and personal growth, whereas 48% noted that the role of college was to prepare students for work and careers.

While not dismissing the ongoing debate about the purpose of college, there appears to be an apparent consensus among many that higher education graduates should acquire specific skills during their undergraduate education as educational outcomes. Educators, business executives, and governmental leaders agree that colleges need to develop critical, creative, and problem solving skills during the undergraduate experience as an educational outcome (Allen & Gerras, 2009; Arum & Roska, 2011a; Willingham, 2007). To better understand how the college curriculum at W&M (hereafter referred to as the COLL curriculum) addresses these requirements, this study primarily focused on the implementation of a new curriculum at a public 4-year institution to meet the desired educational outcomes of developing student critical and creative thinking skills.

Public education: The role of the state. The U.S. Constitution reserves to the state all functions not specifically designated to be performed by the federal government to include education. As a result, each state exercises varying degrees of control or influence over its public college and universities. Some states have a higher education agency to provide policy on key issues and track implementation of state higher education legislation.

These agencies also develop policies and guidelines for the distribution of state funds to public institutions and coordinate and receive institutional assessments of progress from public higher educational institutions on state mandated issues. Within the Commonwealth of Virginia, the State Council of Higher Education for Virginia (SCHEV) performs this function for the Governor and the General Assembly (SCHEV, 2017a). In 2014, SCHEV approved the *Framework of the Statewide Strategic Plan for Higher Education*, which identified four primary goals for Virginia public higher education institutions.

These four SCHEV goals included: provide affordable access for all; optimize student success for work and life; drive change and improvement through innovation and investment; and advance the economic and cultural prosperity of the Commonwealth and its regions. The SCHEV sub-goal directly linked to this study is to strengthen the curricular options to ensure that graduates are prepared with the competencies necessary for employment and civic engagement (SCHEV, 2015). Preparing students for future success in work and life requires a targeted curriculum that exposes students to the type of skills required post-graduation.

SCHEV publishes annual reports to the General Assembly concerning state higher educational initiatives and mandates, including those regarding progress to inculcate higher order thinking skills (e.g., critical thinking and problem solving) among students. For example, the 2016 SCHEV Annual Report highlighted that Virginia was joining a national effort to improve its method of measuring quality in several core areas to include critical thinking (SCHEV, 2017b).

SCHEV requires each institution to publish annually a six-year plan linked to its achievement of state goals. The bulk of this planning deals with enrollment and degree completion goals and associated financial data, which are submitted via an Excel spreadsheet. For example, a review of the W&M 2017 submission of its 6-year plan mentions the goal to implement a new undergraduate general education curriculum to support the 21st century workforce, but the report does not include any further elaboration (W&M, 2017a).

AAC&U and the LEAP initiative. In addition to guidance provided by the state higher education agency, think tanks and educational associations attempt to influence administrators and faculty members (Lattuca & Stark, 2009). One of the key influencers associated with this study is the Association of American Colleges and Universities (AAC&U). Founded in 1915, the AAC&U now has nearly 1,300 member institutions, consisting of all types of 2- and 4-year public and private institutions – to include W&M.

Originating in 2005, the AAC&U's Liberal Education and America's Promise (LEAP) initiative provides its members a framework to make liberal education the foundation for institutional purpose and educational practice in higher education (AAC&U, 2005, 2013b, 2015a). As reflected in various AAC&U publications, a liberal

education is a philosophy and an approach to learning that prepares students for the complexity and challenges found in the 21st century. A liberal education, as defined by AAC&U is:

An approach to college learning that seeks to empower individuals and prepare them to deal with complexity, diversity, and change. This approach emphasizes broad knowledge of the wider world (e.g., science, culture, and society) as well as in-depth achievement in at least one specific field of study. It helps students develop a sense of social responsibility, strong cross-disciplinary intellectual and practical skills (e.g., communication, analytical and problem-solving skills), and a demonstrated ability to apply knowledge and skills in real-world settings.

(2005, p. 3)

Successful implementation of the LEAP initiative requires broad institutional concurrence with the LEAP principles and the associated essential learning outcomes by the member institution's administrators, academic leaders and faculty (AAC&U, 2013b). Based on the belief that the future demands demonstrated mastery of certain skills and knowledge beyond the traditional measures of enrollment, persistence, and degree attainment, the AAC&U identified four overarching and essential learning outcomes: knowledge of human cultures and the physical and natural world; intellectual and practical skills; personal and social responsibility; and integrative and applied learning (AAC&U, 2011). For example, integrative and applied learning include "synthesis and advanced accomplishment across general and specialized studies as demonstrated through the application of knowledge, skills, and responsibilities to new settings and complex problems" (AAC&U, 2011, p. 7).

Two of the seven LEAP principles have direct bearing on this study, namely: Principle 3—teach the arts of inquiry and innovation by immersing students in analysis, discovery, and problem solving; and Principle 7—assess students’ ability to apply learning to complex problem (AAC&U, 2013b). From these core LEAP principles, the AAC&U established essential learning outcomes with specific skills tied to them. This study focused on two specific skills from the listing of essential intellectual and practical skills namely critical and creative thinking. Appendices A and B contain the AAC&U’s principles of excellence and essential learning outcomes.

For each of the competencies identified as essential learning outcomes, the AAC&U published rubrics that served as the study’s baseline for analysis. Developed by teams of faculty experts from across many institutions, the rubrics provide the criteria for the expected learning outcomes as well as providing definitions of terms to facilitate discussion among departments and institutions. These rubrics are not designed for the individual instructor to use during grading of specific student assignments, but are intended for institutional-level use in evaluating and discussing student learning for a specific competency (AAC&U, 2017). AAC&U acknowledged that their formulated rubrics would be adapted by institutions and instructors to fit their purposes.

The context: William & Mary. Established in 1693 as the nation’s second-oldest institution of higher education, W&M is considered by many as one of the premier universities in the United States and consistently ranks as one of America’s top college in many national rankings (U.S. News & World Report, 2017). Although a medium-sized public research university, the college is primarily committed to its undergraduate program. W&M is a member of the AAC&U and is one of the eight institutions

participating in a LEAP challenge on student capstone and signature work, which is funded by the Arthur Vining Davis Foundation (AAC&U, 2015b).

One of the primary focus areas for this case study centered on the process for the redesign of W&M's general education requirements (GER), which prior to recent changes was last updated in 1993. Similar to other institutions, the 1993 GER curriculum comprised about one quarter of the 120 credits needed for the undergraduate degree as mandated by the state of Virginia. Students under the GER curriculum choose from courses tied to seven different areas of knowledge: mathematics and quantitative reasoning, natural sciences (biological and physical), social sciences, world cultures and history, literature and history of the arts, creative and performing arts and philosophical, religious and social thought (W&M, 2016a).

As a result of a strategic planning effort begun in 2008, W&M recognized that the changing environment facing its graduates required reexamination of the GER curriculum (Kennedy, 2016). Even though W&M previously had curriculum goals to enable graduates to gain practical skills and knowledge needed, the faculty recognized a change to the GER curriculum was required in order to better prepare students for the future while also recommitting the college to the liberal arts. In December 2013, the Faculty of Arts and Sciences voted in favor of replacing the 1993 GER curriculum beginning with the enrolling Class of 2019. In September 2015, the first freshman students began their course of study under the new COLL curriculum (W&M, 2013d).

The COLL curriculum is a group of courses specially designed to connect and integrate knowledge from the student's major and elective coursework across the four undergraduate years. Each freshman must complete COLL 100 and COLL 150 courses

designed to explore the concepts, beliefs, vision, theories, and discoveries that shaped the understanding of the world and explore texts, data, or methods of inquiry to strengthen student writing skills—essential building blocks to understand what constitutes a liberal arts education. During the sophomore and junior years, each student must complete 12 COLL 200-credits with at least three credits from each of the three knowledge domains: arts, letters and values; cultures, societies, and the individual; and the natural world and quantitative reasoning.

During the junior year, students must complete COLL 300, which is designed to allow for exploration of the world in a self-reflective, cross-cultural manner. Completion of COLL 300 can be accomplished through participation in a study abroad program, a W&M Washington, DC, experience, or through a similar designed on campus experiences.

The COLL 400 capstone exercise occurs during the senior year and is taken within the student's major. Students can complete this capstone exercise through any number of venues (e.g., independent study), but the experience intends students' active engagement and application of disciplinary content to synthesize, analyze and solve a problem within the student's field of study—ideally creating original scholarship (Kennedy, 2016; W&M, 2016a).

Central to W&M's vision statement and its strategic plan is its focus on being a leader among liberal arts universities. Both the vision and the plan highlight the importance of developing the critical thinking skills and understanding of diverse perspectives essential to excel in the 21st century through interdisciplinary study, internationalization and faculty-student inquiry (Vision statement, (n.d.); W&M, n.d. 2).

Understanding W&M vision and goals is important, but so too is understanding how faculty members and students perceive the difference in classroom experiences and overarching learning outcomes against the institutions' intent for the COLL curriculum.

Problem Statement

Throughout history, leaders in higher education have debated the purpose, goals, and learning outcomes of an undergraduate education as well as the best means to achieve those items (Lattuca & Stark, 2009). For example, Arthur Chickering (2010), a leading educational theorist, repeatedly highlighted his concerns over the years that higher education had defaulted on its responsibilities in regard to the cognitive, moral, intellectual and ethical development of students necessary to meet the current and future global economic, environmental, human, and political challenges. Chickering placed the blame for this failure on the shortsighted focus of securing a well-paying job upon graduation—essentially placing fault on the neoliberalism movement in higher education.

Beginning in the 1980s, the neoliberalism movement in higher education emphasized privatization, market-based reforms, and performance management (Feller, 2008). Education was increasingly viewed as a private rather than public good and students viewed as paying customers focused on the extrinsic outcomes of higher education as the means to a good paying job (Saunders, 2010). Some argue the neoliberalism movement had the unintended consequence of students receiving a substandard education as the result of the broad use of adjuncts, the proliferation of online education, and the deemphasizing of teaching by the faculty in order to pursue market driven and profitable research (Giroux, 2002; Tuchman, 2011). Simultaneously, businesses clamoring for better trained graduates, were also complaining of how

graduates lacked many of the skills—to include critical thinking and problem solving skills—necessary for the current and future workplace (AAC&U, 2013a).

This debate over neoliberalism is not to argue that change is not necessary within higher education. Gardner (2008) highlighted there were two primary reasons why change in education is necessary, namely: (1) if the current practices or goals are viewed as ineffective or the goals were not being achieved or (2) when the conditions found in the world change significantly. Due in part to monumental changes in such areas as technology, information flow/cyberspace, demographics, workplace/workforce dynamics and globalization, the world now moves at a faster pace. Friedman (2016) argued that this increased rate of change across many disciplines and fields is accelerating faster than in any time in history and faster than individuals and institutions can adapt.

Many educational theorists, futurists, and organizations, such as the AAC&U, have recognized that changes in society will affect higher education and the preparation of their student clients for the future - regardless of their pursuits (Chickering, 2010; Friedman, 2016; Gardner, 2008). Gardner (2008) convincingly argued that current education may be failing to prepare students for the future and offered his focus on preparing the student using a five minds approach (i.e., development of the disciplined, synthesizing, creative, ethical and respectful minds). The AAC&U has advocated for its members to adopt its LEAP goals and educational outcomes to prepare graduates with the higher levels of learning and knowledge along with intellectual and practical skills necessary not only for their individual success but to insure national economic and democratic vitality (AAC&U, 2005, 2007, 2015a).

As highlighted by Kennedy (2016), W&M began its curriculum review in 2008 in part due to a recognition that their graduates would face a changing world. The impetus for the curriculum change in the curriculum was a response, in part, to the ways in which the external forces now required different preparation of students. As noted by W&M's President Taylor Reveley in 2013:

The passage of two decades between revisions of our general education requirements is quite a long time in today's world. Much has changed since 1993 when our general education requirements were last revised. The international community has drawn much closer; interdisciplinary research, teaching and problem-solving have become much more essential; and there has been an explosive advance in many areas of knowledge. While our professors have been refreshing and tweaking their courses over the years, it was time to bring many of these ideas together in an integrated way. ("W&M faculty approve," 2013)

Given W&M's commitment to liberal education and in order to improve student development of critical and creative thinking, the administration and its faculty must have a common understanding of why and how the COLL curriculum will instill these skills. The case study methodology provided the opportunity for in-depth examination of the meaning making by the faculty regarding the curriculum and its goals. The case study method examines contemporary events using a full variety of evidence ranging from interviews with participants and a review of the archival record to insure triangulation of data, insights and conclusions (Yin, 2009).

Purpose Statement and Significance of the Study

The purpose of this case study was to investigate the administration and faculty's understanding of how W&M's implementation of the new COLL curriculum addressed student development of critical and creative thinking. This case study is significant for several reasons. First, it would provide W&M educational leaders and other important stakeholders an independent examination of practice against intent; a review of the literature regarding teaching critical and creative thinking; identification of best practices (pedagogy); and faculty assessment of progress for instilling critical and creative thinking skills through the COLL curriculum. Second, this case study also serves as an example of how policy, internal, and external factors influence the choices an institution makes in its design, planning, and implementation of curriculum using Lattuca and Stark's (2009) academic planning model.

Research Questions

The following research questions guided this study:

1. How did W&M's planning and implementation of the COLL curriculum align with Lattuca and Stark's (2009) academic plan model?
 - a. What were the external influences that drove adoption of COLL curriculum?
 - b. What were the internal influences that drove adoption of COLL curriculum?
2. How does the COLL curriculum address the competencies for critical and creative thinking?
 - a. What are the competencies for critical and creative thinking to be achieved from COLL curriculum?
 - b. How does the faculty define the competencies associated with critical and creative thinking using the AAC&U as a benchmark?

- c. How were the competencies for critical and creative thinking reflected in planning, curriculum design, and courses?
 - d. What changes to pedagogy did the faculty member find that were of value to improve critical and creative thinking skills and what was the mechanism used to develop and share them?
3. How is the institution planning to assess the COLL curriculum for instilling critical and creative thinking?

Theoretical Framework and Methodology

Just as the purpose of higher education defies a singular precise definition among educational professionals, the term curriculum lacks a precise common definition (Gaff, Ratcliff, & Associates, 1997; Lattuca & Stark, 2009). Faculty, administrators, and policy makers use the term curriculum in a variety of ways ranging from the specific content of a course to the more expansive meanings of the curriculum to include the educational outcomes of a major, program or an entire educational experience. Given the definitional challenges associated with the term “curriculum,” Lattuca and Stark (2009) proposed the concept of an academic plan as an alternative way to conceptualize the design, implementation and assessment tied to decision points, that when effectively addressed, enhance the academic experience of the student and to respond to change.

A critical component to Lattuca and Stark’s (2009) academic planning model is the contextual influence of the environment on the plan, which includes both external and internal influences. External influences include such areas as market forces, societal trends, and government policies and actions (Lattuca & Stark, 2009). Accreditation agencies, specific disciplinary associations, and those dealing with higher education in

general, all of which question what knowledge is worth having, are key influencers on both curriculum development and the curriculum (Lattuca & Stark, 2009). Internal influences include aspects of the institutional mission, financial resources, and governance arrangements to name a few.

Placing student educational needs first, rather than the subject matter, Lattuca and Stark (2009) defined an academic plan as consisting of eight elements, namely purpose, content, sequence, learners, instructional processes, instructional materials, evaluation, and adjustment. Purpose is the selection of knowledge, skills and attitudes to be acquired by the learner based upon the faculty members or planner's assumptions associated with the goals of higher education (Lattuca & Stark, 2009). Critical to this study is examining the interdependent relationship between the purpose of education (i.e., improving critical and creative thinking skills) with content. Faculty often feel comfortable in identifying and describing content requirements, whether for a course or program, given their academic training and specialization. As noted by Lattuca and Stark (2009), just as faculty from different disciplines and fields define the purpose of education differently, faculty members may have differing definitions, outcomes and pedagogies associated with instilling critical and creative thinking as an educational outcome based on the discipline.

Other areas of Lattuca and Stark's (2009) model important to this study include sequencing, learning activities, and assessing plans and outcomes. Highlighting the importance of method of instruction, which greatly influences student learning, Lattuca and Stark (2009) counseled practitioners to expand their teaching strategies beyond the familiar lecture. By including a decision point about instructional processes to be used,

Lattuca and Stark believed that instructors would expand their repertoire of teaching strategies and methods to meet the needs of their students.

Lattuca and Stark (2009) emphasized the growing importance of both program reviews and assessment to measure the student's learning against goals and expected outcomes in order to make necessary adjustments to the plan. They noted that evaluation should be frontloaded in the planning process in conjunction with the development and design of goals and objectives of the program or course rather than as an afterthought. Lastly, all academic plans require adjustments based on lessons learned during execution to improve student learning and as needed to adjust to additional guidance from external and internal sources (e.g., state higher education agencies or departments).

Using Lattuca and Stark's (2009) model as the theoretical framework in which W&M's planning, adoption, and assessment of the COLL curriculum was examined, Figure 1 shows the adaptation of the framework to this case study. Using this model as a guide, the research questions were designed to solicit insights to each of the components of this model. For example, question one primarily relates to external and internal influences, whereas question two primarily relates to the educational environment, and question three relates to outcomes and assessment. Underlying this framework is the assumption, that as an institutional member of the AAC&U, W&M subscribes to the belief that a liberal (arts) education is critical to its graduates and that the interdisciplinary approach found in the COLL curriculum will result in improved skills necessary for its graduates to succeed in future careers.

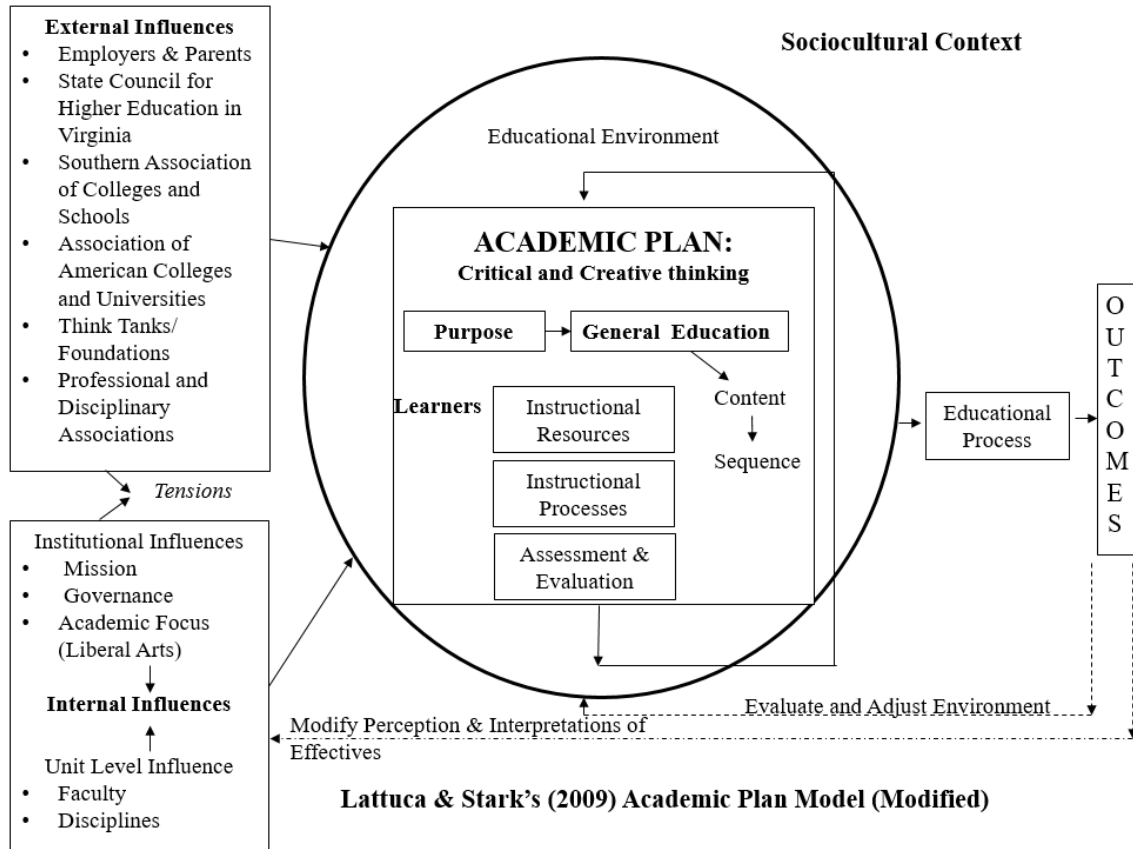


Figure 1. Theoretical Framework. Adapted and modified from the academic plan model by L. R. Lattuca and J. S. Stark, 2009, *Shaping the college curriculum: Academic plans in context (2nd ed)*, p. 90. Copyright 2009 by John Wiley & Sons, Inc.

Methods Summary

This case study relied primarily on qualitative research in order to provide answers to the questions posed in this study. The case study method was chosen as the best research methodology to gain insights into the forces, processes, and decisions involved in changing a higher education institution's general education program using Lattuca and Stark's (2009) curriculum model as a guide. Gall, Gall, and Borg (2007) noted case studies were used for one of three purposes, namely: "to produce detailed description of a phenomenon, to develop possible explanations of it, or to evaluate the phenomenon" (p. 451). For this study, the focus is on describing the phenomenon

specifically how the competencies of critical and creative thinking are included in the COLL curriculum by the faculty.

Important in any research is understanding the researcher's paradigm. A researcher's paradigm is the belief system and worldview that provides the conceptual framework and the philosophical assumptions about the research and influences the selection of tools, instruments, and methods used in the study (Guba & Lincoln, 1994; Ponterotto, 2005). For this study, a constructivist approach was utilized.

Unlike a positivist researcher's belief that there is only one reality, a constructivist recognizes that there are multiple constructed realities concerning an issue that are influenced by many factors to include the individual's experience and perceptions (Ponterotto, 2005). As Crotty (2007) noted, "meaning is not discovered but constructed" (p. 42). For this study, given the diversity of influences, faculty members, and administrators, the goal of this inquiry was the discovery of the various insights and degree of consensus regarding the development of critical and creative thinking skills through general education in an institution with a liberal education focus.

This study examined the planning and implementation of the COLL curriculum specially focused on how the curriculum developed student critical and creative thinking using Lattuca and Stark's (2009) model by examining the archival record and conducting interviews. Secondly, this study sought to identify disconnects between theory, intent and practice for developing critical and creative thinking through the COLL curriculum by discovering those facilitating, constraining, and blocking forces (Cronshaw & McCulloch, 2008). Data collected during research included:

- Review of available COLL syllabi (content analysis);

- Review of faculty and other administrative W&M documentation (content analysis);
- Voluntary interviews with COLL faculty and other individuals with knowledge on the problem;
- Other appropriate documentation from SCHEV, AAC&U, and others.

Given the nature of the research questions, I focused this constructivist-based investigation, in part, on the study of the perceptions of individuals implementing the COLL curriculum. From a listing of general questions to be asked and recorded, the discussions with volunteer participants provided “thick” verbal description of faculty perceptions. This research used reflective analysis, which “is a process in which the researcher relies primarily on intuition and judgment in order to portray or evaluate the phenomenon being studied” (Gall et al., 2007, p. 472).

Assumptions and Limitations

Assumptions for this case study include that the interviewed participants had sufficient accurate recall to answer posed questions with precision and that their responses were truthful. I also assumed that the variety of participants included in the study provided a representative range of experiences to address the research questions.

Limitations for this case study include the perception that the case study methodology is a “soft” form of research especially given the limited number of faculty and others involved in COLL curriculum planning interviewed (Yin, 2009, p. 2). As is the challenge with most case studies, they are by default temporal in nature by providing a snapshot in time (Miles, 2015). The information available and documentary evidence may not accurately reflect the behind the scenes negotiations which resulted in the

negotiated COLL curriculum. Inherent to this research, given the incorporation of reflective analysis is my own intuition and judgment, which may be either biased or limited based on experience.

Based on the research data collection timeline in 2017-2018 and implementation of the COLL curriculum, as illustrated in Figure 2, discussions regarding COLL implementation are confined primarily to the first three years of implementation.

COLL CURRICULUM IMPLEMENTATION TIMELINE

School Year (SY)	COLL Curriculum	GER Requirements
SY 2015 – 2016	Freshman	Sophomores to Seniors
SY 2016 – 2017	Freshman Sophomores	Juniors Seniors
SY 2017 – 2018	Freshman Sophomores Juniors	Seniors
SY 2018 – 2019	All Classes	-----

Figure 2. W&M College COLL curriculum implementation timeline SY 2015-SY 2019. Extracted from Minutes of the Special Meeting of the Faculty of Arts & Sciences on the COLL Curriculum (Approval) on 12 December 2013 (W&M, 2013d).

Lastly, the findings of this case study are limited in application as the case site specifically involves a unique residential liberal arts university. Other private or larger institutions may not find the findings applicable to their situation.

Definition of Terms

Analysis “is the process of breaking complex topics or issues into parts to gain a better understanding of them” (AAC&U, 2009c, p. 2).

Case study research is the in-depth study of instances of a phenomenon in real-life settings and from the perspective of the participants involved in the phenomenon (Gall et al., 2007, p. 634).

Center for the Liberal Arts (CLA) at W&M “supports a robust liberal arts education through the continual organizing and infusing of content, integration, creativity, and innovation throughout the undergraduate College curriculum. Appointed from the faculty for 2-year terms, CLA Fellows provide intellectual leadership and representation from the arts and humanities, social sciences, and natural and computational sciences, along with interdisciplinary programs” (Center for the liberal arts, n.d., p. 3).

Content analysis is the study of particular aspects of the information contained in a document, film or other form of communication (Gall et al., 2007, p. 636).

Convenience sample is a group of cases that are selected simply because they are available and easy to access (Gall et al., 2007, p. 636).

Creative thinking “is both the capacity to combine or synthesize existing ideas, images, or expertise in original ways and the experience of thinking, reacting, and working in an imaginative way characterized by a high degree of innovation, divergent thinking, and risk taking” (AAC&U, 2009b, p. 1).

Critical thinking “is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion” (AAC&U, 2009a, p. 1).

General education “is the part of a liberal education curriculum that is shared by all students. It provides broad exposure to multiple disciplines and forms the basis for developing important intellectual, civic, and practical capacities. General education can take many forms, and increasingly includes introductory, advanced, and integrative forms of learning” (AAC&U, 2011, p. 3).

Inquiry “is the systematic process of exploring issues, objects or works through the collection and analysis of evidence that results in informed conclusion or judgments” (AAC&U, 2009c, p. 2).

Integrative learning “is an understanding and a disposition that a student builds across the curriculum and co-curriculum, from making simple connections among ideas and experiences to synthesizing and transferring learning to new, complex situations within and beyond the campus” (AAC&U, 2009d, p. 1).

Liberal arts are specific disciplines (i.e., humanities, sciences, and social sciences) (AAC&U, 2011, p. 3).

Liberal arts college “is a particular type of institution – often small, often residential – that facilitates close interaction between faculty and students, and whose curriculum is grounded in the liberal arts disciplines” (AAC&U, 2005, p. 3)

Liberal education is an “approach to college learning that empowers individuals and prepares them to deal with complexity, diversity, and change. This approach emphasizes broad knowledge of the wider world (e.g., science, culture, and society) as

well as in-depth achievement in a specific field of interest. It helps students develop a sense of social responsibility, strong intellectual and practical skills that span all major fields of study, such as communication, analytical and problem-solving skills; and the demonstrated ability to apply knowledge and skills in real-world settings” (AAC&U, 2011, p. 3).

Purposeful sampling is the process of selecting cases that are likely to be “information rich” with respect to the purposes of a qualitative research study (Gall et al, 2007, p. 650).

Problem solving “is the process of designing, evaluating and implementing a strategy to answer an open-ended question or achieve a desired goal” (AAC&U, 2009e, p. 1).

Rubrics support performance assessment by providing a scale for measuring different levels of proficiency demonstrated in student portfolios (Gall et al., 2007, p. 652).

Success is intended in the common usage for the word, namely the accomplishment of one’s goals. The context for success may apply to the individual or an institution in meeting perceived or stated requirements. Pertaining to an individual, success is the achievement of a competency, demonstration of skills, or completion of a program as reflected in standards established by a discipline, department, or institution. Furthermore, standards for success may also be established by employers or governmental bodies. Success at the institutional level includes meeting proclaimed and established standards for developing or improving student academic performance and

intellectual skills; in meeting goals as highlighted in strategies, visions, and plans; or in meeting standards established by accreditation or governmental bodies.

Teamwork “is behaviors under the control of individual team members (effort they put into team tasks, their manner of interacting with others on team, and the quantity and quality of contributions they make to team discussions” (AAC&U, 2009f, p. 1).

Summary

A growing consensus among educators, futurist, employers, and governmental officials holds the environment and world in which current and future college graduates will work and live in will be different and require different skills. For individuals to succeed in the future, they will require not only detailed knowledge about their chosen discipline or field gained from the undergraduate experience, but they will require critical, creative, and interdisciplinary thinking abilities. The workplace, whether in the commercial, non-profit, or governmental sphere, will require these skills to solve problems in interdisciplinary teams not necessarily located in the same location (Gardner, 2008). Leveraging the talents of the group while focusing on problem solving by thinking critically and creatively in a collaborative manner will be premium attributes desired and required for the future. Success of the graduate will depend in part to the institution’s attitudes and approaches to inculcate these skills.

This research study utilized a traditional qualitative case study methodology (Gall et al., 2007; Yin, 2009). Based on interviews, archival data and documentation, this case study examined the planning and implementation of the COLL curriculum at W&M using Lattuca and Stark’s (2009) academic planning model as a theoretical framework to

identify insights for institutional leaders and faculty on incorporating critical and creative thinking in the COLL curriculum.

CHAPTER 2: LITERATURE REVIEW

This case study investigated the design and implementation of a new undergraduate general education curriculum at W&M. Despite its formal classification as a doctoral university with high research activity, W&M's focus is on its undergraduate population and the arts and sciences (Indiana University School of Education, 2016). Important to this study is recognizing and understanding the ongoing debate about the purpose of higher education and its ability to meet learning outcomes for students to succeed in the workplace or in further academic study in a complex and rapidly changing world.

As identified in Lattuca and Stark's (2009), certain external and internal influences on curriculum development play an important role in this discussion on the purpose of higher education. Some of the influencers include the state higher education agency, the regional higher education accreditation agency, educational associations, and curriculum decisions and planning within the institution itself. Additionally, this chapter provides the reader an overview of the concepts, pedagogy, and assessment techniques associated with the teaching of critical and creative thinking.

Tensions and Contradictions – Purpose of Education

Throughout history, educators and policy makers have debated the purpose and goals of higher education, how it should be achieved, and how to measure accomplishments. In colonial times, the debate focused on whether the purpose of higher education should reflect the Jeffersonian ideal of educating young men from the elite of

society with a liberal education necessary to lead a democracy or whether education should be for more practical matters as advocated by Benjamin Franklin (Berrett, 2015). Today, even as higher education has become diversified with many different types of public and private institutions of varying sizes and with different missions, the purpose of higher education is still debated by educators, government officials, parents, and students (Eckel & King, 2004; Lattuca & Stark, 2009). This debate directly influences institutional attitudes and methods for incorporating and teaching critical and creative thinking to undergraduates.

Today's students, often encouraged by parents and their potential employers, enter college with a singular purpose, namely to acquire a bachelor's degree for work and a career (Kahlenberg, 2011; Selingo, 2015). This outcome is not new. Since colonial times, career preparation has always been a component of American higher education where colleges focused education on preparing students for the clergy as well as the legal and medical professions. Today, career preparation is the primary goal held by many students attending higher education (Berrett, 2015).

As highlighted by the *Chronicle of Higher Education*, a 2016 poll of more than 137,000 freshman at 180 institutions conducted by the Higher Education Research Institute at the University of California at Los Angeles reflected the primary driver of college choice was getting a good job (84.8%), eclipsing any other reason, such as preparing for graduate or professional school or to gain an appreciation of ideas (Higher Education Research Institute, 2017). Likewise, in a 2017 survey conducted by the New America Foundation, 79% strongly or somewhat strongly agreed that the individual

benefited from higher education, yet 58% felt strongly or somewhat strongly that higher education did not put their interests first (Fishman, Ekowo, & Ezeugo, 2017).

Derek Bok (2013), a former President of Harvard University, highlighted the ongoing tension within society regarding the purpose of a college education in which 80% of the public viewed a liberal arts curriculum as not preparing a student for a successful career. Conversely, in a 2016 *Insider Higher Ed* survey of 539 provosts or chief academic officers, more than 90% strongly agreed or agreed that the liberal arts were central to an undergraduate education. Pointedly in the same survey of academics, more than two-thirds of respondents indicated that political leaders and college presidents and boards were increasingly unsympathetic to liberal arts education (Jaschik, 2016).

Scholars, such as Bok (2006, 2013), Chickering (2003, 2010), and Fish (2008), along with a host of writers and commentators in popular and academic literature have voiced their concerns and opinions on the purpose of higher education. Fish (2008) advocated that the primary purpose of higher education was to focus on introducing students to new knowledge and traditions of inquiry that will enable them to engage in independent research. Chickering (2003) argued against higher education as being solely focused on knowledge transfer and argued instead that a college education should not abandon its purpose of student development, educating for civic engagement, learning, and social responsibility. While acknowledging that institutions must respond to change, Chickering noted they must resist the external pressures to focus on vocational preparation, primarily due to institutional reliance on external financial support (Chickering, 2003, 2010; Chickering & Stamm, 2002).

Taking a broader perspective, Bok (2006) noted there were eight primary purposes associated with an undergraduate education based on his review of the literature. These purposes included: instilling in students the ability to write with precision; cultivating a habit of mind to think critically; developing ethical principles and moral reasoning; preparing them to be active citizens; developing mutual respect due to the diversity found in society; increasing their awareness of living in a global society; developing interests through general education; and lastly preparation for work and career. Even though Bok (2006) recognized that many of these outcomes overlapped and each institution would approach these goals differently, he cautioned of the danger of an institution having an impressive list of goals or outcomes without knowing how they were being achieved.

More recently, Bok (2013) narrowed his listing of educational goals associated with an undergraduate education from his previous listing of eight to three. The first goal is to equip students with the prerequisite knowledge and skills necessary to be successful regardless of career, which includes study of the liberal arts. Like Chickering (2003), Bok's (2013) updated second goal includes preparing students to be active citizens and members of their community in a democratic society. Lastly, higher education should broaden the student's mind by cultivating a wide range of interests and instilling a desire for lifelong learning (Bok, 2013).

Acknowledging this debate between career goals and knowledge acquisition is important given the relationship of the purpose of the curriculum to the development of critical and creative thinking skills in college graduates. Institutions routinely publish institutional goals, mission statements, and strategic plans, which in theory should

describe their educational purpose and expected student outcomes; yet, as Bok (2013) noted, these aspirational documents often times do not fulfill their promises.

Furthermore, Bok (2013) concluded that with a few exceptions, most colleges do not know what their students are learning to include what critical and creative thinking competencies they are achieving.

Tensions and Contradictions - Role of General Education (GE)

Undergraduate curricula, at most institutions, are composed of three parts: general education requirements; courses for the major; and electives. Critical to this research study was an understanding of the role of the student's general education requirements to achieve the institutional goals for student learning to include those associated with critical and creative thinking competencies. As Most and Wellmon (2015) highlighted, the curriculum, to include the general education requirements, is an assertion of the knowledge considered important to be transferred to students by the institution. Understanding how general education helps students achieve critical learning objectives, specifically critical and creative thinking, was central to this study.

The amount of academic time devoted to general education varies by institution, but as a general rule approximately 25% of an undergraduate education is devoted to general education (Ratcliff, Johnson & Gaff, 2004). Given the focus of this case study on critical and creative thinking, a key question was what role does general education play in the development of critical and creative thinking? The answer, in part, depends on the underlying purposes associated with general education.

Today's higher education curriculum bears little resemblance to its past. The modern college curriculum has expanded to include the development of critical and

analytical skills; preparing students for work; and the transmission of classical knowledge to name a few goals (Thompson, Eodice, & Tran, 2015; Zai, 2015). Bok (2013) concluded general education was designed to provide breadth in a student's coursework, increase curiosity and later to "nurture the growing list of specific competencies that faculties believe students need in order to function well in the contemporary world" (p. 171). Even though critical and creative thinking skills would be reinforced throughout the field of study chosen by the student, it is within general education that the foundation for these skills would be built.

Just as purpose of general education differs from institution to institution, so too, does its design and delivery. At most institutions, general education curriculum takes one of these major forms: distributive; competency, interdisciplinary, theme-based, or a combination of these forms (Hart Research Associates, 2016b).

Distributive general education requirements, which represents the more traditional format, requires students to choose and complete courses from across a number of disciplines. At some institutions, these courses can be completed at another institution or through Advanced Placement testing. For example, the previous W&M general education curriculum, introduced in the 1990s, required students to take one course (generally three or four credits) in each of the following areas: mathematics and quantitative reasoning, natural sciences, social science, world cultures and history, literature and history of the arts, creative and performing arts, and philosophical, religious and social thought. Some general education courses could be used to satisfy the requirements in the major.

Many institutions in the 1990s revised their general education curriculum to more fully account for the liberal arts, whereas previously student choice was the governing principle (Zai, 2015). Recently, general education has become more interdisciplinary in form with courses centered on major themes in required sequences to achieve institutional learning goals (Ratcliff et al., 2004). For example, the University of Notre Dame in 2018 initiated a new general education program centered on “ways of knowing” built around a core curriculum. Courses are designed to develop student intellectual capacities and practice in different ways to approach, analyze, and understand aspects of their lives and the world by understanding and using different approaches such as history or quantitative reasoning (University of Notre Dame, 2018).

Critics of general education cite a lack of rigor, cohesion, and coherence (Zai, 2015). Historically, general education often placed a premium on academic advising services to aid students due to the complex rules associated with these requirements (White, 2015). Lastly, past surveys of student perceptions about general education indicated: the purpose of general education was often misunderstood; course requirements were perceived as involving too much time; and the courses were not linked to student interest, major, or job skills (Thompson et al., 2015).

Opinions among faculty and administrators also vary widely on general education. At many institutions, general education courses are taught by either adjuncts, graduate assistants, or new faculty – many of whom have little knowledge of general education or its purpose (Zai, 2015). More senior or tenured faculty, with strong incentives for research and scholarship in their fields, often place less emphasis or attention to general education (Zai, 2015).

Contrary to these trends, a 2015 survey of administrators sponsored by the AAC&U found more than half of college administrators (55%) indicated that general education had become a greater priority at their institutions (Hart Research Associates, 2016a). In this same survey, two-thirds of administrators noted their institutions were placing more emphasis on integration of knowledge, skills and application in their general education program and 76% established clear learning outcomes for general education—up from 63% in 2008.

There are tensions among campus members regarding the role and purpose of general education in the curriculum, as well in the development of curriculum and educational goals for the institution (Lattuca & Stark, 2009). As previously noted, faculty members, administrators, students, alumni, and boards of trustees each exert considerable internal influences on important educational questions. But there are a host of external influencers, including employers, state agencies, accreditation agencies, and educational associations and think tanks, that place demands on the design of the curriculum to include its focus on critical and creative thinking (Lattuca & Stark, 2009).

External Influences

Following Lattuca and Stark's (2009) academic plan model to frame this study, external influences on the development of curriculum for critical and creative thinking skills include employers, the state governmental agency, accreditors and educational association(s) requirements.

External influencer: Employers. Given the expansion of the global knowledge economy, Wagner (2008) argued the future required all students to learn how to think, solve problems, and communicate effectively, and that technology had made recalling old

information less valuable than using new information to solve new problems. Friedman (2016) and Hess (2016) noted the combined effects of such technological advances as the Internet of Things (IoT), artificial intelligence, global digital connectivity, big data, and cloud services will transform the workplace. Friedman (2016) assessed that the world is being “globalized, digitized, and robotized” at a speed, scope and scale never previously experienced (p. 239).

To many, this environment demands employees with critical and creative thinking abilities (Hess, 2016). Friedman (2016) noted that the highest paying jobs of the future will be “stempathy” jobs requiring some level of technical knowledge, but more importantly will require the ability to empathize with other human beings that is insufficiently emphasized in traditional education (p. 29). The employees of the future will require skills that enable them to effectively work together with other people to solve problems in an environment with conditions of volatility, uncertainty, complexity, and ambiguity (Hess, 2016).

Critics of education have long noted that graduates are not adequately prepared to succeed in the workplace. In a 2006 Department of Education study, commonly referred to as the *Spelling Report*, employers reported new graduates lacked the critical thinking, writing, and problem solving skills required for the workplace (U.S. Department of Education, 2006). A 2006 survey of over 400 U.S. companies found employers identified critical thinking and creativity as very important applied skills necessary for all new employees at all educational levels (Benner & Casner-Lotto, 2006).

Since 2006, AAC&U has conducted five national surveys or focus groups of employers to examine trends and employer expectations from higher education. A Hart

Research Associates (2007) survey, sponsored by AAC&U, identified the top 10 skills valued by employers, which included such items as the ability to think clearly about complex problems; problem solving; the ability to be creative and innovative; and the ability to apply knowledge and skills in new settings.

More recently, a 2013 online poll of 318 employers sponsored by AAC&U, 93% of respondents agreed that thinking critically, communicating clearly, and problem solving were more important competencies than the undergraduate major, and 75% of employers wanted colleges to place more emphasis on improving the abilities of their student's abilities to think critically, creatively and innovatively (Hart Research Associates, 2013). Follow-on polls in 2015 and 2018 produced similar results and highlighted the gap between student and employer perceptions, in which the majority of students felt they were well prepared with the skills demanded for the workplace but employers did not share this view (Hart Research Associates, 2015, 2018). Other surveys, such as those sponsored by the National Association of Colleges and Employers (2015), also support the findings from the AAC&U (Hart Research Associates, 2013, 2015) sponsored surveys.

Employers often exert considerable influence on educational policy makers and educational leaders and administrators. Employers also have an indirect influence through alumni and parents as stakeholders. To ensure the success of their graduates, institutions of higher education must account for the competencies desired to solve the complex problems found in the workplace and in society, including critical and creative thinking skills. Based on various studies and surveys, sufficient evidence exists that

universities may be failing to produce the graduates with the skills demanded and necessary for the 21st century (Strauss, 2016).

External influencer: State higher education agency. As noted by Lattuca and Stark (2009), a state government higher education agency may exert an external influence on the mission and design of academic plans and on higher education curriculum. Pertinent to this study was understanding the role of the State Council of Higher Education for Virginia (SCHEV). SCHEV is the coordinating body for higher education policy, strategic planning, and leading collaboration among the 39 Virginia public higher education institutions. Additionally, SCHEV provides recommendations to the Governor and the General Assembly on funding to higher education.

Recognizing the economic and demographic changes within the state, SCHEV, at the direction of the General Assembly, published in 2014 the Framework of the Statewide Strategic Plan for Higher Education [for Virginia]. This framework has four overarching goals, namely: provide affordable access for all; optimize student success for work and life; drive change and improvement through innovation and investment; and advance the economic and cultural prosperity of the Commonwealth and its regions. Even though this one-page framework makes no specific mention of critical or creative thinking, it does identify a sub-goal to “strengthen curricular options to ensure that graduates are prepared with the competencies necessary for employment and civic engagement” (SCHEV, 2014, Goal 2, Strategy 2.1). The 2014 Framework of the Statewide Strategic Plan for Higher Education is found in Appendix A (SCHEV, 2014).

Beginning in 2014, SCHEV embarked on a process to develop a statewide strategic plan based on the framework goals. In 2014, JBL Associates, Inc., the

consulting firm used for the development of the strategy, recommended SCHEV operationalize the definition by 2019 for the required critical thinking, creativity and analytic skills and other skills necessary for graduates to live productive and meaningful lives (JBL Associates, Inc., 2014). Furthermore, the JBL 2014 report recommended establishing a uniform set of requirements in lieu of the wide latitude historical given to each institution to develop their own performance standards.

The JBL report cited the SCHEV 2007 Task Force on Assessment, which required each public higher education institution to develop and implement a plan that defined and assessed the institution's progress on certain core competencies, including critical thinking. The 2007 Task Force required institutions, not later than 2013, to use "concrete, non-anecdotal and quantifiable information on student achievement" to report on a wide range of learning competencies to include critical thinking but not creative thinking (SCHEV, 2007, p. 2).

W&M provided their assessment on critical thinking for the 2012-13 academic year, noting the faculty intentionally avoided a narrow definition of critical thinking. The college listed three general objectives that would be achieved throughout the college experience and identified that the skills would be specifically addressed in the freshman seminar and during two general education required courses (W&M, 2015). The three general objectives for critical thinking were: to demonstrate an ability to reason deductively; to demonstrate an ability to reason inductively; and to demonstrate sensitivity to typical forms of fallacious reasoning.

Assessment of the institution's progress in achieving these critical thinking objectives was based on a course portfolio methodology of the general education

requirements by a faculty working group and experts using a set of standard set of criteria (W&M, n.d.4). Creative thinking was not identified as a critical competency by W&M or by SCHEV, and therefore it was not assessed.

Reviewing the SCHEV website and documentation, historically the state exerted minimal influence on the design, implementation, and assessment of W&M's curriculum. SCHEV's focus, as reflected in the last two yearly annual reports to the General Assembly, has centered on increasing affordable access, raising enrollment and completion rates, and increasing federal funding for research to advance the economic prosperity of the state.

The 2016 SCHEV Annual Report to the General Assembly did highlight as a consideration for 2017 to “ensure quality in education by collaborating with institutions to measure the quality of undergraduate education, including civic engagement of graduates and relevance to high-demand occupations across regions of the state” (SCHEV 2017b, p. 21). The report further highlighted that Virginia had joined a national effort to improve its measuring quality in written communication, quantitative reasoning, and critical thinking (SCHEV, 2017b).

External influencer: Regional accreditation agency (SACS-COC). Given the decentralized structure of education in the United States, regional associations accredit institutions of higher education. Approved by the U.S. Department of Education, the Southern Association of Colleges and Schools - Commission on Colleges (SACS-COC) serves as accrediting body for W&M. Reaccreditation at W&M is required every 10 years and involves a complex process managed by W&M's Office of Institutional Accreditation and Effectiveness (IAE).

As noted in *SACS Principles of Accreditation* (2018a), accreditation signifies that the institution, through a peer review process, has a mission appropriate to higher education; sufficient programs, resources and services to accomplish the mission; and clear educational objectives which met and offer its students a sound education. The *SACS Principles of Accreditation* (2018a) section 8 and 9 provides institutional standards on curricula and educational programs. *SACS Principles of Accreditation* (2018a) makes no mention of either critical or creative thinking as either a standard to be achieved or guidance for curriculum inclusion.

The *SACS Handbook for Institutions Seeking Reaffirmation* (2011) only used critical thinking as an illustrated example for inclusion in a Quality Enhancement Plan (QEP). Even though the SACS website contained numerous policies, guidelines, good practices and position statements, none addressed the requirement for critical and creative thinking or other learning competencies associated with them. On 4 December 2016, SACS-COC reaffirmed the accreditation of W&M.

External influencer: Association of American Colleges and Universities (AAC&U). For more than a century, AAC&U has served as an advocate for undergraduate education with more than 1,100 institutional members to include W&M (AAC&U, 2007). In 2005, the AAC&U launched the Liberal Education and America's Promise (LEAP) initiative, which was designed to address the aims, outcomes and principles for a twenty-first century undergraduate education (AAC&U, 2005).

The 2005 LEAP initiative was the result of a collaborative study by educators, employers and accreditors resulting in a consensus on the key outcomes that all undergraduate students, regardless of major, needed to achieve (AAC&U, 2005).

Concluding from their study of the conditions found in the 21st century, which demanded different skills and knowledge, AAC&U has been consistent in their message for member institutions to provide a liberal education with a specified set of essential learning outcomes (AAC&U, 2002, 2005, 2007, 2010, 2011, 2013b, 2017). The AAC&U (2011) defines a liberal education as:

An approach to college learning that empowers individuals and prepares them to deal with complexity, diversity, and change. This approach emphasizes broad knowledge of the wider world (e.g., science, culture, and society) as well as in-depth achievement in at least one specific field of study. It helps students develop a sense of social responsibility; strong cross-disciplinary intellectual and practical skills (e.g., communication, analytical and problem solving skills), and a demonstrated ability to apply knowledge and skills in real-world settings. (p. 3)

AAC&U (2007) clearly objected to the notion that the purpose of an undergraduate education should focus on preparing students for work by using marketable majors and skills for immediate employment. However, the association did recognize that to be prepared for the future global economy, competencies were required in many skill areas to include insuring students could think critically and creatively to solve unscripted problems. In order to accomplish their goals, AAC&U (2007) highlighted the need to transform both the university curriculum and assessment processes.

Acknowledging the influence of the rise of academic disciplines and the growth of “academic silos” that aligned liberal education primarily with general education courses taken during the first two years of college, the AAC&U advocated a

revolutionary and more holistic approach to education. The AAC&U (2007) also noted that student success in college was incorrectly being measured through enrollment data, course credits completed, persistence, and degree attainment data, rather than measuring what contemporary college graduates needed to know and should be able to do. In essence, colleges and universities measured the things easily measured or valued by outside agencies, rather than measuring student knowledge or competencies achieved.

AAC&U member institutions are asked to subscribe to seven principles of excellence, as reflected in Appendix B. Even though all of these principles are important to the institutional effort to provide a world-class liberal education and to inculcate critical and creative thinking skills to undergraduates, two principles directly apply to this study. Principle 3, teach the art of inquiry and innovation, immerses students in analysis and problem solving through “inquiry-based learning” in which students would learn how to find and evaluate evidence, how to consider and assess interpretation, and to form their own analysis and interpretation to solve problem and communicate solutions persuasively – involving both critical and creative thinking (AAC&U, 2007).

Principle 7 addresses assessing the student’s ability to apply learning to complex unscripted problems, which includes the abilities to think critically and creatively. Key to this principle is assessing students’ progress by student’s demonstrating their abilities to solve complex unscripted problems in the context of their studies rather than simple testing. As part of this study, the research included identifying how W&M faculty and staff assess student cumulative progress, specifically addressing critical and creative thinking, as well as how they share findings about effective educational practice.

Critical to any assessment is defining the outcomes expected. As identified in Appendix C, AAC&U (2007) has identified four essential (major) learning outcomes of which the development of intellectual and practical skills are the focus of this study. Included in these skills is the development of critical and creative thinking, which are to be practiced extensively and progressively across the curriculum.

In 2009, AAC&U released the result of the faculty and educational researcher efforts to define an assessment tool tied to each of the essential learning outcomes. Called VALUE (Valid Assessment of Learning in Undergraduate Education), these rubrics can be used to assess whether the program or institution are meeting the LEAP objectives. Evaluating a sample of the best of students' work completed in courses based on clearly defined outcomes and descriptors found in the rubric, the work is scored by trained faculty using their expert judgment. The rubrics are not meant to grade students' work nor "teach to the test," but reflect a consensus among many educators of what the various levels of competency looks like.

While all assessment tools are subject to tests of validity and utility, AAC&U (2017) highlighted the value of using these rubrics over standardized tests which are not tied to content and often do not motivate student to do their best. Undergoing multiyear scrutiny by experts to insure their validity, faculty training, prior to the use of these rubrics, is considered essential for their use to be considered credible, trustworthy, and dependable. Found in Appendices D and E are the VALUE rubrics for critical and creative thinking, which served as the baseline for analysis for this study (AAC&U, 2009a, 2009b)

Internal Influences

As the Lattuca and Stark (2009) model reflects, institutions are guided in their development of curriculum by many internal factors to include its history, goals, mission, governance procedures and resources available. The institution's mission statement aligns the organization's members with its purpose and mission and serves as the foundation for building strategic plans (Bryson, 2011; Hinton, 2012; Paris, 2003). Bryson (2011) emphasized that the role of the mission statement is defining who the organization is and what it does.

W&M's mission statement clearly defines its role as a public liberal arts university focused on its residential undergraduate program linking teaching, research, and public service (W&M, n.d.1). Supporting this mission statement, W&M identified six goals, which included the goal for the institution to "provide a challenging undergraduate program with a liberal arts and sciences curriculum that encourages creativity, independent thought, and intellectual depth, breadth, and curiosity" (W&M, n.d.1). Building on its mission statement, W&M's strategic focus is to be a liberal arts university "where students develop critical thinking and understanding of diverse perspectives to excel in the 21st century" (Vision statement, n.d.). Clearly W&M values the development of critical and creative thinkers as an important component of the curriculum.

As at many educational institutions, W&M conducts internal strategic planning. Similar to other university plans, the W&M internal plan covers a number of issues related to resourcing, alumni, and non-curricular student issues. Even though W&M's internal strategic plan makes no mention of critical and creative thinking, the required six-year academic and financial plan provided to the Commonwealth of Virginia does.

Virginia provides a great deal of autonomy to its public institutions, yet it does require each institution to develop and submit plans and institutional performance standards every two years. The most current six-year plan narrative submitted by W&M in 2017 for the period 2018 – 2024 reiterated W&M goal to provide a challenging curriculum, which encourages “creativity, independent thought, and intellectual depth, breath, and curiosity” (W&M, 2017a, p. 2). W&M listed implementation of the new undergraduate general education COLL curriculum as a priority in its plan. The plan specifically highlights the development of critical thinking and inquiry skills as a focus area during the first and fourth years.

What remains unknown is how or in what ways the redesigned general education curriculum is meeting the goals and objectives as elaborated in these documents. Determining how critical and creative thinking is inculcated in the COLL curriculum, to include the extent, pedagogy and assessment methods used by the faculty is the subject of the research as identified in Chapter 1.

Critical Thinking

Many academic institutions, to include W&M, highlight the importance of critical thinking skills in their mission statements and strategic plans. As many have noted, academia overwhelmingly agrees that one of the primary goals for education is to develop critical thinkers (Willingham, 2007). Indeed, many faculty members identify thinking critically and analytically as a course educational outcomes and developing a student’s abilities to think critically is essential or very important (AAC&U, 2005; Bok, 2013).

Industry leaders often link critical thinking to problem solving, and some would argue it is more important than content knowledge. For example, a 2014 survey ranked critical and analytical reasoning and applying knowledge and skills for problem solving in the top five skills desired by employers (Hart Research Associates, 2015). In the same survey, students also rated the acquisition of critical thinking and problem solving skills as the prime outcome desired from their college experience (Hart Research Associates, 2015).

Yet, critiques of higher education have noted the lack of development of the desired critical thinking skills (Arum & Roska, 2011a, 2011b; Bok, 2006, 2013). For example, results from one study, using the Collegiate Learning Assessment (CLA), indicated little growth occurred in the development of critical thinking skills after two years in college (Arum & Roksa, 2011a). Part of the problem of assessing student proficiency for critical thinking resides in the lack of consensus with the definition and components of critical thinking, which complicates dialogue among communities of interest.

This lack of precision and consensus as what competencies comprise critical thinking, often expressed as problem solving skills in the workplace, often places the business and academic communities in conflict (Destler, 2014; Korn, 2014; McCadden & Brown, 2014; Sternberg, 2013). Additionally, different terms are used to describe critical thinking. For example, Flores, Matkin, Burbach, Quinn & Harding (2014) used the term higher order thinking skills, defined as a non-algorithmic mode of thinking to generate multiple solutions. Other authors use terms such as “deep learning,” “reflective

learning,” or simply “thinking” skills to define a competency similar to critical thinking (Boostrom, 2005; National Survey of Student Engagement, 2013).

Defining critical thinking. Even though the term critical thinking is a mid-20th century creation, it has long intellectual roots within academia and has been described in multiple ways by different scholars (Abrami et al., 2015; Kuhn, 1999; Mulnix, 2012). Shim and Walczak (2012) surveyed the critical thinking literature and concluded the term has been described, depending on the theorist, as:

- consisting of 12 specific aspects of thinking,
- five dispositions,
- 35 dimensions,
- or four processes.

Even though there are numerous ways critical thinking has been defined, in essence, the three primary definitions include: as an attitude or state of mind for problem solving; as a knowledge of the methods of reasoning and logic; or as skills to be learned. Each of these definitions has implications on the curriculum and the approach taken by the instructor.

Critical thinking as a mindset. The AAC&U rubric (Appendix D) for critical thinking aligns with this idea that critical thinking is a “habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts and events before accepting or formulating an opinion or conclusion” (AAC&U, 2009a, p. 1). Facione (1990, 2013) described critical thinking as how one’s attitude affects approaches to problems, questioning, and issues to get to the truth as well as the level of the individual’s inquisitiveness and dedication to reason. Conrad and Dunek (2012) described “core

qualities of the mind” as critical in creating the inquiry driven learner by exploring ideas with enthusiasm, being resilient, engaging in spirited dialogue and collaboration (p. 61).

Critical thinking as reasoning and logic. Lattuca and Stark (2009) noted critical thinking is often used as a synonym for logical thinking and reasoning. Similarly, Willingham (2007) noted critical thinking was having the ability of seeing both sides of an issue; being open to new evidence that disconfirms the ideas and reasoning currently held by an individual by demanding evidence, and deducing and inferring conclusions from available facts and solving problems. Imposing intellectual standards on one thinking, as noted by Paul and Elder (2006) and Ku, Ho, Hau, and Lai (2014), to make decisions, solve problems and support scientific reasoning, requires student knowledge of certain concepts. Often taught in courses on reasoning and logic, students are instructed about drawing inferences, weighing evidence, identifying embedded assumptions, assessing casual inferences, and detecting biases and fallacies.

Critical thinking as skills. Some scholars approach critical thinking in terms of developing specific qualities and skills (Bok, 2006). These qualities enable students to: recognize and define a problem clearly; identify the arguments and interests on all sides of an issue; gather relevant facts and appreciation of their relevance; perceive as many plausible and possible solutions; exercise good judgment in choosing the best alternative by using inferences, analogy and other reasoning skills to test the alternative; and lastly, have a reasonable grasp of statistics (Bok, 2006, p. 68). Many students often see critical thinking as a product or skill to be demonstrated in class (Bahr & Lloyd, 2010).

Definitional quagmire. The lack of institutional and researcher consensus on what constitutes critical thinking and its core competencies affects not only an

institution's ability to assess whether it has achieved its outcomes, but may lead to confusion among faculty members as to how to teach it. As Hatcher (2006) noted, the institutional or faculty conceptions of learning outcomes and goals greatly influences the structure, content, and assessment for critical thinking. For this study, the AAC&U definition of critical thinking was used as a benchmark to frame further analysis. Just as there is disagreement among academics on the definition of critical thinking and its component elements, there is diversity of opinions on how critical thinking should be taught and integrated into the curriculum.

Pedagogy for critical thinking. The literature contains numerous articles, books and web resources regarding how to teach, integrate, or infuse critical thinking into most disciplines or fields of study given it is often linked as an educational outcome from general education (Ku et al., 2014; Lattuca & Stark, 2009; Rotherham, & Willingham, 2009; Willingham 2007). Institutional websites, devoted to critical thinking, such as the Foundation for Critical Thinking or university centers for teaching (such as found at Vanderbilt University or Boston College), provide valuable insights and tips to infuse critical thinking into content courses.

Modeling of critical thinking in the classroom is important for student learning. Instructors need to articulate the thinking processes required for critical thinking, such as identifying the problem, highlighting missing and irrelevant solutions, and weighing arguments and solutions (Berg, Morfit, & Reynolds, 2014; Ku et al., 2014; Lattuca & Stark, 2009). Yet, as Bok (2006, 2013) noted, many instructors continue to use passive transfer of knowledge techniques, such as the lecture, with assessment focused on simple

recitation of factual material rather than active learning pedagogy to awaken curiosity and critical thinking through questioning and collaboration.

An active learning pedagogy bridges the gap between critical thinking theory and practice and shifts the focus from the instructor teaching a passive audience to an environment that actively engages students in learning (Barr & Tagg, 1995; Herreid, 2004; McFarlane, 2015; Piergiovanni, 2014). Even though active learning can be accomplished in a variety of ways, many have highlighted the use of case studies to develop undergraduate critical thinking and problem solving skills (Barnes, Christensen, & Hanson, 1994; Behar-Horenstein & Niu, 2011; McFarlane, 2015). As noted by Harvard Business School's Christensen Center for Teaching and Learning (n.d.), a case study involves a complex real world situation in which the instructor guides discussions using questions, student dialogue and debate, and the application of analytical tools and frameworks to engage students in a challenging interactive learning environment to improve analytical and critical thinking.

In an active learning environment, the faculty member's role shifts from simply transferring knowledge to becoming a coach and mentor (Lundeberg, Levin, & Harrington, 1999; McFarlane, 2015). Though a variety of ways to inculcate critical thinking into course content exist, a search of the database *Education Complete* produced numerous examples of the successful integration of case studies in content courses as varied as food safety, ethics, chemistry, physical education, international relations, and education to improve critical thinking (Golich, Boyer, Franko, & Lamy, 2000; Wasserman, 1994). In essence, the use of an active learning strategy shifts the focus

from the teacher to the student and from “what to think” to “how to think” (Behar-Horenstein & Niu, 2011, p. 25).

Even though much of the literature advocates for the integration of critical thinking in teaching in the content area, some theorists proposed the direct instruction of students in critical thinking (Berg et al., 2014). Many universities, including W&M, offer online and residence courses in critical thinking for a variety of undergraduate, graduate, and executive education programs (Ku et al., 2014). Even though these courses may be valuable, Hersh and Keeling (2011) highlighted student proficiency in critical thinking still required continual reinforcement throughout the curriculum.

If critical thinking is considered an essential competency and outcome of an undergraduate experience, assessment is critical, yet is often overlooked, under resourced, and subject to considerable faculty debate (Arum & Roska, 2011a). As early as 2002, AAC&U noted colleges were unable to say with any certainty what students learned during their undergraduate experience to include for the goal of critical thinking. Much has changed since 2002, especially with today’s increased focus on assessment and accountability, yet the literature still reflects considerable uncertainty on how best to assess competency in critical thinking (Hart Research Associates, 2016a).

Assessment of critical thinking. There are a variety of means to assess critical thinking. The major approaches for assessment include: surveys of student and faculty perceptions of competency; standardized tests; and lastly rubrics. Each measure incurs costs to the institution, and some are viewed as more valid than others.

Survey assessments. Some universities rely on faculty and student perceptions to assess progress and attitudes on a variety of issues. For example, the National Survey of

Student Engagement (NSSE) is an online student survey that includes questions for student self-assessment for critical thinking and compares responses with other similar institutions. The NSSE survey does not use the term critical thinking, but rather uses the terms higher order learning, reflective and integrative learning, and quantitative reasoning-under the major heading of academic challenge. Some have criticized NSSE results as an inaccurate assessment noting the survey measures students' satisfaction with their college experience and their own inaccurate perceptions of growth, as the survey does not directly assess student learning (Hersh & Kelling, 2011; Shim & Waczak, 2012).

The Faculty Survey of Student Engagement (FSSE) measures faculty responses for similar areas as those covered in the NSSE. As with the NSSE, the term critical thinking is not used, however, it does ask faculty members to judge many of the traits, characteristics, and skills found in many critical thinking definitions. For example, the FSSE 2016 asked participating faculty members to identify areas such as how often they encouraged their students to think creatively about new ideas or about ways to improve things; to critically evaluate multiple solutions to a problem; or to discuss complex problem with others to develop a better solution. Like NSSE, this survey measures faculty perceptions versus reporting out on actual measures of student learning in these areas of critical thinking.

Standardized testing. Some institutions have resorted to using a wide variety of standardized tests to assess proficiency for critical thinking. First developed in 2000 by the Council for Aid to Education (CAE), the Collegiate Learning Assessment (CLA) is used by over 100 college and universities and evaluates students' critical thinking, analytic reasoning, and written communication skills using performance tasks and two

writing components rather than multiple-choice questions (CAE, 2013). ACT's Collegiate Assessment of Academic Proficiency (CAAP) is another standardized assessment that contains six independent test modules including a critical thinking module.

The ACT CAAP critical thinking test consists of 32 questions that measure student skills in analyzing, evaluating, and extending argument and is heavily weighed to assess student analyzing skills (Henderson, Herrington, & Stassen, 2011). Other instruments include the ETS Proficiency Profile, the Watson-Glaser Critical Thinking Appraisal (WGCTA), the Cornell Critical Thinking Test (CCTT), or the California Critical Thinking Skills Test (CCTST).

Even though the use of standardized testing and quantitative data is appealing to an institution, Shim and Walezak (2012) offered caution in interpreting the results given that test performance is greatly influenced by student motivation as well as the level of their pre-college acquired critical thinking abilities—both variables difficult to measure and parse out from testing outcomes. Furthermore, each of the standardized tests measures different competencies in different ways (Henderson et al., 2011). For example, the CLA uses realistic problems but the CAAP is oriented to an academic setting.

Rubrics. Rubrics are another way to assess individual student abilities to think critically. A web search of the term *critical thinking rubrics* produces a rich assortment of simple to complex rubrics such as those created by Washington State University (2006). Hersh and Keeling (2011) developed their own rubric tied to the student's

evaluation of evidence, analysis and synthesis, drawing conclusions, and acknowledging alternative explanations/viewpoints.

Even though rubrics for institutional use to evaluate curriculum and programs do exist, they appear less referenced in the literature. Perhaps the best-known institutional level rubric for critical thinking was developed by AAC&U to support their LEAP initiative. For the purposes of this research, the AAC&U rubric served as the baseline model for critical thinking used in this research.

Assessment linkage to institutional intent. No one critical thinking assessment tool will meet the demands of all institutions. As noted by Henderson et al. (2011), the design of an assessment plan and selection of the tool(s) must first capture what the faculty and administration considers important. Secondly, the determination of when the assessment takes place and who is to be assessed is also critical as is the associated costs of conducting these assessments.

Given the focus of this study, research questions were designed to examine how W&M defines critical thinking, the methods used to teach or incorporate it into the COLL curriculum, and how both the institution and the faculty assess it. In essence, this inquiry sought to identify if a gap exists in what faculty members and the institution espouse and what they do in practice to teach and assess critical thinking to avoid a “hopeful pedagogy” (Nicholas & Raider-Roth, 2016).

Creative Thinking

Since World War II, creativity has become increasingly linked to economic prosperity (Sawyer, 2015). Changes in information technologies combined with increased global economic competitiveness have made creativity a required workplace

competency, which in turn has driven the need for addressing creativity in the classroom (Bailin, 2015; Chan, 2013; Reynolds, Stevens & West, 2013; Sawyer, 2015; Wagner, 2008). For example, a 2014 AAC&U sponsored survey noted 65% of the 400 employers surveyed highlighted being innovative and creative as a very important higher education learning outcome (Hart Research Associates, 2015).

Daniel Pink (2005) in *A Whole New Mind* reinforced the importance of creativity, noting the world has shifted from those who used existing knowledge to a future in which a “very different kind of person with a very different kind of mind—creators and empathizers, pattern recognizers, and meaning makers” exists (p. 1). Further, Gardner (2008) postulated, in *Five Minds for the Future*, that developing the creating mind in which the individual would synthesize and create—even providing small novel contributions—would be valued. Leaders across business, education, and government desire graduates who are skilled in creative thinking in order to address complex problems.

As Reynolds et al. (2013) noted, if creativity is important to the higher education institution, creativity must be embedded in the curriculum for students to have an opportunity to learn and practice it. Among adult learners, creativity also increases the connection and content knowledge by integrating old knowledge while exploring new knowledge (Knowles, 1979). Furthermore, creativity improves research skills and improves student abilities to solve complex problems (Reynolds et al., 2013).

Yet, some researchers have noted the difficulty of conceptualizing and quantifying creative thinking so that it has become viewed more as an aspirational goal for higher education rather than a measurable educational outcome (Alencar & Oliveira,

2016; Knowlton & Sharp, 2015). There is also an ongoing debate about the best approach to foster creative thinking. Just as with critical thinking, there exist varying schools of thought of how to conceptualize, define, teach, and assess creative thinking.

Defining creative thinking. E. Paul Torrance of the University of Georgia is considered one of the most influential scholars on creativity in education (Sawyer, 2015; Sternberg, 2006). Torrance (1977) defined creativity “as the process of sensing problems or gaps in information, forming ideas or hypotheses, testing and modifying these hypotheses and communicating the results” (p. 7). Creativity, as opposed to conformity, resulted in the production of something new or original; being open to experience; recombining ideas or seeing new relationship; and at its highest level the “creative idea be true, generalizable and surprising considering what was known” (Torrance, 1977, pp. 7-8). Later, Torrance (2003) simplified his definition of creativity as “the process of sensing difficulties, problems, gaps in information, missing elements; making guesses or formulating hypotheses about these deficiencies; testing these guesses and possibly revising and retesting them; and finally communicating the results” (p. 54).

Although Torrance’s (2003) definition is often cited, there remains no consensus on the definition of creativity. For example, in one study where researchers interviewed 12 academics in higher education, their conversations produced a list of over 30 possible variations in conceptualizing creativity in learning and teaching (Knowlton & Sharp, 2015). Sternberg (2012) and Bailin (2015) highlighted creativity was more a habit, similar to the mindset approach in critical thinking, that could be learned and once learned would be exercised involuntarily by encouraging a spirit and community of inquiry, whereas Dehaan (2011) and Gomez (2013) linked creativity to problem solving

by seeing beyond the immediate situation and to redefine the problem or some aspects to it.

A search for consensus on a definition and the competencies associated with creativity is compounded in that creativity can be viewed in different ways by different disciplines (Gomez, 2013). For example, within business, creativity is associated with entrepreneurship, whereas artistic creativity is viewed as meeting an inner need and scientific and technological creativity deals with real world problems in the environment (Gomez, 2013). In essence, whether inculcating creativity for a course or within the general education curriculum, there may not be a consensus on its definition and the specific competencies desired.

For this study and analysis, the definition of creative thinking used is the one established by the AAC&U. As reflected in Appendix E, creative thinking is “both the capacity to combine or synthesize existing ideas, images, or expertise in original ways and the experience of thinking, reacting, and working in an imaginative way characterized by a high degree of innovation, divergent thinking, and risk taking” (AAC&U, 2009b, p. 1).

Pedagogy for creative thinking. Even though Chickering and Gamson (1987) did not specifically address creativity in their seminal work, *Seven Practices for Good Practice in Undergraduate Education*, several of their ideas serve as the foundation for effectively incorporating creativity into the curriculum. For example, they noted, effective learning is not passive rather it requires active learning. Active learning requires students to discuss and write about the content and learning, while simultaneously relating it to past experiences and applying it to their daily lives

(Chickering & Gamson, 1987). Further, research highlights the importance on teachers exhibiting or reinforcing the following types of behaviors to foster creativity in an active and collaborative classroom:

- Build student self-efficacy in their abilities,
- Help students to resist peer pressures that may stifle their creative thinking,
- Encourage problem finding and risk taking,
- Modeling creativity,
- Questioning assumptions,
- Encourage idea generation, cross fertilization and collaboration on ideas.

(Daly, Mosyjowski, Oprea, Huang-Saad, & Seifert, 2016; Dehaan, 2011; Sawyer, 2015; Sternberg & Williams, 2003)

Creativity is enhanced by students understanding the difference between divergent, associative, convergent, and analytical thinking, which are all essential to the creative process and problem solving (Bailin, 2015; Dehaan, 2011). Divergent thinking is flexibility in thinking by generating new original ideas (Gomez, 2013; Peterson et al., 2013). Associative thinking is when thoughts are intuitive similar to free word association (Dehaan, 2011). Convergent thinking is a process of either evaluating the various ideas to converge on a solution or adapting the old to the new (Gomez, 2013). Analytical thinking involves analysis, synthesis, and focus (Dehaan, 2011). Each of these types of thinking either require direct instruction or modeling by the instructor in courses in the student's content area.

Pedagogy: Creative thinking direct instruction. Direct instruction in creative thinking occurs in courses or programs that stress fostering creative attitudes among students; improving the understanding of the creative process; exercising creative behavior and thinking; and teaching specific creative thinking techniques (Sawyer, 2015). Berrett (2013) noted creativity was increasingly being built into the general education requirement, whereas for example, the University of Kentucky required all undergraduates to take a three-credit course in creativity and others, such as Carnegie Mellon and Stanford, require a course in creative expression.

Knowlton and Sharp (2015) designed a graduate course based on their definition that “creative achievement results in ideas or products that are novel and have value within specific contexts” (2015, p. 2). Based on their definition, the authors established the following course goals:

- understand the nature of creativity as a process and as a mode of thinking and problem solving that can impact individuals, organizations, and/or society as a whole;
- explore a variety of avenues for rejuvenating their own creativity as well as the creativity of others in their charge;
- develop guidelines for applying creativity to their professional endeavors; and
- articulate connections between a sense of self (e.g., culturally, socially, spiritually, philosophically) and their inclinations toward (or away from) a creative lifestyle.

(Knowlton & Sharp, 2015, p. 4)

What remains unknown is how often these activities are incorporated into course planning and used by faculty members.

Pedagogy: Creativity integrated into content area. Bailin (2015), Sawyer (2015), and Marquis and Henderson (2015) noted creativity is bounded by disciplinary practices with each discipline having distinctive conceptions of what constitutes creativity. According to this line of reasoning, creativity is bounded by the interaction of attributes of individuals within a domain that includes disciplinary norms, values, and epistemologies, all of which exert considerable influence on how creativity is understood and learned (Balin, 2015; Marquis & Henderson, 2015). For example, within the social sciences, creativity may be defined as the development of novel insights and connections, whereas in the fields and disciplines of business or science, creativity may be marked by the creation of new things, products or processes that have value (Marquis & Henderson, 2015).

Similar to direct instruction, the record is mixed regarding whether the integrative approach works to achieve the outcomes to produce creative thinkers. Dehaan (2011) cited the importance of scientist using creative thinking to solve ill-structured problems, but noted less than 1% of tests or quizzes required student to use these skills in a national sample of undergraduate life science courses taught by 50 different instructors.

Obstacles to creative thinking pedagogy. Experts in and out of higher education (Bok, 2006, 2013; Christenson & Eyring, 2011) have called for renewing attention to creative thinking as an undergraduate student competency, but a series of obstacles exist to successfully incorporating these concepts in the curriculum. Institutional change is often difficult especially within higher education where traditions are valued (Christensen & Eyring, 2011; Daly, Mosyjowski, & Seifert, 2014). The tradition of instructionism in which the transfer of knowledge is the overriding purpose of education often governs

what occurs in the classroom thus making instruction and activities designed to expand creativity less attractive given the limited time with students in the classroom (Barr & Tagg, 1995; Knowlton & Sharp, 2015; Sawyer, 2015).

Some argued that the pressures of assessment of higher education have stifled creativity and risk taking thus impeding attention to creative thinking (Marquis & Henderson, 2015). Ramocki (2014) noted some educators do not believe creativity can be taught, or the existing curriculum satisfies the requirement, or that they lack the materials or knowledge to incorporate creativity into their content area, or do not know how to teach creativity. Even if creativity is valued by the faculty, their efforts are hampered by the lack of consensus on how best to incorporate creativity into the curriculum, lack of student interest, the number of students in the classroom, and insufficient contact time (Alencar & Oliveira, 2016).

Creative Thinking Assessment. The forms of assessment for creative thinking are similar to those conducted for critical thinking, but typically are more qualitative rather than quantitative (Cowdroy & De Graaff, 2005). Assessment of creativity is difficult and cited by some as a barrier to effectively incorporating it as learning goal (Marquis & Henderson, 2015). Others highlighted that assessment of creativity can only take place within the confines of the student's major, in which a student's product, idea, or outcome can only truly be judged as creative or innovative by the faculty or group of experts (Orlando, 2012).

Standardized tests do exist to assess a student's propensity for thinking creatively, with the most widely used instrument being the Torrance Tests of Creative Thinking (TTCT). The TTCT examines a student's abilities based on three criteria: ideational

fluency (number of ideas generated), originality (number of ideas not suggested by others of similar age), and flexibility (the number of different categories the ideas could apply to; Sawyer, 2015). Some researchers have noted that the TTCT and similar tests for creativity are flawed in measuring and predicting real-world creativity (Kim, 2006; Zeng, Proctor, & Salvendy, 2011).

Student self-perception or self-assessment for creative thinking has been addressed in NSSE gathered data, but these findings must be used with great caution. Reiter-Palmon, Robinson-Morrall, Kaufman, and Santo (2012) conducted a study at two large universities to assess whether undergraduate student self-assessments of their creative thinking skills were valid. They concluded that self-assessment for creative thinking was more aligned with an individual's belief that they were creative within their discipline rather than whether they possessed the skills or were creative in practice.

Rubrics can be developed to support assessment of student creative thinking (Reddy & Andrade, 2010). Brookhart and Chen (2015) noted that unlike rating scales, rubrics provide students a set of criteria, which include a description of the levels for performance. Rubrics support transparency in assessment by having clear and focused criteria, which enables students to self-assess their performance while also providing insight into what constitutes creativity (Brookhart & Chen, 2015; Jonsson, 2014).

For the purposes of this study, the AAC&U rubric for creative thinking (AAC&U, 2009b) was used as the baseline rubric for this study. Even though research is sparse on the use of rubrics for creative thinking in undergraduate education, instructors could tailor the AAC&U rubric to account for content and student experience. For example, Cain (2016) highlighted the use of rubrics to assess performance and creativity of an

innovative two-credit elective creative thinking course where pharmacy students developed a mock TED talk of an innovative solution to a problem identified by the student.

Summary

This chapter provided an overview of some of the external and internal inputs and sources of tension, as identified by Lattuca and Stark (2009), that impact the development of the undergraduate curriculum. Based on the literature review, it would appear that the most significant influencers for successfully incorporating critical and creative thinking within higher education reside internal to the institution. While external influencers, such as AAC&U, SCHEV, and SACS-COC are important to recognize, curriculum development and implementation is primarily left to the schools. For example, while W&M is a member of AAC&U, adherence to the LEAP initiative, its principles or learning outcomes, which include the development of student critical and creative thinking skills, is voluntary.

This chapter also provided an overview of some of the existing critical and creative thinking literature specifically focusing on definitions, concepts, pedagogies and assessment frameworks to examine the college's efforts to infuse these skills specifically in W&M's COLL curriculum. The literature indicated that the concepts of critical and creative thinking lacked a consensus in the field on not only the definition, but also associated taxonomies related to terms and outcomes. Even though advocates for direct instruction of critical and creative thinking exist, the bulk of the literature reflects that critical and creative thinking instruction is primarily discipline specific and achieved through integration into the curriculum.

The literature also indicated that while there is a wide variety of methods to assess critical thinking, there are far fewer for creative thinking. Even though many faculty members and institutions recognize the increasing importance of critical and creative thinking, existing research highlights that often the outcomes are unrealized in terms of classroom instruction or activities to inculcate these competencies, and institutions lack meaningful assessments.

CHAPTER 3: METHODOLOGY

The purpose of this case study was to investigate W&M's implementation of a new general education curriculum and to study how it supported the development of students' critical and creative thinking. This chapter outlines the specific methodology used in the research to include the rationale for using a qualitative descriptive single case study; setting and participant selection procedures; privacy, informed consent, and permissions procedures; data collection procedures; and data analysis procedures. In addition, this section outlines my role as the researcher to include identification of assumptions made, identification of potential biases, and a description regarding the efforts made to assure the validity, credibility, and dependability of the research and its results.

As Hetherington (2013) concluded a methodology is the "link between ontology, epistemology and theory informing the research, and the practice of conducting that research" (p. 72). Even though this research was guided by the methodology as described in this chapter, I recognized, at the beginning of the research, the point Hatch (2012) raised, namely, "most qualitative researchers would agree that research questions, methods, and other elements of design are altered as studies unfold" (p. 10). In essence, this case study design encompassed a philosophy of a "flexible structure" with deviations from this methodology identified in this and subsequent chapters (Hatch, 2012, p. 38).

Research Questions

Three primary questions guided this study:

1. How did W&M's planning and implementation of the COLL curriculum align with Lattuca and Stark's (2009) academic plan model?
 - a. What were the external influences that drove adoption of the COLL curriculum?
 - b. What were the internal influences that drove adoption of the COLL curriculum?
2. How does the COLL curriculum address the competencies for critical and creative thinking?
 - a. What are the competencies for critical and creative thinking to be achieved from COLL?
 - b. How does the faculty define the competencies associated with critical and creative thinking using the AAC&U (definition and rubric) as a benchmark?
 - c. How were the competencies for critical and creative thinking reflected in planning, curriculum design, and courses?
 - d. What changes to pedagogy did the faculty member find that were of value to improve critical and creative thinking skills and what was the mechanism used to develop and share them?
3. How is the institution planning to assess the COLL curriculum for instilling critical and creative thinking?

These research questions were developed to address several levels of inquiry related to the problem, namely questions asked to specific interviewees; questions asked of the individual case and about the institution; and questions asked of an entire study based on the literature review related to critical and creative thinking (Yin, 2009).

Research Design

A qualitative research approach was selected using the case study method to examine the research problem. Creswell (2014) noted qualitative research is an approach “for exploring and understanding the meaning individuals or groups ascribe to a social or human problem” (p. 4). Qualitative research was the best fit given the intent of the research to gather the perspectives of the faculty, leaders, and administrators via lengthy interviews. Even though data could be collected via surveys, the results would not produce the richness desired or represent the role of the particular context (Hatch, 2012).

A plethora of formalized academic definitions for qualitative research exist, but Hatch (2012) noted at their core they contained the following characteristics:

- they involved the lived experiences of real people in their natural settings in an attempt to gain their perspectives;
- unlike quantitative methods which used instruments such as surveys to gather data, a researcher gathered the data over a longer period of time; and
- it acknowledged the role of subjectivity of the researcher and the role of reflexivity.

In essence, this case study explored the “why and how” questions for the issue under examination (Yin, 2009, p. 8). The “why” questions focused on the reasons the faculty and administrators made particular choices to include critical and creative thinking skills into the new COLL curriculum based on the influence of the AAC&U LEAP initiative. The “how” questions generally addressed the choices of individual instructor philosophy and pedagogy for instilling these skills in their courses to include

determining the implications of department, school, and other guidance on course and curriculum design.

Descriptive case study. A case study approach was used based on its appropriateness for examining contemporary events (Yin, 2009). Gall et al. (2007) defined case study research as (a) “the in-depth study of (b) one or more instances of a phenomenon (c) in its real-life context that (d) reflects the perspectives of the participant involved in the phenomenon” (p. 447). These authors further expanded that a phenomenon for study could be an examination of a process, event, person or other item of interest, whereas the case would be a particular instance of the phenomenon. The phenomenon for this descriptive case study is the COLL curriculum.

Critical to using the case study method is defining the case, the particular instance of the phenomenon, focus, and the case boundaries (Gall et al., 2007; Yin, 2009). For this research, as reflected in Figure 3, this case study was bounded by place, time, curriculum, and focus. This case study is place and time bounded within W&M’s

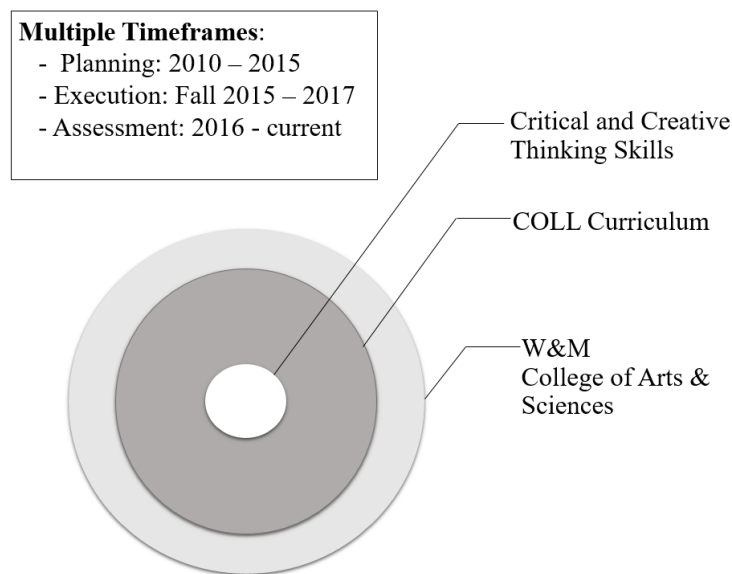


Figure 3. Case Study Focus and Boundary Identification. Timeframes compiled from multiple sources as reflected in Appendix F and timeline contained in Appendix G.

College of Arts & Sciences and centers on the planning of the COLL curriculum begun in 2010, focused on critical and creative thinking, and its implementation beginning in fall 2015 along with ongoing institutional assessment.

Similar to a historian, archival documents were used to provide background and context, but the case study also relied on interviews and the examination of contemporary documents, such as syllabi, to provide an in-depth picture of the case. Additionally, the case study research benefited from Lattuca and Stark's (2009) theoretical proposition on the development of curriculum and various theoretical propositions advocated in the review of literature on critical and creative thinking.

There are three purposes for a case study, namely: to describe in rich detail a phenomenon; to develop an explanation for a phenomenon; or to evaluate the phenomenon (Gall et al., 2007). The purpose of this case study is to *describe the phenomenon* of the incorporation of critical and creative thinking in the COLL curriculum. This case study captured the meaning that the participants subscribed to the issue as well as the contextual factors and events influencing the participant perspectives utilizing Lattuca and Stark (2009) academic plan model as a guide for the researcher.

Philosophical assumptions. I relied on a constructivist's approach to the case study, which assumes "a world in which universal, absolute realities are unknowable, and the objects of inquiry are individual perspectives or constructions of reality" (Hatch, 2012, p. 15). Constructivists recognize that multiple realities exist and reality is constructed by the various subjects found in the case study. I recognized the constructivist's epistemological view that knowledge is a human construction, which requires a methodology that includes data collection and tools based on naturalistic

qualitative research methods (Hatch, 2012). The constructivist underpinnings for this research align well with a case study methodology.

For this research, a constructivist approach was considered the most appropriate for a variety of reasons. Although influenced by the organizational mission and internal governance, the nature of the academic community provides a great deal of freedom to each faculty member to shape their own courses based on their experiences and educational philosophy (Bok, 2013; Lattuca & Stark, 2009). Secondly, it is unclear at the start of the research project what specific guidance was provided during the revision process to the general education requirements and to what degree there was awareness among the faculty concerning the integration of critical and creative thinking skills in the COLL curriculum.

Role of the researcher. As noted by the American Educational Research Association (2006), the design and logic of study is “shaped by the intellectual tradition(s) in which the authors are working and the ways in which they view the phenomenon under study” (p. 34). Subsequently, the researcher’s views influence the identification of questions, analysis, interpretation, and the research product. To avoid bias, the researcher must maintain neutrality by insuring the accuracy of the participant interview summaries as well as clearly identifying and confirming the sources of archival data and other records examined.

Central to case study methods is the truthful portrayal of the etic and emic perspectives in a case study (Gall et al., 2007). Borrowing from etic–emic concepts found in anthropology, an etic perspective pertains to the views held by the researcher, whereas emic perspectives capture the perspectives of the research participants. Aside

from maintaining an intense interest and concurring with the importance of developing student critical and creative thinking skills, as identified by the AAC&U, I am not employed by W&M or had a role in the design of the COLL curriculum.

Given the role of the researcher as the primary measuring instrument in qualitative research and the potential to become personally involved based on interaction with faculty, administrators, and others, it was important to guard against researcher bias, while recognizing the role of reflexivity. Given the constructivist paradigm, reflexivity refers to the role of the researcher as a significant constructor of the social reality (Gall et al., 2007).

Even though the reader of the research will be the ultimate judge, the goal of the researcher is to accurately reflect the reality of the participants as well as documenting the reality found in the archival and contemporary record in order to describe the phenomenon while leaving the implications of the research to the reader. To help guard against bias during collection and analysis, I used a research journal to identify the assumptions and the preliminary conclusion I made during the research to review prior to analysis as a guard against bias (Craig, 2009). Found at Appendix H is a researcher as instrument statement.

Data collection

To support this qualitative study, data were collected from multiple sources as found in Appendix I. Interviews were conducted with faculty members and others who had witnessed the COLL curriculum deliberations or who could provide data pertinent to the study. Historical records, such as faculty, committee and board of visitor meeting minutes, and other documents were collected, and, as available, COLL course syllabi

were reviewed. To support the trustworthiness and validity of qualitative research findings, I sought to triangulate data from multiple sources (Gall et al., 2007).

Setting. The study was conducted on the campus of W&M in Williamsburg, Virginia. The university's focus is on its undergraduate liberal arts program, which offers more than 40 undergraduate majors and has more than 6,200 undergraduate students. As previously noted, my focus is on W&M's shift to the new COLL curriculum beginning with the enrolling class of 2019 (fall 2015).

In addition to the requirements identified by the major, W&M requires all undergraduates complete the following courses:

- Freshman Year: Two course taken during alternate semesters - COLL 100 First Year Experience (Big Ideas) and COLL 150 Freshman Seminars.
- COLL 200: Students must take at least one COLL 200, which are designed by the various academic departments, in the three knowledge domains - Natural World and Quantitative Reasoning (NQR); Culture, Society, and the Individual (CSI); and Arts, Letter, and Values (ALV). At least one COLL 200 course must be taken in the sophomore year.
- COLL 300: Typically COLL 300 is taken during in the third year and can be completed on or off campus.
- COLL 400: The COLL 400 capstone experience takes place in the major, typically in the senior year through upper-level seminars, independent study and research projects, and Honors projects that are specially designated by departments, programs, or schools (W&M, 2013d, 2017b).

Given W&M schedule for implementation of the COLL curriculum and the research window for this study, a limitation of this study is that W&M has not finished implementation or assessment of the COLL curriculum. The focus of this study was on the first two years of the new programming.

Participants. Using purposeful sampling, which allows for relatively small sample size to provide insights to address the case’s questions, I utilized the concept of criterion sampling. The primary criterion used in the selection of core participants was the individual participant must currently be or have been a faculty member instructing a COLL course or been involved in the design, implementation or assessment of the COLL curriculum as reflected in Figure 4.

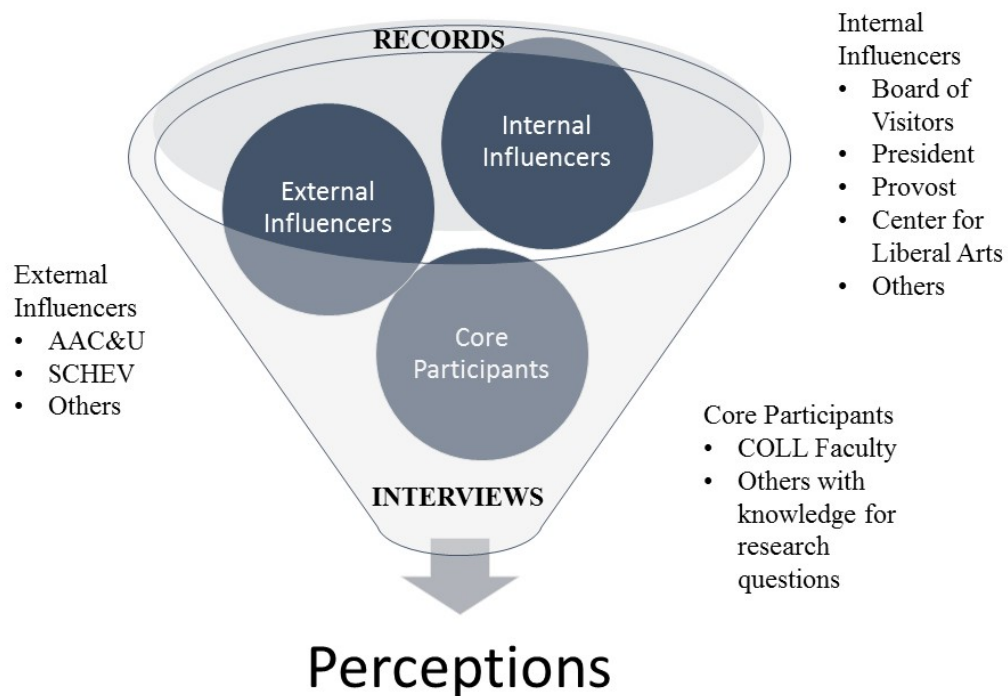


Figure 4. Purposeful Sample - Case Study Participants. Interviews with COLL teaching faculty to gain perceptions along with public records from external and internal influencers were critical to this study.

The number of COLL offered courses has varied since its first implementation in fall 2015. Based on registrar data provided in October 2017 and omitting COLL 400 courses, Table 1 illustrates the number of COLL curriculum courses offered over time by domain.

Table 1

COLL Curriculum Courses Offered (Fall 2015 – Fall 2017)

Semester	COLL 100	COLL 150	COLL 200 ALV	COLL 200 CSI	COLL 200 NQR	COLL 200 Multiple Domains	COLL 300
Fall 2015	31	61	22	26	17	7: ALV/CSI 1: ALV/NQR 8: CSI/NQR	
Spring 2016	35	59	46	36	19	7: ALV/CSI 1: ALV/NQR 7: CSI/NQR	2
Fall 2016	40	59	44	38	19	9: ALV/CSI 1: ALV/NQR 8: CSI/NQ	4
Spring 2017	25	58	40	39	15	11: ALV/CSI 6: CSI/NQ	18
Fall 2017	32	58	45	49	17	17: ALV/CSI 1: ALV/NQR 7: CSI/NQ	26

Note. Data extracted from W&M registrar's provided data with data cutoff 10 October 2017. COLL Course Domains: Arts, Letter, and Values (ALV); Natural World and Quantitative Reasoning (NQR); Culture, Society, and the Individual (CSI). Course offerings for fall 2017 courses were based on preliminary data provided by the departments and were subject to change.

Participant selection process. I used purposeful sampling with the goal to gain voluntary participation from those deemed to be information-rich participants (Gall et al.,

2007, p. 178). The primary participant selection process criteria included individual faculty members who volunteered to participate in this study whom either are or were COLL instructors or an educational leader or an administrator whom were involved in the development, implementation or assessment of the COLL curriculum.

Given the current schedule of implementation of the COLL curriculum, I originally proposed targeting only volunteer faculty participants from COLL 150 and 200 teaching faculty. As the research progressed, I realized that COLL 100 teaching faculty could also provide valuable insights, and a faculty member could be teaching multiple COLL level courses (COLL 100 and 150). While there are no required sampling requirements for a qualitative study, I originally proposed targeting at least 15 faculty members for interviews primarily from COLL 150 and 200 level courses from across the various domains, which would provide rich descriptions and perspectives on the research problem.

I conducted interviews with 24 individuals, of which 21 were faculty members who have taught COLL courses. Comments made by faculty members were masked to conceal their department affiliation. My original research design was to interview 15 faculty members teaching COLL 150/200 courses. However, 21 faculty members were interviewed who have taught 38 total COLL courses to include all course domains (Arts, Letter, and Values (ALV); Natural World and Quantitative Reasoning (NQR); Culture, Society, and the Individual (CSI).

Past and present educational leaders and administrators involved in the development, implementation, or assessment of the curriculum at W&M were considered important informants. While the initial goal was to solicit 6-10 voluntary interviews,

upon conducting the research, it became clear that the archival record provided much of the information and only required a handful of interviews to fill in the gaps.

As noted by Hatch (2012), researchers must be careful in not overstating the benefits of the study. For this case study, I identified to the potential participants that the primary benefit was to the institution to improve the COLL program. No incentives were offered to any participants. Although it would add to the reader's confidence in the credibility and trustworthiness of the study findings to identify positions, responsibilities, or scope of knowledge of the respondents, it is impossible to do so without violating confidentiality. Correspondingly, interviewee knowledge or involvement in the planning, implementation or assessment of the COLL curriculum ranged from little to very detailed knowledge.

Even though some may conclude that this study used a convenience sampling, it did not. Gall et al. (2007) noted convenience sampling, which is the least desirable method of sampling, is a sample based on the researcher having a working relationship with participants in the case. I have had no prior experience or contact with the individuals related to this study.

Informed consent and permission procedures. Prior to beginning of the study, I reviewed the W&M's procedures for the protection of human subjects, as well as recommendations found in Gall et al. (2007) and Hatch (2012). A request to conduct the research was submitted to the W&M Institutional Review Board (IRB) and approval was received in October 2017 (EDIRC-2017-10-19-12459). I strictly adhered to the protocols established for the ethical conduct of research.

Individuals were contacted by email and more than half responded when initially contacted. Upon receipt of an individual's interest in the study, they were contacted by email and provided an informed consent form to review prior to the interview. A copy of the email solicitation is included at Appendix J and the consent form is included at Appendix K. I followed-up with non-respondents by email up to three times. A favorable interview response rate was 64% representing a broad section from the arts and sciences. The interview location was the choice of the interviewee.

The consent form clearly indicated that the individual's participation in the study was voluntary; the individual could withdraw from the study at any time; the identity of the subject was to be concealed (assurance of confidentiality); the participant agreed to electronic recording of the interview; an overview of the procedures on safeguarding electronic recordings, transcripts, and notes; and risk and benefits to the individual. Prior to interviewing, the participant signed and dated the consent form.

For all participants who agreed to the interview, I made detailed physical notes of the interview guided by the interview form. For four non-recorded interviews, I forwarded a copy of my notes summarizing their responses as a member check. Interviews were conducted in a location of their choice (e.g., office, room in the library). Although no one did, I planned if a participant declared their intention to withdraw from the study at any time, the electronic audio recordings, transcription, notes and other data collected associated with the individual would be destroyed.

Assurance of confidentiality and data security. I took the following measures to assure the confidentiality of the participants: no names were used in the research; emails exchanged to confirm participant participation, schedules and interview

summaries were deleted at the conclusion of the study; participant identities were replaced by an identifier based on a code developed by me; and all electronic recordings were destroyed upon completion of the study. When deemed appropriate to quote a participant, a pseudonym was used and care was exercised to insure no identity could be attributed from the use of a quote or phrase. Interview recordings were maintained on a password protected laptop maintained at my home with no access other than me.

Data Collection Procedures

The concept of triangulation guided the strategy for data collection to support the validity of the case study and its findings. Data collection methods included structured interviews, and an examination of archival record from the institution and from other sources to support the case study. As Yin (2009) noted, the “lack of a formal database” for most case studies is a major shortcoming of case study research (p. 119).

Experienced researchers use field journals and researcher’s notes to record the progress of their research (Gall et al., 2007). As recommended by Hatch (2012), I attempted to maintain a research journal to record my affective experience while doing the study as well as to maintain a record of progress, insights, problems and assumption I made during the research.

Structured interviews with core participants. Structured interview questions guided the discussion with the COLL faculty, as well as with others involved with the planning, implementation and assessment of the COLL curriculum. The goal of these interviews was to generate data by asking predetermined question in the same order using the same words to all participants to facilitate comparing responses (Hatch, 2012). Given the limited time available with the volunteer participants, it was determined that

conducting a conversation around the topic was not the wisest use of time nor would provide the data needed to support the case study (Hatch, 2012). To facilitate time and provide an opportunity for the interviewee to prepare responses, a listing of selected interview questions was forwarded to each participant prior to the formal structured interview.

I began the interview outlining the reasons and anticipated benefits for the research at a location selected by the participant. Interview questions were designed to avoid yes/no responses and were structured to enable an open response from the interviewee (Dilley, 2000). The listing of structured questions used during the interviews is found at Appendix L. The average interview lasted approximately 55 minutes.

An open-ended unstructured question was posed the end of the interview to provide flexibility to enable the interviewee to provide additional data, views, or insights not addressed during the structured portion of the interview and to enable the researcher to follow-up on a comment or insight. I amended the structured interview script after the start of the research to solicit a faculty self-assessment of their effectiveness in instilling critical and creative thinking as well as to solicit their feedback on available institutional resources to assist them in the design and teaching of the COLL curriculum especially related to these two competencies.

Pilot testing of the structured interview protocol and questions was conducted with a faculty member not participating in the research. The intent of this pilot was to eliminate any bias in the questions; to check wording, and to determine if sufficient time would be available to the faculty member to adequately address the issues. Additionally, I conducted rehearsals to prepare for a successful interview.

Interviews were recorded using a digital recorder. I transcribed the interview data using commercially available transcription software. No audiotapes exist for four interviews as a result of permission not being granted; the audio was of poor quality; or the transferred audio files became corrupted. In these specific cases, interview notes summarizing the responses to the questions were forwarded to the interviewee for member checking as to their accuracy.

Upon conclusion of the interview with faculty members, I requested access or copies of the COLL related syllabi for their courses be provided with the same confidentiality guarantee. Given the interview often included a dialogue on areas of curriculum, pedagogy, and other issues, after the interview, I forwarded copies of the AAC&U critical and creating thinking rubrics as well as other articles and materials I thought the individual might find useful based on the conversation.

Number of participants and guarding against bias. There is no set of rules for the number of participants necessary for a qualitative case study. While recognizing the trade-offs between depth and breath, Gall et al. (2007) noted a smaller number of people whom provided in-depth information was as valuable as a larger sample whom provided less information. Conversely, a larger sample of participants helps to describe the diverse opinions and insights from the phenomenon. For this study, I expanded the number of interviews of faculty teaching COLL beyond what I had originally proposed to insure adequate representation from across the domains and COLL 100, 150 and 200 level courses.

Faculty members included in this study had on average 23 years of undergraduate teaching experience. Participants interviewed ranged from non-tenured faculty to full

professors and administrators. Table 2 summarizes the extensive undergraduate teaching experience of the COLL teaching faculty (12 males/9 females) interviewed for this study.

Table 2

Faculty Teaching Experience

Years Teaching Undergraduates	Number of Faculty
5 - 10 years	5
11 - 20 years	5
21 - 30 years	7
30 years +	4

Note. Developed based on responses to the interview question – How long have you been teaching undergraduates? (interviews conducted January-April 2018).

Gall et al. (2007) cautioned that volunteer subjects are likely to be a biased sample of the population. While recognizing the dangers of bias both in the participants and myself, it was minimized given the diversity of sources used in the case study and the efforts to triangulate insights and conclusions.

Document Collection. Researchers often differentiate between documents and records. Documents are unofficial communications, such as letters or emails, whereas records refer to written communications used for official purposes (Gall et al., 2007). Hatch (2012) expanded the term and meaning for documents as “unobtrusive data” (p. 116). Hatch (2012) included in this category of unobtrusive data all documents, artifacts,

records, and archives, which offered insights on the topic under investigation without interference with the social phenomenon or area under investigation.

For this research project, I relied primarily on the following records: W&M faculty, committees, and Board of Visitors (BOV) meeting minutes; assessment plans; and other policy and guidance documentation.

Data Analysis Procedures

Upon completion of data collection, analysis was conducted largely as prescribed by Gall et al. (2007). Analysis was largely completed using a hybrid approach containing elements of both interpretational analysis and reflective analysis. I recognized the potential for bias during analysis and include a statement of researcher as instrument at Appendix H. A discussion of procedures used is outlined in subsequent paragraphs.

Structured interviews. After the interviews, I read through all of the material to identify potential themes and patterns using pre-set (*a priori*) codes developed based on the literature review. Codes were developed that summarized the data using the categories developed by other theorists, as outlined in the literature review, for critical and creative thinking. Additional codes were developed using the Lattuca and Stark (2009) framework for academic plans in order to parse and organize similar comments made by different respondents. Appendix M lists the codes used.

For example, I posed the following question to each faculty member who participated – “How do you define critical thinking to your students?” As highlighted in the literature review, there is no broadly accepted definition associated with critical thinking. Responses from these interviews were coded against the three major categories of critical thinking, namely whether it was defined as a skill, mindset, or associated with

reasoning and logic. Emergent codes were added as a result of reviewing and analyzing the interview responses.

While coding occurred using the procedures as outlined above for interpretational analysis procedures as outlined by Gall et al (2007), I determined for some of the interviews, reflective analysis was a more appropriate approach. In several cases, responses to interview questions were not precise, requiring judgment to discern themes and patterns from the conversation. Unlike interpretational analysis, which uses prescribed and explicit procedures, reflective analysis relies on the intuition and judgment of the researcher to make sense of the data being reviewed (Gall et al., 2007).

Documents. Content analysis of documents was fairly straightforward using the pre-set and emergent coding used to analyze interview data. Based on the request for a course syllabus during the interview, the provided syllabi were carefully reviewed to examine whether the terms critical or creative thinking were used. Additionally given the challenges associated with the taxonomy related to these terms used for critical and creative thinking skills, I analyzed and coded the syllabi for synonyms such as higher order thinking or innovation as well as analyzing the syllabi in its focus on the learner (Cullen & Harris, 2009).

Validity, Reliability and Usefulness

Insuring the rigor and quality of the research was a paramount concern. As noted by Creswell and Miller (2000), part of the challenge associated with insuring rigor and quality in qualitative research is qualifying what the researcher means by these terms given the existence of multiple perspectives. Validity in qualitative research is defined as “the extent to which the research uses method and procedures that ensure a high degree

of research quality and rigor” (Gall et al., 2007, p. 657). In essence validity insures the case study and its findings are considered credible. Reliability for a case study is “the extent to which other researchers would arrive at similar results if they studied the same case using exactly the same procedures as the first researcher” (Gall et al., 2007, p. 651).

Validity. For construct validity conducted during data collection, Yin (2009) recommended the use of multiple sources of evidence for triangulation; application of a chain of evidence; and having key participants, which he called informants, review the draft. During data analysis, internal validity was assured by pattern matching, explanation building, and addressing rival explanations for observations and insights resulting from the research (Yin, 2009). Lastly, only through the execution of a well-designed case study could external validity be assured, which essentially equated to the degree of generalizability of the research to other cases (Yin, 2009).

To support validity of this case study research, I relied on triangulation from multiple sources for evidence to support the researcher’s observations and conclusions from the case study (Creswell & Miller, 2000; Yin 2009). For data uncovered during the case study that was contradictory or inconsistent, I sought out alternative explanations, theories, and frameworks (Gall et al., 2007). Care was taken to avoid weighing or relying primarily on insights or documentation of senior administrators rather than by faculty members teaching COLL courses.

As previously noted, validity was further advanced by maintaining an audit trail by documenting the inquiry process through journaling and record keeping. Even though there was not an external auditor to examine the research process, I kept the following research questions (Creswell & Miller, 2000) in mind that an auditor might ask:

- Are the finding grounded in the data?
- Are inferences logical?
- Is the researcher biased?
- What strategies were used to increase validity to the research (p. 128)?

Given this research involved a unique case, it does affects its generalizability to other institutions. What the research does provide are analytic generalization, which may be useful to other institutions which are in the process of reviewing or changing their general education requirements to improve their student's critical and creative thinking skills.

Reliability. Even though the research methodology and procedures used for this case study can be reproduced, it is not a given that the same conclusions would be made. The reason for these potential differences is the research design. Based on the views of the faculty and other core participants, it is possible that differing perceptions over time could be made that might significantly differ with subsequent studies. Even though many of the conclusions and perceptions of external and internal forces on the design of the curriculum for critical and creative thinking would in the short term be valid, changes in policy whether at the departmental, college, or state level would also significantly alter the situation and subsequent studies.

Usefulness. At the onset of the research, usefulness was a primary concern. My intent was to produce a product of value to readers from the institution to improve their integration of critical and creative thinking skills in the curriculum. This case study did illustrate the utility of Lattuca and Stark's (2009) model in the design of academic plans and curriculum. One of the disadvantages of case study research is the difficulty of

generalization to other situations, thus I attempted to identify insights that would be helpful to the reader at other institutions (Gall et al., 2007).

Summary

The focus of this study was to investigate how implementation of a new general education curriculum addressed student development for critical and creative thinking. Secondly, it examined the development of the curriculum using the Lattuca and Stark's (2009) framework model for curriculum development. From a constructivist paradigm view and using a qualitative, single, descriptive case study methodology, I used structured interviews to gain the perspectives and experiences of primarily faculty members augmented and triangulated with current and historical documents.

While this chapter outlined the research methodology and design that I had intended to follow, I also recognized this qualitative research methodology would involve what Maxwell (2013) described as a "flexible structure" (p. 3). Figure 5 summarizes the essential elements found in the research design as outlined in this chapter.

Purpose Statement: Does the institution and faculty have a common understanding of why and how the COLL curriculum will improve the development of critical and creative thinking skills?

Why Important:

- Examination of practice against intent
- Use Lattuca & Stark (2009) model to identify factors blocking/impeding
- Identify faculty perceptions

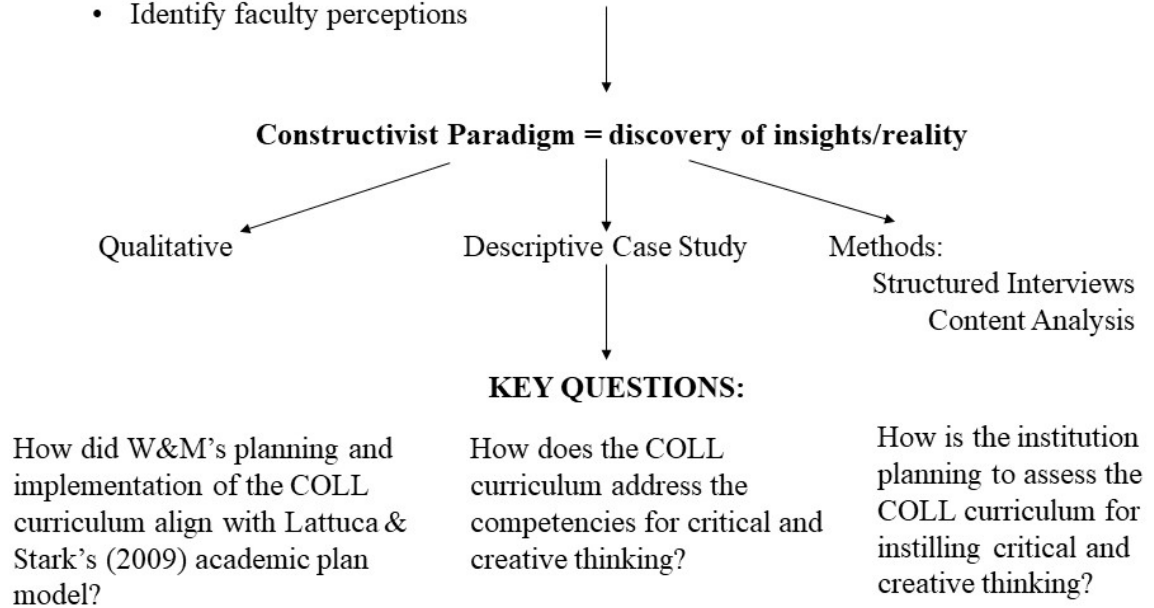


Figure 5. Research summary. Adapted from *Qualitative research design: An interactive approach*, by J. A. Maxwell, 2013. Copyright 2013 by Sage.

This chapter outlined the methodology and procedures used for this case study as well as the steps taken to strictly adhere to the procedures for the protection of human subjects and to insure confidentiality for those volunteering to participate. Validity, reliability, and usefulness and the procedures within the limitations for the study highlight the utility of this study and assure trustworthiness in the findings. Chapter 4 focuses on the results of the research to include analysis of structured and unstructured interviews and documentation.

CHAPTER 4: RESULTS

Institutions make curriculum changes for a variety of reasons in response to internal and external stimuli. Lattuca and Stark's (2009) academic planning model provides a logical method for the development of a curriculum in considering these stimuli, whether for a general education program, a field of study, or for a specific course. This chapter provides the results of the research in examining: the impetus for change, the developmental process, implementation, and assessment of the W&M COLL curriculum. This study specifically focuses on the development of critical and creative thinking skills through the COLL curriculum and whether the institution and faculty have a common understanding of how the COLL curriculum will improve student development for these critical skills. Results are framed to answer the research questions previously identified in Chapter 3.

Influences on Curriculum Design

Critical factors in the determination of the content, sequencing, and assessment for a curriculum are the external and internal influences on the curriculum developers and educational leaders (Lattuca & Stark, 2009). Recognizing the diversity found in the U.S. higher education system, no model can accurately portray the degree of importance or extent of these influencers on the development of a curriculum or academic plan at any specific institution. While one can apply Lattuca and Stark's (2009) model to any curriculum as part of a case study, there are nuances, which can only be understood by

conducting a reverse engineering process to understand the assumptions, structures, and activities which produced it.

External influencers – Limited impact. Lattuca and Stark (2009) did not identify any definitive set of external influencers for the development of academic plans or curriculum. Using exemplars, such as market forces, government, accrediting agencies, and disciplinary associations for external forces, Lattuca and Stark (2009) acknowledged their influence in the larger and evolving debate on such areas as the purpose of education, general education, specialization, and access. Yet, while secondary in importance to the internal influencers in the development of the COLL curriculum, the influence of SACS-COC, SCHEV, and AAC&U cannot be discounted.

Southern Association of College and Schools Commission on Colleges (SACS-COC). To insure U.S. higher educational institutions are adhering to standards and continually improving, accreditation is conducted by regional accrediting agencies. As previously noted, SACS-COC is the regional accrediting body for W&M that reaffirmed W&M’s accreditation in December 2016 (SACS-COC, 2016).

As both a process and product, the philosophy of accreditation focuses on the institution “enhancing the quality of their programs and services within the context of their respective resources and capacities and to create an environment in which teaching and learning, research, and public service occur, as appropriate to the institution’s self-defined mission” (SACS-COC, 2018a, p. 4). After initial certification, an institution undergoes a process of periodic reaccreditation or when major changes within or to an institution occurs. Based on the COLL curriculum implementation, W&M notified and provided to SACS-COC a substantive change prospectus in 2015. This prospectus

outlined the process of how the COLL curriculum was planned and approved as well as describing the new general education curriculum being implemented in 2015.

SACS-COC clearly defines the importance of the institution in identifying, evaluating and publishing goals and outcomes for student achievement to include general education as noted in section eight and nine of the *Principles of Accreditation* (SACS-COC, 2018a). For accreditation, SACS-SOC has three general education requirements: general education must be based on a coherent institutional rationale; consist of a minimum of 30 semester hours or its equivalent; and ensures breadth of knowledge with at least one course from the humanities and the fine arts, the social and behavioral sciences, and the natural sciences and mathematics (SACS-SOC, 2018a, 2018b).

Based on interviews with members who participated in various COLL related planning forums, SACS-SOC was not a primary driver for either the administration or faculty's decision to change the curriculum. One faculty member who did participate in the curriculum review process highlighted "they avoided discussions [of either SCHEV or the accreditation agency] in order to enable creativity [in the redesign of the curriculum]." From those interviewed, it was clear that any decision to modify the general education curriculum would require adherence to the SACS-COC general education requirements; would require notification of changes to the curriculum; would affect future reaccreditation; and would impact the periodic institutional self-assessment for quality improvement process. Thus, even though accreditation did not drive the curriculum review process, attention was given to making sure the process requirements for accreditation occurred.

State Council for Higher Education Virginia (SCHEV). Even though many of W&M’s curriculum developers and committees were cognizant of SCHEV’s general education requirements, these conditions did not directly influence COLL curriculum development or planning. COLL curriculum developers were aware of the mandated requirement to have about one quarter of the 120 credits needed for the undergraduate degree to be general education requirements and were aware that future state curriculum related mandates might require changes in the COLL curriculum (“W&M faculty approve,” 2013).

Although SCHEV has drafted guidelines for the assessment of student achievement since 1986, SCHEV has largely focused its efforts on areas outside of the curriculum to include such areas as capital and operating budget planning, enrollment projections, and other efforts to promote greater access, quality, affordability, and accountability. But as highlighted on the W&M IAE website, state guidelines to measure student achievement have become increasingly become more prescriptive.

After the 2013 passage of the COLL curriculum, SCHEV released its framework for the [Virginia] Statewide Strategic Plan (SCHEV, 2014) and in July 2017, SCHEV published the *Policy on Student Learning Assessment and Quality in Undergraduate Education*. This 2017 policy, based on the AAC&U LEAP initiative, identified four areas necessary for an undergraduate education, namely:

Broad learning about science, society, technology, arts and humanities, human diversity, and global cultures and interdependence;

Intellectual and practical skills that support evidence-based reasoning and innovation – including analysis, communication, critical and creative

thinking, quantitative fluency, information literacy, and collaborate
problem solving;

Integrative and adaptive learning, including the demonstrated ability to
apply knowledge, skills and responsibilities to complex problems and new
settings;

Personal and social responsibility, including ethical reasoning, civic and
democratic knowledge and engagement, global acumen, and the capacity
to work productively with diverse people and perspectives. (SCHEV, 2017c,
p. 2)

In addition, the 2017 policy mandated Virginia public institutions assess four core
competencies, namely: critical thinking, written communication, quantitative reasoning,
and civic engagement (SCHEV, 2017c). Many of these same competencies were
identified by W&M and reflected in the COLL curriculum (W&M, 2013d, 2014a). In
essence, even though SCHEV only minimally influenced the development of the COLL
curriculum, it could have future implications given state mandated assessment
requirements, which include assessing student critical thinking proficiency.

Association of American Colleges and Universities (AAC&U). The influence of
AAC&U on the development of the COLL curriculum is difficult to determine. Based on
documentation and interviews, COLL curriculum developers were aware of the AAC&U
LEAP initiative. For example, as part of a Provost initiative called *Campus
Conversations*, the AAC&U President addressed the W&M community on April 2, 2010
(W&M, n.d. 2).

In a presentation entitled *Changing Understanding of Liberal Education*, the AAC&U President highlighted AAC&U's LEAP initiative and how a liberal education was necessary to meet the challenges for the 21st century. She emphasized the LEAP's initiative broad outcomes of knowledge of human cultures and the physical and natural world, intellectual and practical skills which included critical and creative thinking, personal and social responsibility, and integrative and applied learning (W&M, 2010, April 2). Additionally, in August 2011, three members of the W&M curriculum review steering committee (CRSC) attended an AAC&U seminar conducted by the Institute on General Education for a Global Century.

Internal influencers – Major impact. Similar to external factors, Lattuca and Stark (2009) does not proscribe any definitive listing of internal influencers other than two broad categories: institutional and unit level influencers. Institutional influencers include such items as the institution's mission and governance processes. Unit level influences include the faculty and disciplines and departments influences. Based on the abbreviated timeline found in Table 3, institutional influencers were far more important in the initial planning stages and for building consensus for curriculum change among the faculty, while unit level influencers became more critical in the approval process and during the implementation phase. Appendix G provides a more extensive timeline of actions and activities resulting for the COLL curriculum development and assessment processes.

Table 3

COLL Planning and Implementation Timeline (Selected Events)

Primary Influence	Timeframe	Event
Institutional (President and Provost)	2008	W&M President initiates Strategic Planning Process
	2009-2010	Provost hosts “College Conversations” on the concept of the Liberal Arts University
	September 2010	Provost proposes W&M Curriculum Review and publishes White Paper – “W&M as a Leading Liberal Arts University in the 21st Century”
Unit Influence (Faculty and Departments)	December 2010	Faculty Affairs Committee recommends curriculum review to Faculty of Arts & Sciences and appointment of a Curriculum Review Steering Committee (CRCS).
	April 2011	CRCS begins work
	December 2012	CRCS presentation to the Educational Policy Committee (EPC) and the Faculty of Arts & Sciences proposing a new committee
	February – November 2013	Faculty approved EPC motion to endorse the guiding principles and conceptual framework of the proposed curriculum and begin special sessions reviewing draft COLL curriculum proposal
	December 2013	Special meeting of the Faculty approved the “COLL Curriculum
	August 2015	W&M initiates the COLL Curriculum for the incoming class of 2019

Note. Created from multiple W&M web sources to include CRCS Planning Calendar retrieved from https://www.wm.edu/as/dean/curriculum_review/calendar/index.php

Institutional influencers. As noted by several of those interviewed, and supported by the Faculty Affairs Committee (FAC) and CRSC records, a pivotal driver to the

general education curriculum review was the initiation of a strategic management process at W&M (Halleran, 2010 September 15; W&M 2010c, 2014a, n.d.4). The College Planning Steering Committee (CPSC), co-chaired by the Provost and the Vice President for Strategic Initiatives & Public Affairs and including faculty, staff, and other members, guided the strategic planning process and tracked progress for revisiting the general education curriculum (Halleran, 2010 September 15).

Before the decision to conduct the curriculum review, the Provost hosted seven sessions about the college's identity and aspirations to be a leading liberal arts university as part of its strategic planning effort (W&M, n.d 6). Referred to as campus conversations, these sessions were designed to gain insights and comments from internal and external W&M constituencies as reflected in Table 4. These efforts sought to gain acceptance of a redefinition of the college's mission and goals to drive change, which defined what is valued in the culture of the institution (Eddy, 2010).

Table 4

W&M “University Conversations” Conducted 2009-2010

Date	Topic	Participants
Session 1 October 29, 2009	Is a Liberal Arts University Possible?	Provost Michael Halleran Professor Keith Griffioen, Physics Professor Bryce Herrington, Business Professor Leisa Meyer, History and American Studies Professor Joel Schwartz, Government and the Charles Center
Session 2 December 2, 2009	Does Research Bring Us Together? The Blend of Teaching and Research in W&M in the 21st Century	Provost Michael Halleran Professor Eric Jensen, Economics and Public Policy Associate Professor Vassiliki Panoussi, Classical Studies Associate Professor Mark Patterson, Biological Sciences (VIMS)
Session 3 January 25, 2010	Professional Programs in/and the Liberal Arts University	Provost Michael Halleran Associate Professor Pamela Eddy, Education Associate Professor Bill Geary, Business Professor Alan Meese, Law
Session 4 February 5, 2010	Liberal Arts Education and Global Leadership	Provost Michael Halleran Professor Nussbaum, Ernst Freund Distinguished Service Professor of Law and Ethics, The University of Chicago Law School.
Session 5 March 23, 2010	Students Come to William & Mary Wanting to Change the World--Do They Leave with the Tools to Do That?	Provost Michael Halleran Student Panel
Session 6 2 April 2010	Changing Understandings of Liberal Education.	Carol G. Schneider, President of the Association of American Colleges and Universities
Session 7 8 April 2010	Culminating Session - Draft White Paper (William & Mary as a Leading Liberal Arts University in the 21st Century: From Conversation to Future Directions” Discussion	Provost Michael Halleran

Note. Adapted from W&M Summaries of campus conversations (W&M, n.d.2).

Upon completion of these sessions in September 2010, the Provost proposed the review of general education curriculum (W&M, 2010 September 15). Even though the Provost's guidance did not prescribe a particular curriculum, he did suggest several items for faculty consideration such as: increasing "intense" student learning opportunities; expanding the international scope; and facilitating interdisciplinary learning. He directed that a curriculum review steering committee (CRSC) be established with delivery of a preliminary report by April 2011. The Provost further mandated that any proposed changes to the curriculum would use existing university procedures and committee structures to gain approval (Halleran, 2010 September 15).

Simultaneously with the release of the Provost's guidance to review the curriculum was the release of a White Paper entitled *William & Mary as a Leading Liberal Arts University in the 21st Century: From Conversation to Future Direction* (Halleran, 2010). This paper provided to the faculty the intellectual foundation to begin the curriculum review. It identified the liberal arts as cultivating citizens whom could:

Think broadly, communicate effectively, and work collaboratively, who can put information in context, not simply synthesize data, who can approach differences of opinion sympathetically, not insist their views alone have merit, and who identify and test assumptions and want evidence to support conclusions; in sum, those who learned how to *think critically* and crisply about ideas and their complexities and *who can bring creativity* and flexibility to a world of relentless change. (Faculty Affairs Committee [W&M], 2010 Dec 20, pp. 2-3, italics added)

Figure 6 provides a simplification of the internal influencing process and the identification of the primary offices and committees involved in the process of the curriculum review.

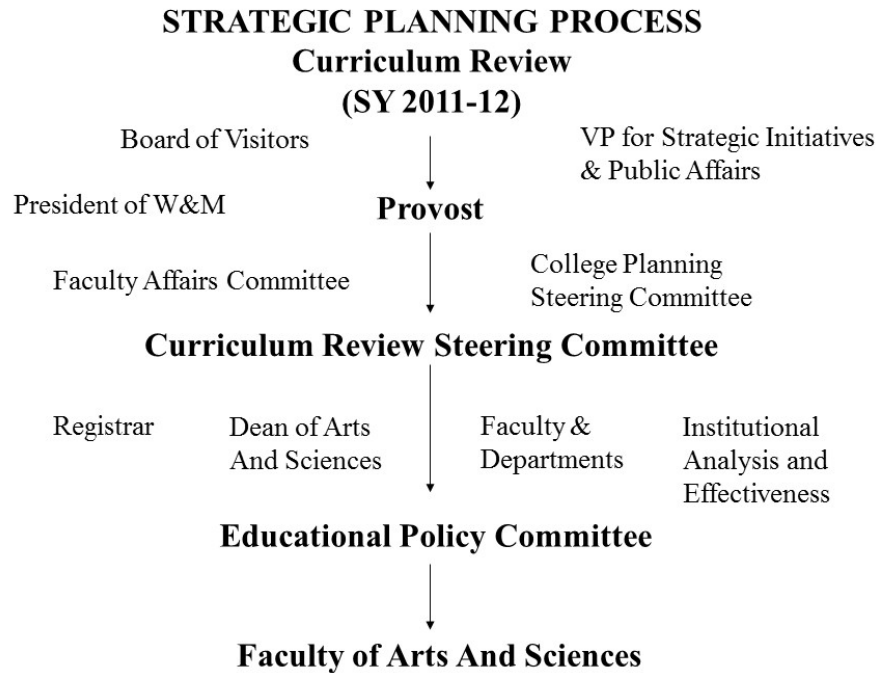


Figure 6. Organizational process for the curriculum review. Developed by author based on analysis of documentation contained in Appendix F.

With the FAC’s 2010 guidance restricting the review solely to the general education curriculum, CRSC was directed to collect data, interview faculty and other external parties, and provide their recommendations to the Educational Policy Committee (EPC) for the Faculty Arts & Sciences (FAS) to approve (Faculty Affairs Committee [W&M], 2010 Dec 20). In April 2011, CRSC began the curriculum review and in December 2012 presented its findings to the EPC whom prepared the final principles and framework for the new curriculum (W&M, 2012a, 2012b). On February 5, 2013, the FAS debated but ultimately approved the EPC’s motion to endorse the guiding principles

and the conceptual framework for the proposed COLL curriculum, with further refinement using a “seriatim process” to examine each sentence in order during special FAS meetings (W&M, 2013a, p. 1).

Just as in 2013, faculty opinions about the COLL curriculum during the 2018 interviews were diverse. More than half of the respondents highlighted the primary driver for change being the faculty’s discontent with the GER curriculum. As one faculty member remarked:

I think there was a perception that students were settling into disciplinary boundaries too quickly. As a liberal arts institution we wanted to encourage them to think beyond disciplinary boundaries throughout their four years. In the old system, the students could race to complete all of the GER requirements to specialize quickly. This was contrary to the liberal arts tradition. One of the things we wanted that every year they would think beyond their specific discipline and how the different domains work together. We’re educating the total person and we have to do that in the freshman year but also throughout the whole four years.

Another noted: “We were kind of stuck in disciplinary ruts. We wanted to bring exceptional and ordinary experiences to all students and to the core of what we do.”

Often cited during the interviews was the “box checking” mentality shared by both students and faculty with the GER curriculum, which contained courses geared solely to subject mastery as opposed to such goals as creating critical thinkers or interdisciplinary approaches. As one faculty member highlighted, “the GER courses were not committing the faculty to commit to the liberal arts nor creating lifelong

learners, or making connections to other arts and sciences.” Another faculty member noted, the choice was to recommit to the arts and sciences as opposed to preparing students for the job market—highlighting they were not preparing their students for “a job” but rather preparing their students “for any job” upon graduation.

Historically, the FAS meets at least monthly to discuss issues of interest and to receive updates from the Provost, the Dean of Arts and Science (A&S), and others such as the Faculty Assembly (FA) or EPC as examples (2013c). Upon completion of these meetings, minutes are created and posted online. While faculty attendance varies widely, on average during 2013, 51 faculty members were at each meeting.

From February 2013, when the curriculum guiding principles were approved until final approval of the COLL curriculum by the faculty on 12 December 2013, there were 10 special meetings of the faculty that addressed the new curriculum changes (W&M, n.d. 3). It was during these special meetings where increased faculty interest resulted in increased attendance to on average 71 faculty members. It was during the special faculty meetings where members actively engaged and debated the merits of the COLL curriculum and the language associated with its implementation.

As noted by the Dean of Arts and Sciences Kate Conley, the “curriculum belongs to the faculty and we have shown our ownership of it through the year’s debates and discussions” (W&M, 2013b, p. 3). Conley’s comments were reinforced during a 2018 interview in which one faculty member noted, “while administration driven, the faculty drove much of the discussion and deliberation.” The approved COLL curriculum proposal (found in Appendix N) was adopted by a vote of 101 yeas, 83 nays, and one

abstention of the more than 350 tenured or tenure-track arts and sciences faculty members (Halleran, 2014a, 2014b).

Even though a majority of those interviewed spoke favorably about the curriculum change, several faculty members expressed continued concerns, similar to those raised during the yearlong debate prior to COLL curriculum approval and as found in the FAS minutes (W&M, 2013a, 2013f). For example, several faculty identified concerns that the COLL curriculum would impact student enrollment in their departmental courses which would affect resources (e.g., number of faculty); and some were concerned that it could make their students less competitive in graduate or professional schools, especially those majoring in the sciences and other technical fields. Several others noted the COLL curriculum was not a fundamental change in their departmental offered curriculum given their programs were already interdisciplinary in nature.

Some described the motivation to change the curriculum as a means to distinguish the COLL curriculum from other institutions' programming, highlighting W&M's role as a "leading liberal arts institution." A few simply noted it was a "branding issue," or as a way "to keep up with the trends occurring at other schools." One concern raised addressed the ability to collaborate with others on the faculty to be truly interdisciplinary. One interviewee cited this challenge succinctly as "epistemological trespassing" and concerned that subjects would be taught with only a "sprinkling from other disciplines." Another respondent noted:

We setup a curriculum without the support to make it happen. You get a PhD and you know lots of things but up knowing nothing. Either you have to co-teach or

have structures to support the interdisciplinary model. I am very excited about working with others, but this has occurred on my time.

Although the interviews often illustrated the positive perspectives of faculty about the COLL curriculum, its adoption has not eliminated all concerns with its implementation. Many of these same concerns were reflected during faculty debates in many of the 2013 special meetings of the faculty. For example, during an interview one individual concluded that the CRSC operated under the false assumption that the “GER” was bad, and pointed without elaboration to the CRSC’s failure to research other curriculum options noting COLL passage was merely a move by the administration to illustrate “renewal” without a major impetus for it.

While recognizing that some were still skeptical of the COLL curriculum, one faculty member simply pointed to this skepticism as people who are “resistant to any change.” Even in dissent, the faculty role in the decision was illustrated by this observation: “There was no single train of thought among the faculty for the COLL program. [Many] didn’t like the old curriculum which resulted in box checking but in reality COLL has as many boxes.”

Updates to the BOV on the curriculum review were provided by periodic updates by both the Provost and Dean of the Arts & Sciences as part of the routine updates on strategic planning and institutional initiatives (Golden, April 14, 2011; Halleran, December 8, 2011). The earliest specific mention of the curriculum review was made at an April 2011 meeting, which associated the undergraduate curriculum review with the strategic planning goal of becoming a leading liberal arts university (Golden, April 14,

2011). At the February 2013 BOV meeting, the strategic focus for W&M clearly reflected the importance of developing critical thinking:

Across the university's undergraduate, professional and graduate schools, students will develop the critical thinking and understanding of diverse perspectives essential to excel in the 21st century. William & Mary will boldly innovate in interdisciplinary study, internationalization, and faculty-student inquiry. We will sustain and expand academic distinction through exceptional stewardship of our resources, building even stronger lifetime connections with our students and alumni, and finding new ways to provide the financial resources to meet our aspirations. (Halleran, 2013 February 8, p. 35)

While updates to the BOV were continually provided concerning the progress of the curriculum review, more recent updates highlighted the positive reception by faculty and students to the COLL curriculum as illustrated by the Dean of Arts & Sciences presentation to the BOV on November 16, 2017 (Conley, 2017 November). This update highlighted the faculty's innovation in the development of new courses and the positive comments made by students and faculty about the new curriculum.

While the process to gain passage of the COLL curriculum was often contentious, one could speculate that the debate was somewhat mitigated by the use of existing governance procedures and linking the proposed curriculum change to support the institution's mission to be a liberal arts university. In essence, while the curriculum review was administration driven, the development, debate and approval for the COLL curriculum was driven largely by the faculty.

Critical and Creative Thinking in the COLL Curriculum – Hopeful Pedagogy?

One of the primary focuses of this study was to examine how W&M incorporated critical and creative thinking in the design of the COLL curriculum and how the faculty incorporated it into their COLL courses to include understanding what changes in pedagogy occurred as a result of the curriculum changes. In essence, this inquiry was designed to identify if a gap exists in what faculty members and the institution espouse and what they do in practice to teach and assess critical and creative thinking to avoid what Nicholas and Raider-Roth (2016) entitled a “hopeful pedagogy” in which theory and practice are disconnected.

Given the plethora of ideas and concepts surrounding critical and creative thinking and general education, I chose to use the AAC&U definitions as the benchmark for analysis for this study. The use of the AAC&U as a benchmark is appropriate for the following reasons: the institution is a member of the association; representatives of the college and CRCS attended AAC&U hosted events during and after the development of the COLL curriculum; AAC&U participated in the “college conversations series,” which preceded the review; and lastly SCHEV 2017 policy reflects many of the attributes found in the AAC&U LEAP proposal which may influence future institutional assessments.

My use of the AAC&U definitions is not meant to imply or dictate its use by W&M or by its faculty, but merely as a point of reference given the diversity of definitions and competencies for critical and creative thinking found in the literature. As defined by AAC&U, critical thinking “is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion;” and creative thinking is “both the capacity to

combine or synthesize existing ideas, images, or expertise in original ways and the experience of thinking, reacting, and working in an imaginative way characterized by a high degree of innovation, divergent thinking, and risk taking” (AAC&U, 2009a, 2009b).

Stated COLL curriculum competencies. It is clear from the document review that critical and creative thinking are stated competencies of the COLL undergraduate curriculum. Even though there is a challenge with the consistency of the message across documents, from the beginning of the curriculum review, there was a recognition of the importance of critical and creative thinking as essential components of the new curriculum. For example, regarding creative thinking, the 2010 White Paper noted:

In our conversation, the 21st century has stood as a marker for relevance in a widely changing age. The powerful and interrelated forces of globalization, information explosions and digital technology will shape the world in ways that no one can fully predict. The boundaries between traditional disciplines, the increased demand for accountability and ethics in the professions, and the growing importance of creativity in problem solving in all areas are among the issues we will face. (Halleran, 2010, p. 6)

The most succinct statement for including these competencies was reflected in the December 2013 faculty’s approval of the COLL curriculum, which noted in Principle 3 the competencies that W&M COLL curriculum should address, namely to “help students acquire knowledge and develop the skills and habits of critical and creative thinking and expression” (W&M, 2013d, p. 1). Reviewing the general education curriculum extract from the 2017-2018 W&M course catalogue, the institution directly links the development of critical thinking skills with COLL 150 courses, and indirectly to COLL

100 courses which “requires students to think rigorously” and with COLL 400 which requires students to take initiative in synthesis and critical analysis to solve problems (Appendix O). Since creative thinking is not cited as a stated competency in the catalogue, it is unclear how creative thinking fits into the COLL curriculum except indirect referencing to COLL 200 ALV courses enabling a student to express their own values and attitudes.

Faculty perceptions – Critical thinking. Based on the interviews, it appears there is no institutionally approved definition or description for critical thinking for use by the faculty during the design of their COLL courses. For the previous GER curriculum assessment to SCHEV in 2012-2013, which was the last one conducted, W&M reported that the faculty intentionally avoided a narrow definition of critical thinking (W&M, 2015). W&M reported their focus was on the development of range of skills throughout the curriculum linked to three general objectives, namely: “to demonstrate an ability to reason deductively; to demonstrate an ability to reason inductively; and to demonstrate sensitivity to typical forms of fallacious reasoning” (W&M, 2015, p. 2).

This W&M 2013 assessment provided specific learning expectations and criteria to evaluate student work through a course portfolio to include samples of student work. Reflected below in Table 5 is an extract from the W&M assessment of how they framed their process to SCHEV for assessing critical thinking in the Freshman Seminar and two GER courses (W&M, 2015, p 2).

Table 5

W&M's 2013 Critical Thinking Assessment to SCHEV

Requirement	Learning Expectations	Success Criteria
FRSM – content based writing, reading, and discussion – intensive seminars	Students will engage in critical thinking on topics pertinent to the subject matter of the course	<ul style="list-style-type: none"> - thoughtfully examines relevant positions - presents persuasive argument - uses appropriate supporting evidence
GER 5 – Literature and History of the Arts	Student will become familiar with the vocabulary of the discipline and be able to apply the appropriate methodologies for critical analysis	<ul style="list-style-type: none"> - communicates in the language of the discipline - uses of an appropriate methodology - compares, contrasts, and evaluates literary or artistic achievement in their cultural contexts
GER 7 – Philosophical, Religious, and Social Thought	Students will engage in active critical analysis of evaluative or ethical theories, concepts, and methods of reasoning, and deliberation in philosophical, religious or social thought.	<ul style="list-style-type: none"> - compares, contrasts, and evaluates evaluative or ethical theories, concepts, and methods of reasoning and deliberation.

Note. Adapted from W&M's response to SCHEV 2012-2013 – Template for reporting assessment plans and obtained from the SCHEV website (see Appendix F, W&M [2015b]).

Even without an approved definition, approximately 75% of the interviewed faculty were unaware of either the AAC&U definition or rubric for critical thinking. As a result, there are many faculty interpretations of what critical thinking encompasses and how a student demonstrates competency similar to that found in the literature.

Asked to define critical thinking, the faculty generally noted it consisted of a broad set of skills often shaped by the discipline or field. Furthermore, they recognized that its development was a major goal of the COLL curriculum, specifically in COLL 150

courses. Interview responses ranged from very specific definitions to the vast majority who provided a simple list of characteristics expected from thinking critically.

As one individual faculty member noted, “critical thinking is like art—hard to define but you know it when you see it,” while another noted “critical thinking is essentially having a conversation on scholarship—by self and with others.” Another noted, “Critical thinking has to do with analytical skills. Analysis of data. Clarify problem definition to bring your skills to bear on the problem” while another noted critical thinking was a “mix between general skills and domains.” One faculty member linked critical thinking to the identification of the 50 cognitive biases and “it is a disposition you bring into the investigation.”

The breath of faculty insights on how they define critical thinking are reflected in Table 6.

Table 6

Interview Responses: How Do You Define Critical Thinking?

Response Frequency	Faculty Response
Most	Analysis/analytical skills (14) Active thinking (7) Developing evidence; judge; evaluate (7) Reflecting/reflection (6). Logic/logical thinking (3) Synthesis (3) Learn tools/techniques (3) Framing problems (3) Asking questions (3) Wrestle with ideas (2) Consider perspectives (2) Deep careful reading (2)
Least	Recognize limits of own knowledge (1) Challenge thinking (1) Connection to prior knowledge (1) Attitude (1) Understand consequences (1) Understand Cognitive bias (1)

Note. Compiled by author using interview notes and priori codes illustrating the lack of continuity and many interpretations held by the faculty regarding critical thinking.

More than half of those faculty who responded to the definitional question indicated a student’s ability to analyze or demonstrate analytical skills was the most commonly cited component of thinking critically. While analysis as a habit of mind is a component of the AAC&U approach to critical thinking, the AAC&U approach is more expansive than many of the definition or characteristics mentioned during the interviews.

For example, exposing students to the importance of examining one’s and others assumptions, a critical component of AAC&U critical thinking definition, was only specifically addressed twice during the interviews. As one faculty member noted: “I think

uncovering assumptions and challenging them is an important part of critical thinking. It is not a checklist. We are pretty good about evaluating the arguments of other people than we are capable of examining our own arguments.” Another concluded: “You have to question your own beliefs and assumptions as a critical thinker.”

The lack of a common, shared meaning of critical thinking among the faculty, especially those teaching COLL courses, will result in W&M not fully achieving the principle for instilling this core competency as articulated in the COLL principles. As several faculty members noted no single course could achieve the expectations for instilling either critical (or creative thinking) - stating it was a cumulative process over the entire undergraduate curriculum often by making students “intellectually uncomfortable at times.” If one accepts that the development of critical thinking is spread across the COLL curriculum, then defining it and its outcomes becomes imperative.

Faculty perceptions – Creative thinking. Like critical thinking, the interviews produced many differing insights from participants, but here there was less consensus and precision surrounding a shared meaning of creative thinking in the curriculum. Several faculty members noted creative thinking was not part of the COLL curriculum given it was tied to a discipline and the student’s major. Often cited as a limiting factor to incorporating creative thinking in their COLL class was the class size of some COLL courses which often prevented the appropriate pedagogies or types of assignments associated with developing creative thinking due to time and number of students. Of those attempting to significantly incorporate the development of creative thinking skills in their courses, they often linked student success in this area with the pre-requisite of

having significant knowledge about the discipline, domain, or field (Bailin, 2015; Gomez, 2013). The perception was that a solid foundation of knowledge was required to foster creative thinking.

Faculty interview responses on creative thinking fell into three bins, namely: creative thinking is supported by thinking interdisciplinary to create something truly novel; creative thinking mainly consists of developing an attitude and aptitude in their students to “think outside the box” to include challenging conventional thinking; or, it was a willingness to take intellectual risks to experiment and to develop new perspectives and insights even if its novelty is limited to the student. As reflected by these themes, the dominant difference among faculty perspectives was the degree of novelty largely tied to student knowledge.

Some typical faculty responses included: “creative thinking is thinking interdisciplinary;” is a “willingness and ability to think critically about conventional wisdom and to challenge conventional wisdom;” or an inquisitive nature asking the question “what other ways can we approach an idea.” Interestingly, faculty members, whom were willing to provide a self-assessment, rated themselves less successful in instilling creative thinking skills as opposed to instilling critical thinking skills in their students.

Theory into practice – Syllabi and pedagogy. One source which I perceived as being useful to understand how critical and creative thinking fit into the COLL curriculum was to review a sample of COLL course syllabi, which were voluntarily provided by the faculty. As noted by Lattuca and Stark (2009), clearly communicating the purpose, goals, and standards to students through the syllabus is an important element

in establishing and communicating expectations. Similar to what is reflected in the literature, W&M faculty opinions relative to the usefulness and practical details in syllabi, such as length and weekly class details, vary widely with the discipline and field (Lattuca & Stark, 2009).

The literature indicates the syllabus can explicitly identify courses purposes, goals, and details on subject matters to be learned, outline how the course relates to other portions of the curriculum, and codify the instructor's objectives and expectations (Cullen & Harris, 2009; Lattuca & Stark, 2009). Furthermore, course syllabi are an important component for institutional self-assessment; to support outside accreditation; and for assessment reporting to SCHEV.

While the W&M Faculty Handbook (2017e) provides no guidance on the use or requirements for syllabi, the Arts and Sciences Faculty Manual (W&M, 2005) provides the following:

Each student shall receive a syllabus at the beginning of every course. The syllabus shall give the student some understanding of the *intellectual content and educational goals of the course*. It shall also state the factors that will be taken into consideration in assigning a grade including grading equivalences, and to the extent feasible, the general weight that will be given to each of the factors. No major course assignment shall be added or changed during the semester. For example, a term paper should not be assigned halfway through the semester. Less important changes in reading assignments or scheduled papers or tests may be necessary, but they shall be made with as much advance notice as possible, and they shall not constitute a major increase in the responsibilities of students. (p. 3)

Furthermore, as recommended by the EPC and reflected on W&M’s IAE website, faculty members are encouraged to include specific language which defines the purpose of the specific COLL curriculum like that found at Appendix O.

In practice, each instructor tailored their syllabus to their own personal desires with the amount of details ranging from 2-25 pages. Reflected in Table 7 are the results of the COLL courses syllabi analysis illustrating that approximately 30% included the recommended EPC language; 25% mentioned critical thinking as a learning outcome; and none indicated creative thinking as a learning outcome.

Table 7

COLL Syllabi Reviewed

Curriculum Level	Syllabi Examined	Included Language from EPC/Catalogue	Critical Thinking Course Objective	Creative Thinking Course Objective
COLL 100	3	1	2	0
COLL 150	7	1	3	0
COLL 200	10	5	1	0
COLL 300	4	1	0	0

Note. Fewer than 50% of the faculty interviewed provided their syllabi; furthermore, a number of faculty members often taught multiple COLL courses. Syllabi totals differ from number of faculty interviewed given several members taught multiple COLL courses and not all faculty members interviewed provided syllabi.

Given the COLL curriculum principle of developing student critical and creative thinking skills, a question was posed to the faculty respondents how this affected their pedagogy. Many highlighted their classroom practices and methods were greatly influenced by class size, which varied from small classes of 10-12 students to others with more than 150 students resulting in different types of teaching strategies. Some faculty

highlighted the specific COLL academic focus and expectations for a course, such as COLL 150's focus on strengthening written oral and written communication, which dictated the focus, time and types of assignments for their courses.

One faculty member noted:

I take two authors that discuss a similar topic and ask them [the students] to identify points of conflict and agreement, and to evaluate which is better based on the evidence and to analyze which makes more sense from their understanding of the material—so that they don't simply accept the idea because it is in-print and there are different approaches by different scholars. Perhaps they are not at the most sophisticated levels, but [they] understand how the process works.

Another faculty member highlighted the importance of writing to instill critical thinking noting:

I try to operationalize it when I get students to write papers. I work with them to develop their ideas in their way and to take responsibility for them. Which is different than simply summarizing other ideas from someone else.

Many of those interviewed highlighted the importance of active learning (Chickering & Gamson, 1987). While active learning as pedagogical technique was not mentioned as a principle in the 2013 COLL curriculum approval, it has been embraced by the faculty as a key element for achieving course objectives and for instilling competencies such as for critical or creative thinking. Separately, the 2013 COLL curriculum initially mandated an active learning experience beyond the student's area of expertise as a requirement, but this requirement was later removed in 2016 (W&M, 2013d).

One experienced faculty member acknowledged that to instill the types of skills associated with creative thinking required one to change from “less a sage on the stage” to one having “students actively involved by wrestling with ideas.” Another faculty member noted the importance of providing a safe space to demonstrate creative thinking, while several noted that it was important to model and demonstrate techniques associated with critical and creative thinking. Most faculty members highlighted the importance of small group discussions, oral presentations and repetitive writing assignments for developing mastery of these competences specifically tied to improving analytical skills. Not surprisingly, the faculty developed various innovative student activities to actively engage students including the production of innovative podcasts and visual presentations.

Illusion or synergy. Based on the documentation and interviews conducted, W&M and its faculty clearly values the development of critical and creative thinking as a COLL curriculum outcome and of an outcome of the W&M liberal education experience. The principles guiding the COLL curriculum implementation approved by the faculty included the development of the habits and skills for critical and creative thinking. Yet, in implementation, there is a muddled approach based on a lack of common understanding among the COLL faculty on what and how the outcomes for these two competencies are to be achieved. On the one hand, the administration has acknowledged and given faculty control over the design of the new curriculum. On the other hand, the new courses require some form of scaffolding and intentionality to achieve the stated goals. Given the COLL curriculum is being fully implemented in SY 2018-2019, examining how evaluation and assessment, as described in Lattuca and Stark’s (2009)

model, will aid in adjusting the COLL curriculum to achieve its principle for instilling critical and creative thinking skills in W&M graduates.

Evaluating the COLL Curriculum

As highlighted by Lattuca and Stark (2009), an academic plan model should be dynamic requiring the use of built in mechanisms to identify areas for change based on new information. Having the faculty and administration view the COLL curriculum as a model to be continually evaluated to insure it is achieving its intended outcomes with appropriate evaluation activities could also allay some of the faulty fears that evaluation of the curriculum is akin to assessment of their abilities to teach (Lattuca & Stark, 2009). Most importantly, if the COLL curriculum is viewed as W&M's strategy to achieve certain educational outcomes, then as Bryson (2011) noted, "Strategies that work must be maintained and protected through vigilance, adaptability and updated plans" (p. 317).

During the initial development of the COLL curriculum, assessment and evaluation of student learning was not a major consideration. As one individual noted during an interview, the primary focus was to identify COLL course attributes and later "tease out specific student learning outcomes" associated with and for assessment. The 2013 COLL faculty approval document only identifies the COLL 100 courses for assessments over a 2-year period to ensure that they were fulfilling learning objectives (W&M, 2013d). While the COLL developers may not have placed evaluation and assessment into the forefront, others agencies at W&M have.

The Office of Institutional Accreditation and Effectiveness (IAE), a division of the Provost's office, is charged with supporting the college's efforts to comply with regional accreditation, state reporting requirements, and to develop and implement a process of continuous institutional self-examination and improvement to include general

education requirements. In conjunction with IAE, an Assessment Steering Committee (ASC) works with and guides the college's assessment program. As noted on the IAE website, starting in 2015, the COLL curriculum began a process for the periodic assessment of each COLL course to assist the EPC's monitoring of the COLL curriculum and to provide feedback to departments, programs and faculty to improve and enhance the COLL courses.

COLL 100 and 200 courses underwent assessment during academic year 2016 – 2017. Using a course portfolio methodology, each COLL 100 and 200 faculty member was required to submit their syllabus and a standard formatted narrative outlining how learning expectations were being met through course experiences and student assignments. Even though student work was not required to be submitted, a faculty member could submit samples of student work to illustrate how completed assignments supported COLL objectives. Additionally, COLL students were surveyed to learn their perceptions of whether the COLL courses achieved specific learning outcomes.

Neither critical nor creative thinking are specifically identified as learning outcomes in either the COLL 100 or 200 portfolio rating guides or student survey questions. While neither critical nor creative thinking are explicitly listed, some could conclude that the following elements, as highlighted in the literature review by Bok (2006), Paul and Elder (2008), Conrad and Dunek (2012), and Ku et al. (2014), support the development of critical thinking skills:

COLL 100 Portfolio Rating Guide:

- Define a problem or a question,
- Evaluate information pertinence and accuracy,

- Support argument or thesis with appropriate sources.

COLL 200 Portfolio Rating Guide:

- Connections to Content or Methods in Domain: reveal patterns, differences, and similarities between content or methods in domains and interconnections across domains (Assessing general education, n.d.).

Interestingly, connections to creative thinking are more explicit. The COLL 100 portfolio rating guide contains an element that links the development and demonstration of student creativity (e.g., create unique idea question, format, or product). The COLL 100 student survey specifically ask students to assess to what extent did the course enable “you to creatively and effectively present information using appropriate media and encourage you to think creatively in formulating, evaluating, and presenting a topic/thesis/argument” (Assessing general education, n.d.).

Even though the COLL 100 and 200 level courses have been assessed, the COLL 300 and COLL 400 course assessments were in the planning stage at the time of this study. COLL 150 and COLL 300 assessment plans will be finalized in the fall 2018. COLL 400 assessment will be piloted in SY 2018-2019 with formal assessment scheduled for the following year.

The COLL 100 and COLL 200 assessments are not publically available, but have been provided to the Provost, Center for Liberal Arts (CLA), and to the respective departments and to the individual faculty member. Several faculty members highlighted the procedures involved in this assessment only noting at times it became burdensome with one member specifically mentioning the lack of feedback from the institution on the results of the student surveys.

Summary

Chapter 4 presented the results of the research in narrative format to address the research questions posed in the research design for this case study. Using Lattuca and Stark's (2009) model, the initiation to reexamine W&M's general education curriculum was largely internally driven, specifically by senior university leaders using the strategic planning process to jump start the process. Subsequent development, approval and implementation of the COLL curriculum were also driven by internal forces, namely by the faculty. W&M has a long history of collegial faculty governance and oversight.

While the COLL curriculum clearly identified the development of critical and creative thinking skills and habits as a principle governing the COLL curriculum, there is lack of coherence among the faculty as to what this means and how it will be assessed. While the AAC&U definition and description of competencies for these skills may serve as the preliminary W&M standard, they are not well known by the faculty. As a result, the faculty are building their courses, to include critical and creative thinking, without this source of guidance. Disciplinary divides and practical considerations, such as class size, may impede the development of these skills through the COLL curriculum without further intentional planning and oversight.

Assessment and evaluation of policy or strategy cannot be an afterthought. Clearly, W&M has a plan to evaluate the COLL curriculum, however, it is unclear whether the competencies of critical and creative thinking are fully incorporated into the evaluation plan. Furthermore, the linkage between what is to be taught and the criteria for evaluation of what was learned throughout the COLL curriculum must be tighter in

order to avoid a “hopeful pedagogy.” Next, Chapter 5 will address the study’s conclusions, reflections, and recommendations for further study.

CHAPTER 5: DISCUSSION AND CONCLUSION

Using a qualitative descriptive case study approach, this study sought to investigate how W&M's implementation of a new general education curriculum addressed student development for critical and creative thinking. This study sought to answer three main research questions:

1. How did the planning and implementation of the COLL curriculum align with Lattuca and Stark's (2009) academic plan model?
2. How does the COLL curriculum address the competencies for critical and creative thinking?
3. How is the institution planning to assess the COLL curriculum for instilling critical and creative thinking?

The purpose for this study was to investigate: Does the institution and faculty have a common understanding of why and how the COLL curriculum will improve the development of critical and creative thinking skills in undergraduates?

The case study recognizes the uniqueness of W&M as a historic institution whose primary focus is on providing a residential liberal arts undergraduate program. While diversity among the 4,500 U.S. institutions offering post-secondary degrees is determined in part by such factors as to whether the institution is a two or four year public or private institution, diversity is also significantly based on institutional goals and mission as this case study clearly reflects (Bess & Dee, 2008; NCES, 2016). As noted by the newly installed W&M President, Katherine Rowe, developing student "critical thinking,

collaboration and curiosity” remain institutional goals (“July 2 remarks,” 2018). This study attempted to understand more fully how the faculty members were implementing and understanding the goals of the COLL curriculum, specifically in addressing critical and creative thinking, to determine the type of shared meaning in place.

Theoretical Framework

I adapted Lattuca and Stark’s (2009) concept of an academic plan as the way to conceptualize the design, implementation, and assessment of a curriculum tied to two specific student learning outcomes of creative thinking and critical thinking. As previously noted, the three main research questions relate to components of this curriculum model. Question one addresses how external and internal influences drove the institution to change its general education program. Question two primarily relates to what Lattuca and Stark (2009) calls the “educational environment” and how the competencies of critical and creative thinking are achieved by the institution in its undergraduate curriculum (p. 5). Lastly question three relates to outcomes and assessment—essentially determining if the institution is achieving what the institution said it wanted to achieve specifically focused on critical and creative thinking.

Even though Lattuca and Stark’s (2009) academic plan serves as the primary theoretical model, this study also relied on AAC&U’s LEAP theoretical model as an approach to learning. The AAC&U model includes the development of critical and creative thinking skills, both in the academic major and general education curriculum. In this chapter, I also use organizational learning and associated theories for assessment of the academic plan and discussion of the findings.

External Forces

Depending upon the type of institution as well as its mission, Lattuca and Stark's (2009) model recognized the role and influence of certain external stakeholders in the development of the academic plan. In this case study, external influencers such as market forces, societal trends, state governmental agencies, and accreditation bodies appeared to have only an indirect influence on the development of the COLL curriculum. Even though it is hard to precisely determine the exact extent of influence, the external influencer which appeared to have had the most influence in the development of the COLL curriculum was the AAC&U LEAP initiative (AAC&U, 2011). This initiative was formed within the current educational climate that demands more accountability from higher education.

As noted in numerous W&M strategic and COLL curriculum planning documents, the development of critical and creative thinking skills and habits is considered one of the essential outcomes resulting from a W&M undergraduate education. As reflected in Table 8, AAC&U's concept of liberal education aligns with the components found in W&M's vision, strategic goals, and the enumeration of principles for the approved COLL curriculum to include addressing critical and creative thinking.

Table 8

AAC&U and W&M Outcomes and Vision Comparison

AAC&U LEAP Essential Learning Outcomes “Liberal Education”	William & Mary Mission, Vision, and Strategic Goals: “Liberal Arts University providing a broad liberal education”	COLL Curriculum (Selected) Principles Approved by the Faculty of Arts and Sciences December 2013
Knowledge of Human Cultures and the Physical and Natural World	Multidisciplinary in academic programs (strategic plan) Global Perspectives: Foster stronger global perspectives and connections (strategic plan).	- Enlarge our students’ global perspective through an experience of the world beyond campus. - Establishment of COLL 200 Domains in academic disciplines
Intellectual and Practical Skills (e.g. critical and creative thinking; written and oral communication, quantitative and information literacy)	- Encourages creativity, independent thought and intellectual depth, breadth, and curiosity (goals) - Students develop critical thinking and understanding of diverse perspectives (strategic focus)	- Help students acquire knowledge and develop the skills and habits of critical and creative thinking and expression.
Integrative and Applied Learning (e.g. synthesis and demonstrated through the application of knowledge and skills, and responsibilities to new settings and complex problems)	- Boldly innovates in interdisciplinary study, internationalization (strategic focus) - Interdisciplinary connections across academic areas (strategic plan) - Encourage interdisciplinary connections across academic areas (strategic plan).	- Explore the methodologies and epistemologies of the various academic disciplines, along with how they differ from and form synergies with one another - Provide an integrated intellectual experience during the undergraduate years that encourages students to make coherent and meaningful interconnections across disciplines.
Personal and Social Responsibility (e.g. civic knowledge and engagement; intercultural knowledge and competence; skills for lifelong learning)	Engaged learning through inquiry, research, experimentation, and application (strategic plan).	- Provide an active learning experience beyond the student’s area of expertise.

Note. Adapted from *The LEAP Vision for Learning: Outcomes, Practices, Impact and Employers’ View* (p. 9) by Association of American Colleges and Universities, 2011 (AAC&U, 2011); *W&M Strategic Planning* (W&M, n.d. 2); *W&M Mission* (Liberal arts university, n.d.); Special Meeting of the Faculty of Arts and Science on December 12, 2013, *The COLL Curriculum* (Enumeration of the principles), p. 1; W&M, 2013d)

Lattuca and Stark (2009) observed that college wide curriculum changes designed to better align the academic program with its institutional mission are often driven by internal forces, but as reflected in this case study, this does not mean the total absence of any external influence. In this case, AAC&U LEAP initiative informed, if not influenced, the development of the COLL curriculum as highlighted in Table 8. Furthermore, as previously noted, AAC&U was involved in the development of the COLL curriculum through its participation in the college conversation program hosted by the Provost and W&M representatives who attended various sponsored AAC&U events. Lastly, as reflected in the Dean of Arts & Sciences update to the BOV in November 17, W&M was supported in COLL implementation by AAC&U Institutes (Conley, 2017 November).

Internal Forces

The strategic planning process initiated in 2008 by W&M's then President Taylor Revelly and the follow-on faculty study and deliberation were the predominant factors in changing the curriculum. The W&M President and Provost played central roles through the strategic planning process and follow-on engagements with the faculty to reexamine the previously approved General Education Requirements (GER). The strategic planning process is often employed when there is new leadership on campus and in response to both internal and external demands of stakeholders.

Strategic planning process. In 2008, the W&M President initiated a strategic management process to advance institutional initiatives (Hannover Research, 2013; Liberal arts university, n.d.). As institutions face increased accountability and reduced financial resources, the concept of strategic planning within higher education has

regained popularity for proactively meeting these challenges, while also improving student outcomes (Hannover Research, 2013; Hinton, 2012). A planning steering committee, chaired by the Provost and the Vice President for Strategic Initiatives and Public Affairs, guided W&M's planning process.

The strategic planning process included an updated strategic plan and a university budget, which was approved by the Board of Visitors and submitted to the state. This plan additionally supported SACS-COC reaccreditation by documenting institutional goals and progress. As highlighted by the interviews and found in the documentation, the initiation of W&M's strategic planning process by the new university president became the primary catalyst for the review of the general education curriculum in an environment where the departments and faculty carefully held control over curriculum issues.

W&M avoided many of the pitfalls typically associated with strategic planning. As noted by Bryson (2011) and Hinton (2012), the primary source for failure with most institutional strategic planning is the lack of stakeholder participation or support. Other reasons for strategic planning to fail include: planning outcomes are incompatible with institutional mission and values; completed plans are never initiated; and planning solely supports the budgeting process (Bryson, 2011; Hinton, 2012). W&M achieved a synergy for changing its general education program by nesting its mission and vision within the strategic plan as illustrated in Figure 7 (Hinton, 2012) and also by including key stakeholders in the planning process.

NESTING OF MISSION, VALUES, VISION & STRATEGIC PLAN

MISSION: Predominately residential undergraduate program providing a broad liberal education.

VISION: Liberal Arts University - students develop the **critical thinking** and understanding of diverse perspective essential to excel in the 21st century...boldly innovates in interdisciplinary study, internationalization, and faculty – student inquiry.

GOALS: In fulfilling its mission, adopts the following specific goals:

- To provide a challenging undergraduate program with a liberal arts and science curriculum that **encourages creativity, independent thought**, and intellectual depth, breadth, and curiosity;
- To instill in its students an appreciation for the human condition, a concern for the public well-being and a life-long commitment to learning.

STRATEGIC PLAN: Embed the core of liberal arts education in all parts of the university

- Interdisciplinary connections. Encourage interdisciplinary connections across academic areas.
- **Complete the review of the general education requirements** in the core undergraduate curriculum, phase – in changes and provide funds to support, evaluate, and refine the curricular changes (includes the Center for Liberal Arts and the development of courses for the new College Curriculum (COLL) experience – a set of specially designed general education courses that connect and integrate knowledge from the major and the electives, extending across four years.

Figure 7. Nesting of W&M Mission, Values, Vision, and Strategic Plan Adapted from data extracted from vision, strategic focus, and planning statements: W&M: The liberal arts university Retrieved from <https://www.wm.edu/about/administration/strategicplanning/vision/index.php>. Published 2018 by W&M.

Role of the professional bureaucracy. As described by Mintzberg (1979/2000), the primary organizational construct found at most higher education institutions is as a professional bureaucracy. In essence, the institution is controlled and reliant on the skills and knowledge of the professionals, primarily the faculty, who provide the essential core service. This arrangement is not to discount the indispensable roles of other administrative entities, such as the president, provost and board of visitors.

As at most institutions, W&M's Provost exerts considerable influence for managing the internal affairs of the institution, and in this case study, the provost served

as the catalyst for reevaluation of the general education curriculum (Bess & Dee, 2008). As reflected in the Board of Visitors (BOV) minutes, Provost Halleran kept the President and BOV advised of the faculty's progress on the curriculum review as well as potential issues for their consideration (Halleran, 2013 February 8). The provost was integral in also creating or charging the existing faculty committees for the curriculum review (Halleran, 2010 Sept 15).

As highlighted by Mintzberg (1979/2000) and evident at W&M, the professional bureaucracy is highly decentralized with faculty seeking to control their own work and any administrative decision that might affect them. Reinforcing this theoretical construct is the American Association of University Professors (AAUP) position that the faculty has the primary responsibility for the curriculum and associated educational process (AAUP, 1966). AAUP also highlighted the interdependency among governing boards; the need for communication among the faculty, staff and students; and the importance of long range planning processes with faculty involvement (AAUP, 1966).

As this case study illustrated, for development of any effective academic plan, the faculty is instrumental to its successful implementation. Using the existing faculty committee structures and processes, augmented by a short term focused committee with the right amount of stakeholder representation from across the institution, the W&M faculty collaboratively developed the guiding principles, content and sequence for the COLL curriculum (Hinton, 2012). Through rigorous faculty debates, the pros and cons of the proposed curriculum were identified during special faculty meetings before placing the draft curriculum to be approved by a majority vote of the entire A&S faculty.

Conclusion. George E. P. Box, a noted statistician, is often cited for observing that all models are wrong but some are useful. Even with the great diversity of higher education institutions found in the U.S., Lattuca and Stark's (2009) academic plan model serves as a useful model for the development of academic plans for recognizing the internal and external forces that may potentially influence the development of an academic plan. However, as Lattuca and Stark (2009) recognized and this case study proved, the model is less accurate for the development of academic plans at the "college" level such as transforming an institution's general education program.

Lattuca and Stark (2009) recognized that academic plans may be created at several levels to include course, program, and at the college level. While I modified their model, which is found in Figure 1, neither depict the dynamic committee structures and mechanism for development of a college wide academic plan within the model as highlighted in this case study. Even though Lattuca and Stark addressed the tensions inherent in the development of an academic plan, their schematic model fails to fully account for the tensions found in higher education today. Lastly, while the model addresses "evaluation" as a component of the model, a better term would be "assessment" as assessment would result in the production of evidence and information to make decisions about student learning. The term "evaluation" implies a value judgment as to their relative value (Gall et al., 2007).

Critical and Creative Thinking in the COLL Curriculum

One of the central issues for this case study was determining how the COLL curriculum incorporated two crucial learning outcomes namely the development of critical and creative thinking (AAC&U, 2005; Bok, 2013; Willingham, 2007). The

AAC&U definition and description of the competencies for critical and creative thinking were designated as the benchmark for comparison with W&M practices given the lack of consensus found in the literature on definitions, competencies, and assessment for these critical skills. Instilling in students the skills and habits for being critical and creative thinkers is clearly one of the stated guiding principles in the design and execution of the COLL Curriculum by the faculty (W&M, 2013d). Yet, the case study research indicates there is a lack of consensus and consistency of messaging, policy, and execution of what, when, and how these skills and habits are integrated in the COLL curriculum.

Based on the documentation available and the interview comments, there is no W&M published definition or specified or detailed outcomes approved and published on critical or creative thinking for instructors to use to guide their integration of these critical skills in the COLL curriculum and in their courses. Furthermore, both the written records of faculty deliberations prior to COLL curriculum's implementation, and the CLA records post the decision to implement the new curriculum, reflected a lack of detailed discussions about these competencies.

As a result, the faculty does not share a common understanding of when and how the competencies of critical and creative thinking are to be integrated into the COLL curriculum. Faculty members rely on their own interpretations on what these competencies entailed largely based on their prior experiences as students for modeling and integrating these skills in their courses. Their appeared to be a lack of awareness of available resources to help guide their integration of these critical skills in their courses. For example, less than one in four of the faculty were aware of the AAC&U definition or the existence of the AAC&U rubric for either critical or creative thinking.

Critical thinking. The faculty conceptions of learning outcomes and goals greatly influences the structure, content, and assessment for critical thinking (Bailin, Case, Coombs & Daniels, 1999; Hatcher, 2006). Some researchers view critical thinking as a set of skills (Bahr & Lloyd, 2010; Bok, 2006), some as a mindset (AAC&U, 2005; Facione, 1990, 2013); and lastly some as a method for reasoning and logic (Lattuca & Stark, 2009; Paul & Elder, 2008). Based on the faculty interviews, critical thinking was viewed in the COLL curriculum more as a number of skills to be taught and modeled across the curriculum during a 4-year educational experience not specific to any domain or academic major.

Even though a faculty member has a great deal of freedom in the design and content of their COLL courses, the overall COLL curriculum design, approved by the faculty, essentially determines the general learning outcomes. The principles governing the design of the COLL curriculum identified helping the students acquire knowledge and develop the skills and habits of critical thinking as a COLL learning outcome, yet there is only indirect reference to critical thinking in the COLL curriculum guidelines for specific COLL courses, and even the mention uses imprecise language, such as “think rigorously” (W&M, 2013d).

One could assume that instructors will incorporate critical thinking into their COLL courses, as part of a liberal arts education, despite the lack of consensus on definition, learning outcomes, and assessment (Faculty Affairs Committee [W&M], 2010 December 20; Hatcher, 2006). But, in order for students to effectively demonstrate critical thinking as an outcome, instructors must first identify and precisely define the outcomes prior to instruction, as this identification is a principle for effective

instructional design (Tireneh et al., 2015). Lastly, less than 25% of the examined COLL syllabi identified critical thinking as a course objective. Without the identification of critical thinking as a learning outcome, it is only happenstance for students to achieve this skill and mindset.

Creative thinking. Determining whether creative thinking is being incorporated into the COLL curriculum is even more difficult. Some faculty respondents declared it was not a stated outcome of the curriculum, while others noted the difficulty of incorporating creative thinking into their COLL courses for a variety of reasons to include class size and student knowledge of the content. None of the syllabi examined identified creative thinking as a course objective nor is creative thinking a major focus of IAE or state assessment. Despite the espoused value and need to instill creative thinking abilities in students, it is not systematically occurring within the current COLL curriculum implementation.

Hopeful pedagogy. Given the importance of developing these critical competencies in undergraduate education, it is vital for W&M to avoid what Nicholas and Raider-Roth (2016) titled a “hopeful pedagogy” (p. 1). This outcome occurs when an institution and its faculty claim to be teaching or incorporating competencies such as critical or creative thinking in their curriculum, but are unable to define what and how the competencies, skills, or outcomes are incorporated into the curriculum. This quandary is not a new problem among institution of higher learning (Nicholas & Raider-Roth, 2017). Additionally, citing the extensive work of Pascarella and Terenzini, Lattuca and Stark (2009) concluded that assuming all students in an institution, or even within a department, learn essentially the same thing is flawed.

Based on reported student and faculty comments, critical thinking appears to be incorporated into some COLL courses by individual faculty members based on their own interpretation of what constitutes critical thinking. For example, one student noted their participation in COLL 100/150 courses enabled them: “To question how we know what we do and not to take our knowledge at face value” (Conley, 2017 November, p. 9). Or as another faculty member noted: “Student questions have become more complex and extensive, and the discussion requires much more higher-level thinking [Government]” (Conley, 2017 November, p. 15). Yet, while individual faculty members may incorporate these skills into their COLL courses, specifically in the COLL 150/200 series courses, the development of critical and creative thinking skills and mindsets through a thoughtful and systematic way across the COLL curriculum is aspirational at this point.

To achieve a common understanding of how the goals for instilling critical and creative thinking within the COLL curriculum will be achieved will require negotiation similar to the process to gain COLL curriculum acceptance. This negotiation will require navigating the different values, beliefs, interests, and perceptions of not only individual faculty members, but also address department equities and disciplinary approaches for instilling these critical skills in undergraduates (Tiruneh et al., 2015). As noted by Bolman and Deal (2008), all organizations are political with competing interest groups, coalitions, and individuals demanding attention to their goals and share of resources. To avoid a destructive fight, university leaders must focus on the broad faculty agreement that these skills are essential and set the agenda that addresses faculty and department concerns.

Conclusion. The COLL curriculum does not clearly align with the AAC&U definition or listing of competencies associated with critical and creative thinking, however, there is a recognition that more linkage is required. Even with recognizing that this conclusion is based on a limited number of interviews, it also appears the majority of faculty participants do not clearly share an understanding of when and how the COLL curriculum develops critical and creative thinking. A lack of consensus on learning outcomes exists for both these areas.

Conversely, there is wide agreement among W&M leaders, administrators, and faculty that the development of critical and creative thinking is an important outcome of a W&M undergraduate experience. Furthermore, even with the wide array of interpretations of what to include and how to instill critical and creative thinking competencies, the interviews did reflect a great deal of faculty sensitivity to the importance of instilling these skills and habits to prepare students for success in whatever endeavors they wished to pursue upon graduation. Thus, a paradox exists. The faculty and institution espouse the value of critical and creative thinking, yet there is not a shared meaning of what these abilities mean or how they are infused within the COLL courses.

An orthogonal approach may be useful in integrating critical and creative thinking throughout the curriculum. Leslie (2014) noted the identification of key educational outcomes independent of the major, which are to be achieved through the general education curriculum, as agreed upon by the faculty, is a critical first step in the process. By identifying areas where these orthogonal outcomes cut across disciplines and contexts is the next step for improving learning, teaching and assessment.

Barber (2014) links these orthogonal outcomes to the larger effort of integrating learning from different contexts and perspectives and to meld, connect, and apply them in their lives and new contexts. By bridging orthogonally the key outcomes across the various disciplines with the general education curriculum will produce better connections, application, and synthesis in student learning but also enhances faculty cooperation across the curriculum (Barber, 2014). Given W&M's faculty have identified critical and creative thinking as a key learning outcomes in the COLL curriculum, the next step to link how these learning outcomes are accomplished in COLL curriculum courses (e.g., COLL 100, 150, 200, 300, 400) against the specific disciplines (e.g., physics).

Assessment of W&M's Critical and Creative Thinking Learning Outcomes

A major component of Lattuca and Stark's (2009) model is the assessment and evaluation phase. Assessment and evaluation results provide feedback to adjust the academic plan based on the perception and interpretation of the plan's effectiveness in meeting the intended purpose and goals. Institutionally there exists a robust system to support W&M's continuous self-improvement, which also supports the process for reaccreditation and to provide information to the state and other entities. Even though the small four-person office responsible for institutional accreditation and effectiveness conducts and facilitates assessment studies, it is the faculty and academic departments that play the major role in assessment.

W&M's uses a system called Process of Institutional Effectiveness (PIE) to document department or program progress in meeting its educational goals and student learning outcomes for the curriculum primarily tied to the student's major. The

department's curriculum committee use the assessment data to make recommendations for changes to curriculum and its methods for achieving and assessing a department goals in what is described on the PIE website as a "reflective, collaborative, and deliberate review." The PIE database is used by all departments of the various W&M schools (Arts & Sciences, Education, Law, and Marine Science) with only the School of Business maintaining their own PIE/course portfolio database. What is unclear and requiring further study is whether critical or creative thinking is sufficiently assessed as part of the PIE system given there is no public access to its database or published criteria, and based on the interviews, the PIEs were not discussed among faculty members teaching COLL courses.

For the COLL curriculum, assessment is a separate process of course portfolio reviews by the Assessment Steering Committee (ASC). As a faculty driven process, the ASC, headed by the Vice Provost for Academic and Faculty Affairs, works with the IAE and others faculty members to support the assessment. As discussed in the previous chapter, the COLL curriculum does not specifically assess critical or creative thinking competencies. Only the planned future assessment of COLL 400 courses during SY 2019-2020 is anticipated to explicitly assess critical thinking.

Conclusions. Assessment of student learning to inform practice and to modify pedagogy is a critical element in the academic planning model (Lattuca & Stark, 2009). Even though W&M has a formalized system for improving its institutional effectiveness, it does not currently focus institutional COLL assessments specifically on critical and creative thinking. Interestingly, while SCHEV does not define creative thinking, it has defined critical thinking as "the ability to subject one's own and others' ideas, arguments,

assumptions, and evidence to careful and logical scrutiny in order to make an informed judgment, draw a sound conclusion or solve a problem” (SCHEV, 2017c, p. 4). Given this definitive definition and the SCHEV requirement for W&M to assess itself against it, as a practical matter, it should be widely promulgated to the teaching faculty. The absence of assessment in this area is notable.

Implications for Practice

The findings of this study hold implications and lessons learned not only for W&M, but also for other institutions in reviewing or changing their general education program. This section is organized around three ideas to improve practice for instilling the competencies of critical and creative thinking which can be applied at any institution, but in this discussion, are tailored for W&M. The three practices are: developing and sharing a detailed plan for addressing these competencies; aggressively embracing the concept of a learning organization as highlighted by Senge (1990); and lastly, sharing the vision and plan for achieving core educational competencies with students.

Develop and share a detailed plan. The most obvious implication for practice is to insure those principles guiding the general curriculum model, which are approved by the faculty, are adequately defined with specific learning outcomes. As reflected in this case study, W&M’s vision, goals and principles for the COLL curriculum specifically addressed the development of critical and creative thinking skills as an important educational outcome, yet, there is a mismatch between espoused expected learning outcomes and practice.

Even though the faculty approved the principles for the COLL curriculum, which included critical and creative thinking, there is no broadly held consensus among the

faculty of what constitutes critical or creative thinking or how these competencies are reinforced through the student's progression through the COLL curriculum or major field of study. As Senge (1990) highlighted, there appears to be a difference between an espoused theory from the theory that is in use in practice for instilling critical and creative thinking for the COLL curriculum. The primary means of closing the gap between what is espoused and what is practiced is by deliberate faculty conversations to develop at least a consensus of what constitutes these skills and how and when they will be exercised in general education.

This challenge of espousing a practice, but the practice not really being found in use is not confined to W&M. For example, on 1 June 2018, administrators and faculty representatives from various Virginia public higher education institutions met to discuss teaching and assessing core competencies in undergraduate education (SCHEV, 2018). As highlighted previously, several state mandated core competencies, to include critical thinking, were directed to be assessed by Virginia's public universities in the future (SCHEV, 2017c). Yet in practice, incorporating these curriculum mandates successful into the curriculum is not always occurring.

The dialogue and discussions among the administrators and faculty during this conference were open and frank. As one senior university leader noted, reflecting on the general education curriculum abilities to inculcate these core competences, "models look great on paper" making the point that not everything is as it seems. This comment echoes Senge's (1990) writings about the tensions between the vision and reality found in any organization and in this case for areas where there is less consensus in the literature or among faculty on expected outcomes.

Embrace the concepts of a learning organization and organizational learning.

Bess and Dee (2008) highlighted that colleges and universities should be optimally positioned to be learning organizations, but noted they are not. A learning organization is “is an environment that promotes a culture of learning, a community of learners, and it ensures that individual learning enriches and enhances the organization as a whole” (Kezar, 2005, p. 10). To be effective, learning involves the whole organization for improving core processes. As a professional bureaucracy with its decentralization, many institutions lack the ability to share information and maintain open communication channels across academic departments and throughout the institution. As Bess and Dee (2008) concluded, individuals, departments, and units may learn, but the information is not widely shared across the enterprise.

Carroll, Rudolph, and Hatakenaka (2002) postulated that unlike humans who are naturally programmed to learn, organizations are not. Learning in organizations requires complex interdependencies among people and groups whom collaborate and cooperate based on trustful interactions. Given universities are divided into many departments and schools, the danger is the creation of numerous silos where learning is constrained by existing assumptions and mental models, and entrenched interests seeking to preserve the status quo (Carroll et al., 2002).

Most feedback to correct performance, such as improving the level of critical or creative thinking in a course, is single loop learning (Argyris, 1993). Institutions need to adopt double loop learning, which not only corrects performance but also assesses and changes policies, goals, and plans (Argyris, 1977, 1993). The advantage to double loop learning is that it provides periodic feedback and adjustments for incremental curricular

improvement, specifically in general education, rather than large scale changes, which occurs infrequently (Briggs, 2007).

W&M has an established system in place to assess the curriculum, but it is unclear if issues, insights, findings, and recommendations are widely distributed. The PIE assessments, which are focused primarily on the student's major, are only distributed at the department level and further research is need to determine if and how departments share these insights within and external to their department. It is also unclear if the PIE assesses critical and creative thinking competencies or how the PIE links with assessment of the COLL curriculum. While the results from the ASC assessments for the COLL curriculum are given wider distribution, these assessments only peripherally address critical and creative thinking.

While recognizing W&M faculty meet regularly and the CLA offers opportunities for the faculty to share and learn, the timeline for COLL curriculum implementation may present to W&M an institutional reflection point to have a thoughtful and holistic review of its progress (Garvin, Edmondson & Gino, 2008). As part of this review, faculty exchanges of opinions on COLL curriculum implementation, specifically focused on critical and creative thinking within the confines of the general education curriculum, could be exchanged. This faculty exchange would begin the process of building faculty consensus on how, what, and when these competencies are covered in the COLL curriculum. Evidence based on current assessments should be discussed with recommendations made for improvement of the academic program (New Leadership Alliance for Student Learning and Accountability, 2012). This review could also include a discussion and modeling of "best pedagogies" by individual faculty members.

Share the education plan and vision with students. As a senior university leader noted during the June 2018 SCHEV conference, most universities have stated outcomes for core competencies, yet few students know what they are. Chickering and Gamson (1987) noted students are essential partners with the faculty for their learning. Increasingly the literature has centered on the process of learning and the central role of the student as self-directed learners capable of monitoring and adjusting their approaches to learning, which requires knowledge of required outcomes (Ambrose, Bridges, DiPietro, Lovett, & Norman, 2010).

Another senior and experienced participant during the SCHEV conference noted, “Teaching students without providing them with learning outcomes is like giving them a 500 piece puzzle without an image of what they’re assembling.” Obviously, this shared vision must be developed and approved by the faculty, but it must be understood by the student for learning outcomes to be achieved. As Herbert Simon, one of the founders of the field of cognitive science and a Nobel Laureate noted, “Learning results from what the student does and thinks and only from what the student does and thinks. The teacher can advance leaning only by influencing what the student does to learn” (Ambrose et al., 2010, p. 1).

While W&M conducts an extensive multi-day first-year orientation program to include an orientation on academic life and the liberal arts, it is unclear if this orientation includes a discussion of how the competencies fit into the COLL curriculum. Even with this included in the freshman orientation, the Provost, Dean, and the student’s advisor must continually address the student’s role in the learning process and the means to

acquire the competencies and skills necessary for their success throughout their academic careers.

Implications for Future Study

Perhaps the most significant limitations of this study are the limited number of faculty members and others interviewed and the absence of student perspectives. A future study should expand the number of faculty members to be interviewed or conduct a qualitative survey of the faculty to validate, confirm, or refute some of the observations made in this study. Furthermore, a survey of student perceptions of the competencies expected from the COLL curriculum would provide insights as to level of knowledge that students have about them as well as increase awareness of them.

Another limitation of this study revolves around the observations made on assessment given the limited public access of either the PIE or COLL assessments. Establishing a group of trusted agents trained in the AAC&U critical and creative thinking rubrics to examine the PIE and COLL assessments could offer insights as to level of integration there is for instilling critical and creative thinking throughout the curriculum.

Previous chapters highlighted the influence of the various academic disciplines and fields have on the teaching of critical and creative thinking as evidenced in the literature and W&M faculty comments; its impact in the development of academic plans as highlighted in Lattuca and Starks (2008); and the often conflicting relationship with general education. While recognizing these implications, more study is needed to specifically identify how the various disciplines and disciplinary associations influence faculty perceptions and how they view the specific competencies and outcomes for

critical and creative thinking. These disciplinary associations range from a few thousand members, such as found in the Organization of American Historians or the American Political Science Association to larger organizations such as the American Association of Colleges of Nursing which represent 814 member schools of nursing at public and private universities nationwide.

Another area for future study centers on faculty collaboration and support resources to support accountability, which was only anecdotally addressed in the interview (Briggs, 2007). Unlike many institutions, W&M does not have one center to support faculty development but rather has three separate elements providing support to the faculty, namely the Charles Center, the Center for Liberal Arts (CLA), and the Writing Center. While the Writing Center provides support on the language components of the curriculum, it was the Charles Center and the CLA that were most often cited during the interviews as available resources for increasing faculty proficiency as COLL instructors and in the development of innovative COLL courses.

The Roy R. Charles Center for Academic Excellence has a dual mission of providing research and interdisciplinary opportunities for students as well as supporting faculty efforts to adopt new teaching methods. Some of the interviewed faculty noted the yearlong university teaching project sponsored by the Charles Center which enabled faculty members to develop a new or revised course by working with faculty peers and small groups. Other faculty members highlighted the Charles Center new faculty orientation as well as a host of workshops to exchange ideas about teaching techniques across the disciplines (Roy R. Charles Center for Academic Excellence, 2017).

To focus on the COLL curriculum, W&M established the Center for Liberal Arts (CLA) (W&M, 2016b). The CLA encourages interdisciplinary connections, innovation, and creativity in the COLL curriculum by conducting activities as lunch-time meetings and seminars (i.e., May Seminars) currently focused on the development of COLL 300 and 400 level courses. Eleven faculty members are appointed for a 2-year term to provide and review guidelines for the various components of general education in collaboration with the EPC and the Dean for educational policy; assist faculty members in the design of their COLL courses; develop technological and pedagogical initiatives; and survey course offerings in general education, in collaboration with the Dean of Undergraduate Studies and Registrar. Yearly, the CLA publishes a report to the FAS focused on actions taken during the last year and brief outline of future activities (Center for the Liberal Arts, 2017).

Anecdotal interview comments by faculty members indicated that there were sufficient resources available to support faculty development. Several faculty members noted the W&M hiring process insured that new hires were skilled instructors in addition to their academic qualifications and merit as subject matter experts. Only one faculty member specifically mentioned collaboration with W&M's School of Education (SOE) and it is unclear of the level of awareness among the faculty of the College Teaching Certificate program offered by SOE.

While there appeared to be sufficient resources, several COLL faculty members noted that the "faculty were hungry for opportunities" to talk with and collaborate with other faculty members specifically to address the need to increase the interdisciplinary nature of the curriculum. Another faculty member noted "every scholar falls into ruts,"

which requires self-reflection and an ability to continually learn and examine their own pedagogies with others. Unlike many institutions, as reflected in Table 9, W&M has no central focal point to easily enable faculty collaboration or to provide insights to faculty on teaching and learning. While further study is needed to determine if an integrated web presence would be considered value added by the faculty, using minimal resources, it may enable better information exchange and collaboration than the current system of maintaining two distinct centers – one focused on COLL and the other on undergraduate education primarily focused on teaching in the content area.

Table 9

Public Ivies with Centers for Teaching and Learning

University	Center
University of Michigan	Center for Research and Teaching
Miami University	Center for Teaching Excellence
University of California, Berkeley	Center for Teaching and Learning
University of North Carolina	Center for Faculty Excellence
University of Texas, Austin	Faculty Innovation Center
University of Vermont	Center for Teaching and Learning

Note. Information extracted from a simple web search of those Public Ivy institutions with a center for teaching and learning. These centers provide a central point for faculty to consult and reference in order to improve practice and obtain guidance.

Conclusions

The case study clearly reflected the value of Lattuca and Stark’s (2009) academic plan model as a means to develop or examine a curriculum. W&M’s initiation of the strategic planning process, with strong leadership support, fostered the process for a

reexamination of the undergraduate general education curriculum and acknowledged the mission, vision and goals of the institution.

The provost appropriately acknowledged the role of the faculty and its processes for maintenance of the curriculum, while also recognizing that a short-term committee focused on the curriculum review was required. To avoid stifling the creativity of the group, he provided minimal guidance for the curriculum review only asking the committees to explore a handful of topics (Halleran, 2010 September 15). In essence, success of the planning effort was due in part to the initial planning steps by the Provost and CRCS by developing a plan for planning (Bryson, 2011), as well as recognizing the time required to gain consensus for any change.

Even before the CRCS begun work, the provost hosted community wide conversation series and resulting white paper began to build the consensus for change and the reexamination of the general education curriculum. Upon completion of CRSC's work, the faculty were intimately involved in follow-on deliberations and debate about the proposed COLL curriculum providing input from their unique perspectives and motivations.

As with any major change, it took time for the curriculum change to be developed and debated. It took three years from the time the provost proposed to the faculty that a curriculum review was warranted until final faculty approval of the COLL curriculum. It took almost another 2 years before the COLL curriculum was implemented in September 2015 beginning with the W&M Class of 2019.

W&M implementation of the COLL curriculum was supported by the creation of the Center for the Liberal Arts (CLA) who meet with faculty, administrators, and the EPC

to create courses to support the new curriculum (Center for the Liberal Arts, 2017). As an advisory board, the CLA role is only to provide counsel, advice, and encouragement to the faculty, EPC, and Deans and not to create policy (W&M, 2017a). CLA efforts during the 2013-2015 period included such activities as hosting brownbag lunch seminars, conducting May/January faculty seminars, department retreats and meetings, individual faculty—fellow meetings and providing faculty innovation grants to support the development of innovative courses.

Examining the CLA reports from August 2014-August 2017, there were no direct references to how the COLL curriculum or course authors would address the course principle of helping students develop the skills and habits of critical and creative thinking. Most of the CLA's work focused on implementing the COLL curriculum and increasing the interdisciplinary nature of general education courses. While one could assume that critical and creative thinking was addressed, one could equally argue, based on the available documentation, that these skills are not systematically addressed.

During the research, it became clear that W&M possesses a dynamic, innovative and committed faculty and administration. Much work has been done to provide a thoughtful and interesting update to W&M's undergraduate general education program; yet, work should continue to insure the faculty approved general principles of the COLL curriculum are implemented. As Sir Karl Popper, a noted 20th century philosopher noted:

For it we are uncritical we shall always find what we want; we shall look for, and find, confirmations, and we shall look away from, and not see, whatever might be dangerous to our pet theories. In this way it is only too easy to

obtain...overwhelming evidence in favor of a theory which, if approached critically, would have been refuted. (as cited in Syed, 2015, p. 103)

In summary, W&M is approaching an inflection point to holistically examine the COLL curriculum. Given Popper's advice, the next academic year of 2019-2020 offers W&M the opportunity to begin a review of its implementation of the principles approved by the faculty in December 2013 and which govern the COLL curriculum. Whether this results in a formal program review or a more modest effort, it should determine whether the COLL curriculum is resulting in practice to what was desired.

The W&M community clearly recognizes the importance of developing student critical and creating thinking as an outcome of a liberal arts education. But, as highlighted in this case study, it is not entirely clear that the faculty have a common understanding about these competencies; what skills are developed; or how the COLL curriculum addresses them. With support by the Provost, the Dean of Arts & Sciences, the CLA, and OIAE, the faculty must wrestle with how W&M defines, teaches, and assesses these competencies through general education to avoid these terms simply becoming a bumper sticker attached to any curriculum.

With increased demands for accountability in higher education, as reflected in the 2017 state mandate to assess certain core competencies such as critical thinking in an undergraduate education, W&M needs to conduct an effective assessment which produces credible evidence that its general education program is achieving the outcomes stated and desired. Furthermore, students must understand what these competencies are, how they are being achieved, and their importance to becoming educated citizens and as

owners of their education. This message must be repeated continually throughout their four years on campus.

Lastly, W&M must review whether it is providing the right resources at the right time to assist its faculty members as instructors. Unlike many institutions, W&M's concentrates its focus on its undergraduate education and the faculty's role as instructors. Resources for faculty development to support the COLL curriculum are available from a number of sources. Yet, many faculty were unaware of the AAC&U work and available rubrics, and the record reflects little discussion about the competencies resulting from a liberal arts education other than the importance of interdisciplinary connection. Future discussions should center on whether the various initiatives associated with faculty development, teaching and learning should be consolidated or reinforced; the role of the School of Higher Education in assisting W&M to achieve its goals; and the establishment of a central repository for lesson learned and for sharing ideas and pedagogies.

Appendix A

AAC&U Liberal Education & America's Promise (AAC&U, 2015a, n.d.)

Principles of Excellence

Aim High—and Make Excellence Inclusive

Make the Essential Learning Outcomes a Framework for the Entire Educational Experience, Connecting School, College, Work, and Life

Give Students a Compass

Focus Each Student's Plan of Study on Achieving the Essential Learning Outcomes—and Assess Progress

Teach the Arts of Inquiry and Innovation

Immerse All Students in Analysis, Discovery, Problem Solving, and Communication, Beginning in School and Advancing in College

Engage the Big Questions

Teach through the Curriculum to Far-Reaching Issues—Contemporary and Enduring—in Science and Society, Cultures and Values, Global Interdependence, the Changing Economy, and Human Dignity and Freedom

Connect Knowledge with Choices and Action

Prepare Students for Citizenship and Work through Engaged and Guided Learning on “Real-World” Problems

Foster Civic, Intercultural, and Ethical Learning

Emphasize Personal and Social Responsibility, in Every Field of Study

Assess Students' Ability to Apply Learning to Complex Problems

Use Assessment to Deepen Learning and to Establish a Culture of Shared Purpose and Continuous Improvement

Appendix B

The LEAP Essential Learning Outcomes (AAC&U, 2015a)

› *Knowledge of Human Cultures and the Physical and Natural World*

- Through study in the sciences and mathematics, social sciences, humanities, histories, languages, and the arts
- Focused by engagement with big questions, both contemporary and enduring

› *Intellectual and Practical Skills, including*

- Inquiry and analysis
- ***Critical and creative thinking***
- Written and oral communication
- Quantitative literacy
- Information literacy
- Teamwork and problem solving

Practiced extensively, across the curriculum, in the context of progressively more challenging problems, projects, and standards for performance

› *Personal and Social Responsibility, including*

- Civic knowledge and engagement—local and global
- Intercultural knowledge and competence
- Ethical reasoning and action
- Foundations and skills for lifelong learning

Anchored through active involvement with diverse communities and real-world challenges.

› *Integrative and Applied Learning, including*

- Synthesis and advanced accomplishment across general and specialized studies

Demonstrated through the application of knowledge, skills, and responsibilities to new settings and complex problems

Appendix C

Framework of the Statewide Strategic Plan for Higher Education 2014-10-28

(SCHEV, 2014)

(As adopted by the State Council of Higher Education for Virginia on September 16 and October 28)

MISSION: Higher education in Virginia will advance postsecondary learning, research and public service that enhance the civic and financial health of the Commonwealth and the well-being of all its people.

VISION: Higher education will transform the lives of Virginians, our communities and our Commonwealth.

GOAL 1: Provide Affordable Access for All

STRATEGIES:

- 1.1 Expand outreach to PK-12 and traditionally underserved populations
- 1.2 Improve the college readiness of all students
- 1.3 Cultivate affordable postsecondary education pathways for traditional, non-traditional and returning students
- 1.4 Align state appropriations, financial aid and tuition and fees such that students have broader access to postsecondary education opportunities regardless of their ability to pay

GOAL 2: Optimize Student Success for Work and Life

STRATEGIES:

- 2.1 *Strengthen curricular options to ensure that graduates are prepared with the competencies necessary for employment and civic engagement (Italics added)*
- 2.2 Provide effective academic and student services infrastructures focused on persistence and completion
- 2.3 Increase on-time completion of certificates and degrees
- 2.4 Engage adults and veterans in certificate and degree completion and lifelong learning

GOAL 3: Drive Change and Improvement through Innovation and Investment

STRATEGIES:

- 3.1 Identify and implement public funding strategies to sustain long-term planning and responsiveness

3.2 Cultivate innovations that enrich quality, promote collaboration and improve efficiency

3.3 Foster faculty excellence, scholarship and diversity

3.4 Enhance higher education leadership, governance and accountability

GOAL 4: Advance the Economic & Cultural Prosperity of the Commonwealth & its Regions

STRATEGIES:

4.1 Build a competitive, future - ready workforce for all regions

4.2 Become a catalyst for entrepreneurship and a model for business incubation

4.3 Target funding, resources and partnerships to support research and development

4.4 Expand participation and engagement in public service & institutional service to the community

4.5 Demonstrate the impact of higher education on state and regional economic development

Appendix D

Critical Thinking VALUE Rubric (AAC&U, 2009a)

For more information, please contact value@aacu.org

The VALUE rubrics were developed by teams of faculty experts representing colleges and universities across the United States through a process that examined many existing campus rubrics and related documents for each learning outcome and incorporated additional feedback from faculty. The rubrics articulate fundamental criteria for each learning outcome, with performance descriptors demonstrating progressively more sophisticated levels of attainment. The rubrics are intended for institutional-level use in evaluating and discussing student learning, not for grading. The core expectations articulated in all 15 of the VALUE rubrics can and should be translated into the language of individual campuses, disciplines, and even courses. The utility of the VALUE rubrics is to position learning at all undergraduate levels within a basic framework of expectations such that evidence of learning can be shared nationally through a common dialog and understanding of student success.

Definition

Critical thinking is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.

Framing Language

This rubric is designed to be transdisciplinary, reflecting the recognition that success in all disciplines requires habits of inquiry and analysis that share common attributes. Further, research suggests that successful critical thinkers from all disciplines increasingly need to be able to apply those habits in various and changing situations encountered in all walks of life.

This rubric is designed for use with many different types of assignments and the suggestions here are not an exhaustive list of possibilities. Critical thinking can be demonstrated in assignments that require students to complete analyses of text, data, or issues. Assignments that cut across presentation mode might be especially useful in some fields. If insight into the process components of critical thinking (e.g., how information sources were evaluated regardless of whether they were included in the product) is important, assignments focused on student reflection might be especially illuminating.

Glossary

The definitions that follow were developed to clarify terms and concepts used in this rubric only.

- Ambiguity: Information that may be interpreted in more than one way.

- Assumptions: Ideas, conditions, or beliefs (often implicit or unstated) that are "taken for granted or accepted as true without proof." (quoted from www.dictionary.reference.com/browse/assumptions)
- Context: The historical, ethical, political, cultural, environmental, or circumstantial settings or conditions that influence and complicate the consideration of any issues, ideas, artifacts, and events.
- Literal meaning: Interpretation of information exactly as stated. For example, "she was green with envy" would be interpreted to mean that her skin was green.
- Metaphor: Information that is (intended to be) interpreted in a non-literal way. For example, "she was green with envy" is intended to convey an intensity of emotion, not a skin color.

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Critical Thinking VALUE Rubric

for more information, please contact value@aacu.org

Definition

Critical thinking is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.

Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.

	Capstone	Milestones		Benchmark
	4	3	2	1
Explanation of issues	Issue/problem to be considered critically is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding.	Issue/problem to be considered critically is stated, described, and clarified so that understanding is not seriously impeded by omissions.	Issue/problem to be considered critically is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined, and/or backgrounds unknown.	Issue/problem to be considered critically is stated without clarification or description.
Evidence Selecting and using information to investigate a point of view or conclusion	Information is taken from source(s) with enough interpretation/evaluation to develop a comprehensive analysis or synthesis.	Information is taken from source(s) with enough interpretation/evaluation to develop a coherent analysis or synthesis. Viewpoints of experts are subject to questioning.	Information is taken from source(s) with some interpretation/evaluation, but not enough to develop a coherent analysis or synthesis.	Information is taken from source(s) without any interpretation/evaluation. Viewpoints of experts are taken as fact, without question.

	Viewpoints of experts are questioned thoroughly.		Viewpoints of experts are taken as mostly fact, with little questioning.	
Influence of context and assumptions	Thoroughly (systematically and methodically) analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.	Identifies own and others' assumptions and several relevant contexts when presenting a position.	Questions some assumptions. Identifies several relevant contexts when presenting a position. May be more aware of others' assumptions than one's own (or vice versa).	Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions). Begins to identify some contexts when presenting a position.
Student's position (perspective, thesis/hypothesis)	Specific position (perspective, thesis/hypothesis) is imaginative, taking into account the complexities of an issue. Limits of position (perspective, thesis/hypothesis) are acknowledged. Others' points of view are synthesized within position (perspective, thesis/hypothesis).	Specific position (perspective, thesis/hypothesis) takes into account the complexities of an issue. Others' points of view are acknowledged within position (perspective, thesis/hypothesis).	Specific position (perspective, thesis/hypothesis) acknowledges different sides of an issue.	Specific position (perspective, thesis/hypothesis) is stated but is simplistic and obvious.
Conclusions and related outcomes (implications and consequences)	Conclusions and related outcomes (consequences and implications) are logical and reflect student's informed evaluation and ability to place evidence and	Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes (consequences and implications) are identified clearly.	Conclusion is logically tied to information (because information is chosen to fit the desired conclusion); some related outcomes (consequences and	Conclusion is inconsistently tied to some of the information discussed; related outcomes (consequences and implications) are oversimplified.

	perspectives discussed in priority order.		implications) are identifie clearly.	
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Appendix E

Creative Thinking VALUE Rubric (AAC&U, 2009b)

Definition

Creative thinking is both the capacity to combine or synthesize existing ideas, images, or expertise in original ways and the experience of thinking, reacting, and working in an imaginative way characterized by a high degree of innovation, divergent thinking, and risk taking.

Framing Language

Creative thinking, as it is fostered within higher education, must be distinguished from less focused types of creativity such as, for example, the creativity exhibited by a small child's drawing, which stems not from an understanding of connections, but from an ignorance of boundaries. Creative thinking in higher education can only be expressed productively within a particular domain. The student must have a strong foundation in the strategies and skills of the domain in order to make connections and synthesize. While demonstrating solid knowledge of the domain's parameters, the creative thinker, at the highest levels of performance, pushes beyond those boundaries in new, unique, or atypical recombinations, uncovering or critically perceiving new syntheses and using or recognizing creative risk-taking to achieve a solution.

The Creative Thinking VALUE Rubric is intended to help faculty assess creative thinking in a broad range of transdisciplinary or interdisciplinary work samples or collections of work. The rubric is made up of a set of attributes that are common to creative thinking across disciplines. Examples of work samples or collections of work that could be assessed for creative thinking may include research papers, lab reports, musical compositions, a mathematical equation that solves a problem, a prototype design, a reflective piece about the final product of an assignment, or other academic works. The work samples or collections of work may be completed by an individual student or a group of students.

Glossary

The definitions that follow were developed to clarify terms and concepts used in this rubric only.

- Exemplar: A model or pattern to be copied or imitated (quoted from www.dictionary.reference.com/browse/exemplar).
- Domain: Field of study or activity and a sphere of knowledge and influence.

Creative Thinking VALUE Rubric

Definition

Creative thinking is both the capacity to combine or synthesize existing ideas, images, or expertise in original ways and the experience of thinking, reacting, and working in an imaginative way characterized by a high degree of innovation, divergent thinking, and risk taking.

Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.

	Capstone 4	3	Milestones 2	Benchmark 1
Acquiring Competencies <i>This step refers to acquiring strategies and skills within a particular domain.</i>	Reflect: Evaluates creative process and product using domain-appropriate criteria.	Create: Creates an entirely new object, solution or idea that is appropriate to the domain.	Adapt: Successfully adapts an appropriate exemplar to his/her own specifications.	Model: Successfully reproduces an appropriate exemplar.
Taking Risks <i>May include personal risk (fear of embarrassment or rejection) or risk of failure in successfully completing assignment, i.e., going beyond original parameters of assignment, introducing new materials and forms, tackling controversial topics, advocating unpopular ideas or solutions.</i>	Actively seeks out and follows through on untested and potentially risky directions or approaches to the assignment in the final product.	Incorporates new directions or approaches to the assignment in the final product.	Considers new directions or approaches without going beyond the guidelines of the assignment.	Stays strictly within the guidelines of the assignment.
Solving Problems	Not only develops a logical, consistent plan to solve problem, but recognizes	Having selected from among alternatives, develops a logical, consistent	Considers and rejects less acceptable approaches to solving problem.	Only a single approach is considered and is used to solve the problem.

	consequences of solution and can articulate reason for choosing solution.	plan to solve the problem.		
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Appendix F

W&M Sources & Documents

Websites

This appendix outlines those W&M documents consulted in support of this study. As a public institution, W&M places many items in the public domain as a matter of public record. Various W&M hosted web sites were consulted to support this study to include:

Strategic planning which included the institutions vision, plan and details on the planning steering committee (Retrieved from <https://www.wm.edu/about/administration/strategicplanning/index.php>);

Institutional accreditation & effectiveness which included details on the role of the Office of Institutional Accreditation & Effectiveness (IAE) and the Assessment Steering Committee (ASC); progress and plan for assessing general education; and accreditation, however details on specific accreditation and IAE criteria are password protected (Retrieved from https://www.wm.edu/offices/iae/institutional_effectiveness/index.php);

Board of Visitors materials including membership information; committees listing; and meeting schedules agenda and minutes (Retrieved from <https://www.wm.edu/about/administration/strategicplanning/index.php>);

The Office of the President website contains annual report and budget information. (Retrieved from <https://www.wm.edu/about/administration/president/report/index.php>);

Provost website includes details on W&M vision and mission statements; initiatives such as the COLL curriculum; university committees to include college planning steering committee; to include summaries of the campus conversations and White Paper (Retrieved from <https://www.wm.edu/about/administration/provost/about/index.php>);

Dean of the Faculty of Arts and Sciences (FAS) includes details on the Center for the Liberal Arts and the curriculum review process to include meeting minutes of the FAS, planning calendars, and directions to the CRCS and Dean of A&S for the curriculum review (Retrieved from <https://www.wm.edu/as/dean/index.php>);

Center for the Liberal Arts includes details of current fellows, charter, annual reports and other topics. (Retrieved from <https://www.wm.edu/as/center-liberal-arts/index.php>);

Reports to SCHEV: Periodically and as required, W&M generates reports which are cited on the SCHEV website. For clarity, I have included the sourcing of these in this appendix since they were authored by W&M.

Appendix G

Timeline for COLL Curriculum Review: Planning and Implementation

- 2007** - Strategic Plan for Higher Education (2007-13) Advancing Virginia: Access, Alignment, & Investment published
- 2008** - President of W&M initiates Strategic Planning Process
- 2009 – 2010** - Provost hosts series of seven “College Conversations” on the concept of a Liberal Arts University
- 2010:**
- Draft White Paper presentation by Provost (April 8)
 - **Provost proposes W&M Curriculum Review (Sept 15)**
 - Release of the White Paper - William & Mary as a Leading Liberal Arts University in the 21st Century: From Conversation to Future Direction.
 - Faculty Affairs Committee recommended to the Faculty of Arts and Sciences to initiate a review of its undergraduate curriculum during AY 2011-12. Process to be overseen by a new Curriculum Review Steering Committee (CRSC) which would make final recommendations to the Educational Policy Committee (EPC) whom would in turn present recommendations for faculty approval. (Dec 20).
- 2011:**
- CRSC planning calendar approved with submission of the calendar to EPC. Initial discussion of the following questions: What kind of data do we want? What kind of Liberal Arts Curriculum would we like to create? Will we create something new or adjust what we have? (April)

- BOV Presentation – “Celebrating Traditions & Forging Change: An Evolving Plan for William & Mary – Overview” of strategic planning process to include the need for a curriculum review.
- CRSC presents timeline to A&S; Evaluation of the CRSC budget (May)
- CRSC committee members conduct seminar on major issues and allocation of subcommittee assignments (June)
- CRSC subcommittees work on assignments (July)
- Three CRSC members attend the AAC&U Institute on General Education for a Global Century (August)
- CRSC develops communication plan for the faculty to contribute ideas; created website and faculty survey (September)
- CRSC began meetings with faculty and focus groups. Explored the following questions: How do you and your department/program see itself in relation to the Liberal Arts? How would you, your department/program and area like to position yourself in the next two decades? (October)
- CRSC continued meeting/seminars with outside scholars and experts on the Liberal Arts in the 21st Century (November)
- Provost updates BOV on Strategic Initiatives which mention “discussions about Liberal Arts University have underscored our core strength in engaged learning and the development of critical thinking.” (December)
- CRSC Briefing to Provost; Deans, Vice-provosts; Registrar

- 2012**
- CRSC conducted a week long seminar on the design of the new curriculum; include sessions on proficiency requirements, course load, and the costs of a new curriculum (January)
 - CRSC conducted faculty conversations with faculty on proposed model (February)
 - BOV updated on W&M Strategic Framework for the 2013-17 plan which includes implementation of recommendations from undergraduate curriculum review. (February)
 - CRSC works on the revision and presentation of the new proposed curriculum to EPC (March)
 - CRSC hosted faculty conversations about the proposed curriculum (April)
 - CRSC presentation of year-end report to the Faculty of Arts & Sciences (May)
 - CRSC presentations to A&S departments and programs (September/October)
 - CRSC hosted faculty conversations (November)
 - BOV Meeting highlights review of Liberal Arts University and undergraduate curriculum review (November)
 - CRSC - Presentation of Executive Summary to the Educational Policy Committee proposing a new COLL curriculum (November)
 - CRSC Presentation of Executive Summary to the Faculty of Arts & Sciences (December).

- 2013:**
- Faculty approved EPC motion to endorse the guiding principles and conceptual framework of the proposed curriculum (February)
 - BOV receives “Strategic Initiatives and New Ventures” highlights complete the undergraduate curriculum review, phase in changes and provide funds to support, evaluate, and refine the curricular changes. (February)
 - BOV receives “Strategic Initiatives and New Ventures” briefing outlining the Strategic Plan FY 2014-2018 including completing the review of the general education requirements to include phasing in changes. (April)
 - EPC adjusts the curriculum based on discussions with faculty (Spring)
 - **Special meeting of the Faculty approved the “COLL Curriculum” (December 12) beginning Class of 2019.**
- 2014:**
- SCHEV publishes Framework: Statewide Strategic Plan for Higher Education. Four major goals – provide affordable access, optimize student success for work and life; drive change and improvement through innovation and investment; advance the economic and cultural prosperity of the Commonwealth and its Regions.
- 2015:**
- SCHEV – Virginia General Assembly endorsed the Statewide Strategic Plan
 - W&M provided to SACS-COC a ‘substantive change prospectus’ outlining COLL curriculum (March)

- BOV discussion with Provost about academic quality and productivity.
- Dean of the Faculty of Arts and Sciences reviewed progress on the development of the new undergraduate COLL curriculum including the development of the Center for the Liberal Arts (April)
- **W&M initiates the COLL Curriculum for the incoming class of 2019 (August)**

2016: - SACS-COC reaffirmed W&M's accreditation (December)

2017: - SCHEV releases Policy on Student Learning Assessment and Quality in Undergraduate Education – mandates rigorous assessment to include critical thinking, written communication, quantitative reasoning, and civic engagement (July)

Created from multiple sources to include CRCS Planning Calendar retrieved from https://www.wm.edu/as/dean/curriculum_review/calendar/index.php

Appendix H

Researcher as Instrument

Experience and Beliefs

As a graduate student exposed to the challenges inherent in the research process, I recognize bias can shape research design, observations, and conclusions. While not having been influenced by attending W&M as an undergraduate, been employed or involved in the development of the COLL curriculum, I recognize that my professional experiences, research done as a graduate student, and previous experiences in and with higher education may shape the case study design and my perceptions of the research findings and conclusions.

As a student of defense and international affairs and as a national security practitioner, I recognize the importance of thinking critically; understanding one's own bias; and the requirement to aggressively seek out other perceptions. Increasingly, I have observed the importance of a learning organization and valuing innovation in the workplace to remain vibrant and competitive in a dynamic world.

I value liberal education. Recognizing the validity of the competencies found in the AAC&U LEAP initiative, I genuinely believe that higher education has a significant role in the development of critical and creative thinkers, which others in the literature such as Gardner (2008) addressed in his *Five Minds for the Future*. As a graduate student in education, I've been exposed to many of the criticisms of higher education to include the harsh criticism that undergraduates often fail "to attain the levels of cognitive, moral, intellectual, and ethical development required to address complex national and global problems" (Chickering, 2010, p. 57).

As a WM graduate student, I have previously conducted research on analyzing how four public universities instilled critical thinking into their curriculum. As a professional, I have been involved in adult education and training focused on critical thinking and cross-cultural competencies. Recognizing adult, or seasoned, learners bring considerable experience and a mental model of the world and a need to relate learning to practice than undergraduates, my experience indicates, as Knowles (1979) noted, “the purpose of education is to produce a competent person – one who is able to apply knowledge to solve a variety of life problems” (p. 36). While mastery of content is important, the value of knowledge is its application in context.

As both a student and instructor, I place importance in defining student learning outcomes and providing an active learning environment. While recognizing the plethora of definitions and concepts found in the literature, I personally subscribe to the idea that critical thinking is both a mindset and a set of skills which must be embedded throughout the curriculum to include general education. I accept creative thinking is primarily tied to a discipline or field, and creativity results in novel ideas or products (Knowlton & Sharp, 2015).

While direct instruction in these competences is valuable, it will be quickly be forgotten unless practiced. This philosophy requires the institution to have a conceptual understanding, if not a plan, of how these competencies are instilled throughout the curriculum, which is clearly identified to the student whether through a syllabi, course map, or other method.

I recognize that W&M and faculty may hold different opinions about how these student competencies are defined as well as how they are demonstrated and evaluated.

The definition of success for instilling these competencies is unique to the institution and is based on the criteria established and measured by the institution. While Lattuca and Stark (2009) academic plan model is logical and offered as curriculum planning models, it must fit the institution. Lastly, while accepting the AAC&U LEAP initiative and its competencies, it also must fit into the institutional mission, vision and goals and be accepted by the various departments and schools of the institution.

Expectations of Study Findings

Recognizing the value placed on the development of critical and creative thinking skills as identified in various W&M publications, websites and as a principle embedded in the COLL curriculum (2013), I expected to find faculty deliberations on when and how these skills would be instilled, practiced, and assessed through the COLL curriculum. While there would be differences in faculty perceptions on how these competencies were defined, I anticipated there would be general agreement on which COLL courses would focus on these key learning outcomes. Given variables such as class size and the discipline, I recognized that creative thinking would be more unevenly applied in the curriculum. I also anticipated that faculty awareness of the AAC&U LEAP initiative and associated rubrics would vary with faculty experience and departmental or institutional responsibilities.

Expected Outcomes of the Study

Following the constructivist line of reasoning, this study would not uncover a singular truth. It highlights the conclusions based on the perception of reality of one researcher who attempted to answer specific questions using available records and limited interviews. To borrow from Weick, Sutcliffe, and Obstfeld (2005), this study is

more about sensemaking which “involves the ongoing retrospective development of plausible images that rationalize what people are doing” as a “way station” for further action and study (p. 409). Success of this study was predicated on spurring further inquiry in order to improve the institutional understanding of how critical and creative thinking or other desired learning outcomes are addressed in W&M general education program.

Appendix I

Research Matrix (Craig, 2009; Maxwell, 2013)

What do I need to know? (Research Question)	What kind of data will answer the question? (Data Source)	Why do I need to know this?
1. How did the planning and implementation of W &M's COLL curriculum (COLL) align with Lattuca and Stark's (2009) academic plan model?	Structured interviews with faculty and others. Documentation: faculty; CRSC, BOV minutes; W&M input to/from SCHEV; AAC&U	Determine factors and forces which influence the development of the curriculum specifically addressing the need for critical and creative thinking
a. What were the external influences that drove adoption of COLL?	Structured interviews	Applicability of Lattuca and Stark's model to case study.
b. What were the internal influence that drove adoption of COLL?	Structured interviews	Applicability of Lattuca and Stark's model to case study.
2. How does the COLL curriculum (COLL) align with the AAC&U competencies for critical and creative thinking?		
a. What are the stated student competencies for critical and creative thinking to be achieved from COLL?	Structured interviews Analysis of course syllabi Documentation: CRSC, FAS, Provost, and BOV.	Identifies practices vice policy/theory Establishes degree of awareness and adherence to the AAC&U LEAP competencies.
b. How is critical and creative thinking defined and reflected in the course by the course author?	Structured Interview with COLL Faculty Members Content analysis of course syllabi	Identifies extent of consensus among faculty on definitions and pedagogy Indicator of awareness of AAC&U guidance/rubric among faculty.
c. How were AAC&U competencies for critical	Structured Interview with COLL Faculty Members	Degree of adherence to academic planning

and creative thinking reference in planning, curriculum design, content, and for student assessment?	Content analysis of documentation (faculty minutes, records from assessment steering and educational policy committees) Data submitted to SCHEV Data submitted to SACS	as identified by Lattuca and Stark (2009) model Evidence of institutional focus on critical and creative thinking Evidence of institutional and/or department policy on the development of skills.
d. How was development of critical and creative thinking competencies accounted for in the sequencing of COLL courses?	Content analysis of faculty minutes and other documentation	Acknowledgement of the developmental nature of critical and creative thinking skills over time at W&M.
e. What criteria were used to assess whether the outcomes for improving critical and creative thinking were achieved and how were the AAC&U rubrics used?	Structured Interview with COLL faculty Members IAE website	Identification of assessment methods Evidence of knowledge of AAC&U rubric or other techniques.
f. What changes to pedagogy did the faculty member find that were of value to improve critical and creative thinking skills; and was there a mechanism to share them?	Structured Interview with COLL Faculty Members	Identification of pedagogies and techniques used by skilled instructors.
3. How is the institution planning to assess COLL?		
a. How are the LEAP initiatives and AAC&U work informing the faculty and institutional approach to assessment?	OIAE Review of SCHEV and SACS documentation	Evidence of acceptance of AAC&U LEAP initiatives and standards

b. How is critical and creative thinking being assessed?	Interviews OIAE website	Evidence of institutional assessment
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Appendix J
Email Solicitation (Fall 2017)

Subject: Request your assistance

Dear William and Mary Faculty member:

I am a doctoral student completing my dissertation at William & Mary in the School of Education and requesting your help. My dissertations topic is examining the implementation of the **COLL curriculum** specifically focusing on critical and creative thinking. I am requesting **your help in participating** in a **voluntary** one hour interview concerning how these critical skills fit into your COLL course and the COLL curriculum.

Interviews will at a time and place convenient to your schedule and your identity will be as an anonymous participant. Please respond if you are willing to participate and I will provide additional details. Thank you for your assistance.

Appendix K

Sample Participant Informed Consent Form

Retrieved and amended from

<http://www.wm.edu/offices/sponsoredprograms/documents/InformedConsentForm07-10.pdf>

“The general nature of this study entitled **“Critical and Creative Thinking in General Education - A Descriptive Case Study”** conducted by Nicholas R. Marsella has been explained to me. I understand that I will be asked to be interviewed at a location of my choosing. There are no risks in this research

My participation in this study should take a total of about one hour. I understand that my responses will be confidential and that anonymity will be preserved and that my name will not be associated with any results of this study.

I know that I may refuse to answer any question asked and that I may discontinue participation at any time.

Potential risks resulting from my participation in this project have been described to me.

I am aware that I may report dissatisfactions with any aspect of this experiment to the Chair of the Protection of Human Subjects Committee, Dr. Tom Ward, 1-855-800-7187 or consent@wm.edu.

I am aware that I must be at least 18 years of age to participate. My signature below signifies my voluntary participation in this project, and that I have received a copy of this consent form.

Date	Signature
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THIS PROJECT WAS FOUND TO COMPLY WITH APPROPRIATE ETHICAL STANDARDS AND WAS EXEMPTED FROM THE NEED FOR FORMAL REVIEW BY THE COLLEGE OF WILLIAM AND MARY PROTECTION OF HUMAN SUBJECTS COMMITTEE (Phone: 757-221-3966) ON 2017-11-01 AND EXPIRES ON 2018-11-01.

PROTOCOL NUMBER: EDIRC – 2017-10-19-12459-peddy.

If study subject has any questions in regards to this project, please contact the Principle Researcher directly: Dr. Pamela Eddy, School of Education, College of William and Mary (peddy@wm.edu), 757-221-2349.

I agree to electronic audio taping during the interview and understand the recordings will not be disclosed to anyone other than the researcher and will be destroyed when the research is completed.

Date

Signature

Printed Name

Appendix L
Structured Interview Protocol

Time Start: _____

Introduction:

- Express appreciation for their time and interest in the research.
- Confirm the individual had time to review “informed consent form” and other information.
- Provide Informed Consent Form, clarify and answer questions as appropriate and witness signature.
- Insure the participant is aware of being audiotaped and has explicitly expressed consent to be taped.
- Explain why you choose the participant.

Questions:

1. Background:

- a. How many years have you been teaching undergraduates?
- b. How many COLL courses have you taught?
- c. What COLL courses are you teaching?
- d. What role (if any) did you play in the development of the COLL curriculum?
Probe: Did you have leadership role and in what capacity (task force, faculty committee, department)?
Probe: How did your department/you decide to teach this course as part of the COLL curriculum?

2. Influencers on COLL Adoption

a. From your vantage point, what was the primary reason COLL was adopted by William and Mary?

Probe: In what way did the faculty influence/motivate/generate the adoption of the COLL curriculum?

Probe: What role did a focus on student learning have?

b. How were external influences a part of the COLL initiative?

Probes: Did SCHEV have a role? Did accreditation bodies? Did changes in the discipline?

c. What administration or department guidance shaped how you teach COLL courses?

Probe: Was there a departmental influence the design of the COLL courses?

Probe: How did critical and creative thinking fit into the departmental discussions conducted?

3. Critical and Creative Thinking

a. How do you define critical thinking to your students or colleagues? How did you come to this definition (sources or experiences)?

b. How do you define creative thinking to your students or colleagues? How did you come to this definition (sources or experiences)?

c. How do you incorporate critical thinking into your course (pedagogy)?

Probe: Can you prove me some examples of your method (e.g., use of case studies?)

d. How do you incorporate creative thinking in your course (pedagogy)?

e. In what ways do you assess your student's critical thinking and creative thinking skills (e.g. rubric)?

Probe? How do students know these specific learning goals?

Probe? How do assignments link to this assessment?

f. Are you aware of the AAC&U rubrics and descriptions of competencies for critical and creative thinking? How did they affect your design of the course?

g. What do you find is the most effective pedagogy you use to develop critical thinking?

h. What do you find is the most effective pedagogy you use to develop creative thinking?

i. On a scale of 1-5 with 5 being very effective, how would you rate your abilities to instill critical thinking in your students? Creative thinking in your students?

j. Explain how W&M resources (e.g. seminars or websites) assisted you in the design of the COLL curriculum/course

Probe: Did you participate in any W&M conducted seminars or other department/faculty hosted events to help you understand the role of critical/creative thinking in the COLL curriculum?

Probe: How did they help you?

Probe: Would you desire to have more examples of pedagogy?

4. Open Ended Question: As I'm thinking about the ways in which the new COLL curriculum was initiated and implemented with respect to the learning outcomes of critical thinking and creating thinking, have I missed anything? Is there anything you wish to add or clarify?

5. Syllabus: Ask again for a copy of syllabus if not received from email confirming the appointment.

Conclusion:

Thank the participant for their time and contribution.

Beyond the purposes of a dissertation, the intent of the research is to better inform the institution in their development of student critical and creative thinking skills.

As appropriate, highlight you will forward the transcript/summary from the session for their review.

Recommendation for others to support research: Whom else would you recommend to participate in the research?

Time End: _____

Appendix M

A Priori Codes

AAC&U	Administration
Accreditors	Analysis
Assessing	Attitude
Capstone	Career
Case Study	CLA
Competency	Critical Thinker
Critical Thinking	Creative Thinker
Creative Thinking	Dean
Department	Deep Learning
Design	Employers
Faculty	Future
General Education	Higher Order Thinking
Inquiry	Innovative
Integrative Learning	Jobs
LEAP	Liberal Education
Mindset	Pedagogy
Planning	Problem Solving
Problem Solver	President
Provost	Reflective Learning
Rubric	Syllabus

State of Virginia	SCHEV
Skill	Teamwork
Testing	Thinking

Appendix N

Faculty Approved - The COLL Curriculum – December 2013

Unless otherwise noted, the following language was adopted at a December 12, 2013 Special Meeting of the Faculty of Arts and Sciences.

Enumeration of the principles

The principles, enumerated previously in the EPC's February 5 FAS motion and revised by the EPC on February 8, state that William & Mary COLL courses should:

1. Be taught to the extent possible by William & Mary faculty (TE and continuing NTE).
2. Provide an integrated intellectual experience during the undergraduate years that encourages students to make coherent and meaningful interconnections across disciplines.
3. *Help students acquire knowledge and develop the skills and habits of critical and creative thinking and expression. [bold and italics added]*
4. Explore the methodologies and epistemologies of the various academic disciplines, along with how they differ from and form synergies with one another.
5. Be structured in such a way that faculty are able to apply their best scholarly and creative work to all undergraduate students.
6. Encourage faculty to focus their attention not only on their respective major fields but also on the ways in which their fields contribute to the broader Liberal Arts.
7. Enlarge our students' global perspective through an experience of the world beyond campus.
8. Foster a sense of academic community among students and faculty.
9. Provide an active learning experience beyond the student's area of expertise.

Domain Descriptions

Arts, Letters, and Values (ALV). Courses in this domain examine the expression and evaluation of values and attitudes. Courses may develop the ability of students to express their own values and attitudes or to develop their own evaluations using literature, art, music, performance, or philosophy. Others may examine the expressions and evaluations themselves historically, cross-culturally, or via the social and cognitive processes that produce them.

Cultures, Societies, and the Individual (CSI). Courses in this domain examine the realm of human cultures, societies, and individuals through their development, organization, and interaction. Some courses employ mathematical modeling, statistical analysis, and scientific experimentation; some, the analysis of artifacts and texts; and

others, observation, inference, and extrapolation. Students learn to describe, theorize, and explain human cultures, societies, and individuals in their variety over time and space.

The Natural World and Quantitative Reasoning (NQR). Courses in this domain examine the natural world and physical universe and the means by which humans observe, measure, model, and interpret it. Courses explore the process of scientific discovery, including the methods required to gather and assess empirical data, investigate the predictions of existing theories, and develop experimentally testable hypotheses. Courses may also focus on mathematical or computational methods as applied to these investigations. Students develop their understanding not only of the foundations, implications, and uses of scientific knowledge but also how scientific approaches can be used to create tangible products.

COLL 100

Intellectually, COLL 100 courses are about “big ideas”—the significant questions and concepts, beliefs and creative visions, theories and discoveries that have shaped our understanding of the world. Students will encounter and learn about the discoveries, texts, and knowledge that are fundamental to further study in one or more academic disciplines. Among the goals of these courses, which can be taught within or across departments, are to give students a sense of the excitement of scholarly inquiry, and to challenge students to think rigorously about important ideas.

Pedagogically, COLL 100 courses introduce students to the College’s library and other academic resources, and to the ways information is accessed, evaluated, and communicated. As appropriate to the course, COLL 100 courses encourage students to develop and practice communication skills beyond the written word and into the realms of visual, quantitative, oral, digital, and/or multi-media expression. These 4-credit courses fulfill the state-mandated digital information literacy requirement. COLL 100 classes are limited to 25 students, unless team-taught. One COLL 100 is required of each freshman.

Addenda:

- Each COLL 100 will typically meet for only three hours per week, but can also meet for four hours. If meeting for three hours, no additional justification for the delinking of credit hours and contact hours will be required. (Approved by FAS September 2, 2014)
- In order to highlight the first-year experience and to provide continuity with first-year seminars, all COLL 100’s should use the number 100 (e.g, HIST 100, ENSP 100, COLL 100). (Approved by FAS November 4, 2014)
- There shall be a COLL prefix available (but not required) for COLL courses. (Approved by FAS November 4, 2014)
- For two years (AY 2015-17), EPC will allow COLL 100’s to be as large as 75 students if they have discussion sections of no more than 25 students, or to be

as large as 40 students with no discussion sections. This would allow a pilot study of the effect of class size on learning objectives. COLL 100 courses of all sizes will be assessed over a period of two years to ensure that they fulfill learning objectives. The default size of COLL 100 will remain 25. A larger class will be approved only following an application by the instructor, who will explain how the larger class will be able to meet the COLL 100 learning objectives. (Approved by FAS December 2, 2014)

COLL 150

COLL 150 courses are Freshman Seminars that challenge students to think deeply about a particular topic. COLL 150 works to strengthen written and oral communication. Students engage in in-depth study, with group discussion and deep readings of texts, data, or methods of inquiry from the discipline. These 4-credit courses fulfill the lower-division writing requirement. One COLL 150 is required of each freshman. COLL 150 is required for transfer students.

Addenda:

- A student must obtain a grade of at least C- to obtain COLL 150 credit for a COLL 150 course. (Approved by FAS September 2, 2014)
- COLL 150 must be taught by a TE or continuing NTE faculty member. Whether TE or NTE, the faculty member will have least one semester of teaching experience at the College of William & Mary. (Approved by FAS September 2, 2014)

COLL 200

Each COLL 200 course belongs to one or more of the domains. Each of these courses significantly enhances student knowledge of a specific topic and also calls upon students to think about how its discipline fits into the broader framework of the Liberal Arts. Thus, each course emphasizes ideas and methods central to its domain(s) while also looking outward to one or both of the other domains. To the extent possible, COLL 200 courses also give students the opportunity to put methodologies represented in the course into practice. Every student must take a total of twelve 200-level credits, with at least one course in each domain of no less than three credits. One COLL 200 must be taken in year 2; transfer students must take one during their first year at William and Mary. COLL 200 courses may or may not have prerequisites.

Addendum:

- At least 10% of a COLL 200 course should consider the other domain(s). (Approved by FAS September 2, 2014)

COLL 300 language approved by the Faculty in December 2013, amended March 3, 2015, and amended again October 6, 2015:

COLL 300 typically takes place in year 3. It joins students with people, places, and ideas that lift them out of their familiar surroundings and deepen the way they see themselves in the world. It asks that students use their knowledge, their emerging expertise in framing questions, and their communication skills to engage the world in a self-reflective, cross-cultural way.

Students will fulfill the requirement through people-to-people, cross-cultural experiences that carry at least 3 credits. These experiences may take place in an international setting, where students study with W&M or non-W&M faculty in a study-abroad program sponsored or endorsed by the Reves Center. Other opportunities to fulfill COLL 300 include participation in W&M DC programs that focus on global or cross-cultural issues. Students may also register for W&M off-campus, credit-bearing initiatives that involve encounters of at least a week in duration with different environments and cultures. Alternatively, students may fulfill COLL 300 on campus through academically rigorous William & Mary courses that prominently feature global or cross-cultural issues. While students may take on-campus COLL 300s at any point in their career, COLL 300 will typically be taken in the third year, and will consist of a minimum of 3 credits taken in one course or a series of courses. To receive EPC approval, on-campus COLL 300s must address a theme that will be chosen for each semester and must engage with a series of events that feature visitors nominated by the faculty. The Center for the Liberal Arts will be responsible for arranging these events and for choosing the themes and visitors on the basis of faculty suggestions and nominations. On-campus COLL 300s will require students to attend all events and to take part in an end-of-semester symposium, which will also be arranged by the CLA.

Addendum:

- COLL 300 may be satisfied by a single course of 3 credits or a sequence of courses totaling 3 credits. (Approved by FAS October 7, 2014)
- COLL 300 experiences will ideally join students with people, places, and ideas (all three).
- COLL 300 courses should have a self-reflective assignment built into them. (Approved by FAS March 3, 2015.)

COLL 400

The COLL 400 capstone experience will require students to take initiative in synthesis and critical analysis, to solve problems in an applied and/or academic setting, to create original material or original scholarship, and to communicate effectively with a diversity of audiences. Students can fulfill this requirement through upper-level seminars, independent study and research projects, and Honors projects, as deemed appropriate by departments, programs, or schools. COLL 400 may but need not have an interdisciplinary focus as students can synthesize material within as well as across disciplines. COLL 400 capstone experiences must be at least 3 credits, and normally be taken in the senior year.

ADDITIONAL REQUIREMENTS

Additional Credits in the Knowledge Domains. Courses in the Undergraduate Catalog will be designated as belonging to one or at most two of the three domains, as recommended by departments and programs, and with EPC approval. Students will be required to take at least 2 credits in each domain, completing a total of at least 6 credits in this way. Credits from a single course may be counted in only one domain. Courses at any level, from introductory to advanced, may be used to satisfy this requirement. COLL 100, 150, 300, and 400 may not be used to satisfy this requirement.

[Explanatory statement: It is important to distinguish the “additional credits” from COLL 200. Both are forms of distribution requirements. COLL 200 courses satisfy particular purposes outlined elsewhere in the curriculum. The “additional credits” are normal classes offered by departments. These courses are designated as belonging to one of the three domains, or in some cases two domains. Departments and programs will propose that particular courses belong to one or two of the domains, and EPC will approve such designations. Students must take at least two credits in each of the three domains. These courses may be at any level, although it is expected that in many or most cases students will satisfy these requirements with introductory or intermediate level courses.]

Foreign Language Requirement. The current foreign language requirement will remain as is with the clarification that:

Addendum: A foreign language is understood to mean a natural language other than English.

Mathematics Requirement. This requirement can be satisfied by:

AP/IB credit in calculus or statistics with a score of AP 4 or 5 or IB HL5-7;

pre-matriculation transfer credit for a course in calculus or statistics;

any William & Mary course in calculus or statistics;

or any William & Mary course with a MATH attribute, in which students formulate mathematical arguments and use mathematical procedures in the solution or exploration of problems external to mathematics.

[Note: We anticipate that quantitative methods classes offered by social science departments will satisfy the mathematics requirement, but that research methods classes that are not primarily focused on statistics will not qualify.]

Active Learning Experience Requirement [Abolished by vote of the faculty on March 1, 2016. Students who matriculated in 2015-16 will still need to fulfill this requirement]

~~Satisfied by a course at any level that includes an active learning experience and carries the ACTV attribute. Examples include: laboratory experiments; field work; music, dance, or theatrical performance; other creative expression; or credit-bearing internship.~~

Creative and Performing Arts Proficiency Requirement [established March 1, 2016, required of students who matriculate in 2016-17 and beyond]

This requirement will be satisfied by two credits with an Arts Proficiency attribute in the same creative or performing art. The purpose of this proficiency is to understand the artistic process. Accordingly, by actively involving students in exercises that require artistic choices, these courses aim for an experience-based understanding of how the artist communicates. A course that satisfies this proficiency requires a student to begin to understand an art at the foundation level through artistic activities involving each of the following: developing their artistic skills; and applying the principles of the art through projects and/or exercises.

AP, IB, A-Levels, and other pre-matriculation examinations can be applied to the College Curriculum's proficiencies and to the three additional domain courses, but cannot be applied to the courses designated COLL (COLL 100, COLL 150, COLL 200, COLL 300, COLL 400).

Overlap in requirements. A single course may fulfill only one COLL requirement (COLL 100, COLL 150, COLL 200, or COLL 300). A maximum of three courses may be counted toward the COLL requirements and toward the major.

The ten-semester rule and the 72-hour rule are unchanged.

Writing proficiency/Major writing requirement is unchanged. [Will commonly be satisfied by COLL 400.]

Proficiencies

- Credit Hour Residency. Reaffirmed.
- Ten Semester Rule. Reaffirmed.
- Seventy-two hour rule. Reaffirmed.
- Credit hour limitations in Dance, Applied Music, Military Science, Physical Activity, Statistics. Reaffirmed.
- Foreign Language Proficiency. Reaffirmed.
- Mathematics/Quantitative Proficiency. Slightly modified in new curriculum. See above under Additional Requirements.
- Lower Division Writing Requirement. Now absorbed into COLL 150.
- Major Writing Requirement. Reaffirmed.
- Digital Information Literacy Exam. Now absorbed into COLL 100.
- Major Computing Requirement. Deleted.
- Freshman Seminar Requirement. Now fulfilled by COLL 150.

Retrieved from:

https://www.wm.edu/as/facultyresources/committees/educationalpolicy/about/documents/COLL_Curriculum-2016-05-15.pdf

Appendix O

General Education Curriculum Extract

William and Mary Undergraduate and Graduate Course Catalogue 2017 – 2018

III. The General Education Curriculum

In keeping with its educational objectives, the College requires its undergraduates to experience a broad array of General Education courses from the first through the fourth year, and to plan a major field of study suited to their needs and interests, which are expected to shift and grow over time. The General Degree requirements specified below allow students to share a common intellectual experience, to explore new interests, and to recognize and pursue intellectual talents.

A. The College Curriculum (COLL)

As of August 2015, General Education at William and Mary is known as "COLL," for College Curriculum. Members of the Class of 2019 are required to fulfill the COLL curriculum outlined below. Incoming members of the Class of 2018 will fulfill the GER curriculum outlined later in this chapter.

These general education requirements can be completed via a wide array of courses, because COLL classes are spread across the departments and programs in Arts & Sciences. COLL 100 and COLL 150 must be completed in the first year. Work toward COLL 200 requirements may begin in the first year, and one course must be taken in the second year. COLL 300 typically takes place in the third year. COLL 400 is a capstone experience that typically occurs in the fourth year. Unless specifically offered as Pass/Fail courses, courses used to satisfy COLL requirements may not be taken on a Pass/Fail basis.

Overlap in requirements. A single course may fulfill only one COLL requirement (COLL 100, COLL 150, COLL 200, COLL 300, COLL 400, or one of the extra courses in the domains); a course may fulfill one COLL requirement and a proficiency. A maximum of three courses may be counted toward the COLL requirements and toward the major(s).

COLL 100 courses are devoted to "big ideas:" significant questions and concepts, beliefs and creative visions, theories and discoveries that have shaped our understanding of the world. COLL 100 courses challenge students to think rigorously, and to develop and practice communication skills beyond the written word. COLL 100 courses introduce students to the College's library and other academic resources, and to the ways in which information is accessed, evaluated, and communicated. All COLL 100s carry 4 credits. One COLL 100 is required for each freshman. All COLL 100s fulfill the state-mandated digital information literacy requirement.

COLL 150 courses are small seminars that explore deeply a particular topic via close readings of texts, data, or methods of inquiry. The goal of COLL 150 is to initiate

students into the culture of critical thinking, persuasive writing, and independent inquiry that is at the core of the undergraduate program. COLL 150 seminars highlight student discussion. All COLL 150s carry 4 credits. Students must receive a C- or better in COLL 150 for the course to apply to the degree. One COLL 150 is required of each freshman and all transfer students regardless of credits already earned.

COLL 200 courses may be offered by any academic unit at the College. COLL 200 courses are anchored in one of three knowledge domains, and deliberately look outward to one or both of the other two knowledge domains. The knowledge domains are:

Arts, Letters, and Values (ALV)

Courses in this domain examine the expression and evaluation of values and attitudes. Courses may develop the ability of students to express their own values and attitudes or to develop their own evaluations using literature, art, music, performance, or philosophy. Others may examine the expressions and evaluations themselves historically, cross-culturally, or via the social and cognitive processes that produce them.

Cultures, Societies, and Individuals (CSI)

Courses in this domain examine the realm of human cultures, societies, and individuals through their development, organization, and interaction. Some courses employ mathematical modeling, statistical analysis, and scientific experimentation; some, the analysis of artifacts and texts; and others, observation, inference, and extrapolation. Students learn to describe, theorize, and explain human cultures, societies, and individuals in their variety over time and space.

Natural and Quantitative Reasoning (NQR)

Courses in this domain examine the natural world and physical universe and the means by which humans observe, measure, model, and interpret it. Courses explore the process of scientific discovery, including the methods required to gather and assess empirical data, investigate the predictions of existing theories, and develop experimentally testable hypotheses. Courses may also focus on mathematical or computational methods as applied to these investigations. Students develop their understanding not only of the foundations, implications, and uses of scientific knowledge but also how scientific approaches can be used to create tangible products.

Each COLL 200 course significantly enhances student knowledge of a specific topic and also calls upon students to think about how its discipline fits into the broader framework of the Liberal Arts. Thus, each course emphasizes ideas and methods central to its domain(s) while also looking outward to one or both of the other domains. To the extent possible, COLL 200 courses also give students the opportunity to put methodologies represented in the course into practice. Every student must take a total of twelve credits explicitly labelled COLL 200, with at least one course in each of the three domains of not less than three credits. One COLL 200 must be taken in year 2. Transfer

students must take one COLL 200 during their first year at William & Mary. COLL 200 courses may or may not have prerequisites.

Additional credits in the Knowledge Domains: General education also requires undergraduates to take at least six more credits in the three knowledge domains of ALV, CSI, and NQR, with at least two credits in each domain.

Appropriate courses in the Undergraduate Catalog thus will be explicitly labelled as fulfilling COLL 200 credit, with specific mention of their anchor domain (12 credits required, with at least three credits in each domain). Appropriate courses may also be labelled as ALV, CSI, or NQR (6 credits required, with at least two credits in each domain.)

The COLL 300 requirement typically takes place in year 3. COLL 300 joins students with people, places, and ideas that lift them out of their familiar surroundings and deepen the way they see themselves in the world. COLL 300 asks students to use their knowledge, their emerging expertise in framing questions, and their communication skills to engage the world in a self-reflective, cross-cultural way. Students may fulfill COLL 300 either through a single course of 3 credits or a sequence of courses totaling 3 credits with C300 attribute(s). William & Mary sponsored, international programs carry COLL 300 credit, irrespective of the courses taken while studying abroad. Regular academic courses may also carry the C300 attribute as the result of a study-away experience. Finally, certain COLL 300 courses remain on campus and bring together undergraduates and experts on cross-cultural and/or international topics.

The COLL 400 requirement is a capstone experience which typically takes place in year 4, and usually in the student's major. These capstone experiences require students to take initiative in synthesis and critical analysis, to solve problems in an applied and/or academic setting, to create original material or original scholarship, and to communicate effectively with a diversity of audiences. Students can fulfill this requirement through upper-level seminars, independent study and research projects, and Honors projects, as deemed appropriate by departments, programs, or schools. COLL 400 may but need not have an interdisciplinary focus as students can synthesize material within as well as across disciplines. COLL 400 capstone experiences must be at least 3 credits.

Retrieved from <http://catalog.wm.edu/content.php?catoid=15&navoid=2585#the-general-education-curriculum>

References

- Abrami, P. C., Bernard, R. M., Borokhovski, E., Waddington, D. I., Wade, C.A., & Persson, T. (2015). Strategies for teaching students to think critically: A meta-analysis. *Review of Educational Research, 85*(2), 275-314.
doi:10.3102/0034654314551063
- Alencar, E. M., & Oliveira, Z. M. (2016). Creativity in higher education according to graduate program's professors. *Universal Journal of Educational Research, 43*(3), 555-560.
- Allen, C. D., & Gerras, S. J. (2009). Developing creative and critical thinkers. *Military Review, 79*(6), 77-83.
- Ambrose, S.A., Bridges, M. W., DiPietro, M., Lovett, M.C., & Norman, M. K. (2010). *How learning works: 7 research-based principles for smart teaching*. San Francisco, CA: Jossey-Bass.
- American Association of University Professors. (1966). *Statement on Government of College and Universities*. Retrieved from <https://www.aaup.org/report/statement-government-colleges-and-universities#4>
- American Educational Research Association (AERA). (2006). Standards for reporting on empirical social science research in AERA publications. *Educational Researcher, 35*, 33-40.
- Argyris, C. (1977). Double loop learning in organizations. *Harvard Business Review, 55*(5), 115-125.
- Argyris, C. (1993). Education for leading-learning. *Organizational Dynamics, 21*(3), 4-17.

- Arum, R., & Roska J. (2011a). *Academically adrift*. Chicago, IL: The University of Chicago Press.
- Arum, R., & Roska J. (2011b). The state of undergraduate learning. *Change*, 43(2), 35-38.
- Assessing general education. (n.d.). Retrieved from https://www.wm.edu/offices/iae/assessing_general_education/index.php
- Association of American Colleges and Universities (AAC&U). (2002). *Greater expectations: A new vision for learning as a nation goes to college – National panel report*. Washington, DC: Author.
- Association of American Colleges and Universities (AAC&U). (2005). *Liberal education outcomes: A preliminary report on student achievement in college*. Washington, DC: Author.
- Association of American Colleges and Universities (AAC&U). (2007). *College learning for the new global century: A report from the national leadership council for liberal education and America's promise*. Washington, DC: Author.
- Association of American Colleges and Universities (AAC&U). (2009a). *Critical thinking VALUE rubric*. Retrieved from <http://www.aacu.org/value/rubrics/pdf/CriticalThinking.pdf>
- Association of American Colleges and Universities (AAC&U). (2009b). *Creative thinking VALUE rubric*. Retrieved from <https://www.aacu.org/value/rubrics/creative-thinking>

- Association of American Colleges and Universities (AAC&U). (2009c). *Inquiry and analysis VALUE rubric*. Retrieved from <https://www.aacu.org/value/rubrics/inquiry-analysis>
- Association of American Colleges and Universities (AAC&U). (2009d). *Integrative Learning VALUE rubric*. Retrieved from <https://www.aacu.org/sites/default/files/files/VALUE/IntegrativeLearning.pdf>
- Association of American Colleges and Universities (AAC&U). (2009e). *Problem solving VALUE rubric*. Retrieved from <https://www.aacu.org/sites/default/files/files/VALUE/ProblemSolving.pdf>
- Association of American Colleges and Universities (AAC&U). (2009f). *Teamwork VALUE rubric*. Retrieved from <https://www.aacu.org/sites/default/files/files/VALUE/Teamwork.pdf>
- Association of American Colleges and Universities (AAC&U). (2010). *The quality imperative – Match ambitious goals for college attainment with an ambitious vision for learning*. Washington, DC: Author.
- Association of American Colleges and Universities (AAC&U). (2011). *The LEAP vision for learning: Outcomes, practices, impact and employer's views*. Washington, DC: Author.
- Association of American College and Universities (AAC&U). (2013a). *Employers more interested in critical thinking and problem solving than college major* [Press release]. Retrieved from http://www.aacu.org/press_room/press_releases/2013/leapcompactandemployersurvey.cfm

- Association of American Colleges and Universities (AAC&U). (2013b). *Strategic plan 2013-17 - Big questions, urgent challenges: Liberal education and American global future*. Retrieved from https://www.aacu.org/sites/default/files/files/about/strategicplan2013_17.pdf
- Association of American Colleges and Universities (AAC&U). (2015a). *The LEAP challenge: Education for a world of unscripted problems*. Retrieved from <http://www.aacu.org/leap-challenge>
- Association of American Colleges and Universities (AAC&U). (2015b). *Getting beyond the menu: Faculty lead general education innovations at William and Mary*. Retrieved from <http://www.aacu.org/campus-model/getting-beyond-menu-faculty-lead-general-education-innovations-william-and-mary>
- Association of American Colleges and Universities (AAC&U). (2017). *On solid ground: VALUE report 2017*. Retrieved from: <https://www.aacu.org/publications-research/publications/solid-ground>
- Association of American Colleges and Universities (AAC&U). (n.d.). *What is a 21st century liberal education?* Retrieved from <https://aacu.org/leap/what-is-a-liberal-education>
- Bahr, N., & Lloyd, M. (2010). Thinking critically about critical thinking in higher education. *International Journal for the Scholarship of Teaching and Learning*, 4(2), 1-16.
- Bailin, S. (2015). Developing creativity through critical inquiry. *Teachers College Record*, 117, 1-20.

- Bailin, S., Case, R., Coombs, J. R., & Daniels, L. B. (1999). Conceptualizing critical thinking. *Journal of Curriculum Studies, 31*(3), 285-302.
doi:10.1080/002202799183133
- Barber, J. P. (2014). Integration of learning model: How college students integrate learning. *New Directions for Higher Education, 165*, 7-17. doi:10:1002/he.20079
- Barnes, L. B., Christensen, C. R., & Hansen, A. J. (1994). *Teaching and the case method* (3rd ed). Boston, MA: Harvard Business School Press.
- Barr, R. B., & Tagg, J. (1995). From teaching to learning – A new paradigm for undergraduate education. *Change, 27*(6), 12-25.
- Behar-Horenstein, L. S., & Niu, L. (2011). Teaching critical thinking skills in higher education: A review of the literature. *Journal of College Teaching and Learning, 8*, 25-42.
- Benner, M. W., & Casner-Lotto, J. (2006). *Are they really ready to work? Employer's perspectives on the basic knowledge and applied skills of new entrants to the 21st century U.S. workforce*. Retrieved from the Partnership for 21st Century Skills website: http://www.p21.org/storage/documents/FINAL_REPORT_PDF09-29-06.pdf
- Berg, M., Morfit, J., & Reynolds B. (2014, February). *Critical thinking in the college classroom: Teaching the teachers*. Paper presented at the 6th annual conference on higher education pedagogy, Blacksburg, VA. Retrieved from <http://www.cider.vt.edu/conference/>
- Berrett, D. (2013, April 5). Creativity: A cure for the common curriculum. *Chronicle of Higher Education, 59*(30), A33-A36.

- Berrett, D. (2015, January 26). The day the purpose of college changed. *The Chronicle of Higher Education*. Retrieved from <http://www.chronicle.com/article/The-Day-the-Purpose-of-College/151359>
- Bess, J. L., & Dee, J. R. (2008). *Understanding college and university organization: Theories for effective policy and practice*. Sterling, VA: Stylus.
- Bok, D. (2006). *Our underachieving colleges: A candid look at how much students learn and why they should be learning more*. Princeton, NJ: Princeton University Press.
- Bok, D. (2013). *Higher education in America*. Princeton, NJ: Princeton University Press.
- Bolman, L. G., & Deal, T. E. (2008). *Reframing organizations: Artistry, choice and leadership* (4th ed.). San Francisco, CA: John Wiley & Sons.
- Boostrom, R. (2005). *Thinking: The foundation of critical and creative thinking*. New York, NY: Teachers College Press.
- Briggs, C. L. (2007). Curriculum collaboration: A key to continuous program renewal. *The Journal of Higher Education*, 78, 676-711.
- Brookhart, S. M., & Chen, F. (2015). The quality and effectiveness of descriptive rubrics. *Educational Review*, 67(3), 343-368.
- Bryson, J. M. (2011). *Strategic planning for public and nonprofit organizations: A guide to strengthening and sustaining organizational achievement* (4th ed.). San Francisco, CA: Jossey-Bass.
- Cain, J. (2016). Instructional design and assessment: A pharmacy elective course on creative thinking, innovation, and TED talks. *American Journal of Pharmaceutical Education*, 80(10), 1-10.

- Calderon, V. J., & Jones, J. M. (2016, October 6). College admissions directors: Debt concerns cost applicants. *Gallup*. Retrieved from http://www.gallup.com/opinion/gallup/196175/college-admissions-directors-debt-concerns-cost-applicants.aspx?g_source=student%20satisfaction%20with%20higher%20education&g_medium=search&g_campaign=tiles
- Carroll, J. S., Rudolph, J. W., & Hatakenaka, S. (2002). Learning from experience in high-hazard organizations. *Research in Organizational Research*, 24, 87-137.
- Center for the Liberal Arts. (2017). *Activities of the center for liberal arts: Report to the faculty of arts & sciences*. Retrieved from https://www.wm.edu/as/center-liberal-arts/contactus/reports/2017_cla_report.pdf
- Center for the Liberal Arts. (n.d.). Retrieved from <https://www.wm.edu/as/center-liberal-arts/>
- Chan, Z. C. Y. (2013). A systematic review of creative thinking/creativity in nursing education. *Nurse Education Today*, 33, 1382-1387.
- Chickering, A. W. (2003). Reclaiming our soul: Democracy and higher education. *Change*, 35(1), 39-44.
- Chickering, A. W. (2010). Personal reflections on character development. *Liberal Education*, 96(3), 54-59.
- Chickering, A. W., & Gamson, Z. F. (1987). Seven principles for good practice in undergraduate education. *American Association of Higher Education Bulletin*, 5, 3-7.

- Chickering, A. W., & Stamm, L. (2002). Making our purposes clear. *About Campus*, 7(2), 30 - 32.
- Christensen, C. M., & Eyring, H. J. (2011). *The innovative university: Changing the DNA of higher education from the inside out*. San Francisco, CA: Jossey-Bass.
- Conley, K. (2017, November). *BOV Update on the College Curriculum by Dean of Arts & Sciences, November 16, 2017*. Retrieved from https://www.wm.edu/about/administration/bov/_documents/meetings/2017_2018/2017-11-provost.pdf
- Conrad, C., & Dunek, L. (2012). *Cultivating inquiry driven learners: A college education for the 21st century*. Baltimore, MD: The John Hopkins University Press.
- Council for Aid to Education (CAE). (2013). *Does college matter: Measuring critical thinking outcomes using the CLA*. Retrieved from <http://cae.org/performance-assessment/category/cla-supporting-material/>
- Cowdroy, R., & De Graaff, E. (2005). Assessing highly-creative ability. *Assessment and Evaluation in Higher Education*, 30(5), 507-518.
- Crabtree, S., & Seymour, S. (2015, September 29). Recent grads less likely to agree college was worth cost. *Gallup*. Retrieved from <http://www.gallup.com/poll/185819/recent-grads-less-likely-agree-college-worth-cost.aspx>
- Craig, D. V. (2009). *Action research essentials*. San Francisco, CA: Jossey-Bass.
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Los Angeles, CA: Sage.

- Creswell, J. W., & Miller, D.L. (2000). Determining validity in qualitative inquiry. *Theory into Practice*, 39(3), 124-130.
- Cronshaw, S. F., & McCulloch, A.N.A. (2008). Reinstating the Lewinian vision: From force field analysis to organization field assessment. *Organization Development Journal*, 26(4), 89 -103.
- Crotty, M. (2007). *The foundation of social research: Meaning and perspective in the research process*. Los Angeles, CA: Sage.
- Cullen, R., & Harris, M. (2009). Assessing learner-centeredness through course syllabi. *Assessment & Evaluation in Higher Education*, 34(1), 115-125.
- Daly, S. R., Mosyjowski, E. A., & Seifert, C. M. (2014). Teaching creativity in engineering courses. *Journal of Engineering Education*, 103, 417-449.
- Daly, S. R., Mosyjowski, E. A., Oprea, S. L, Huang-Saad, A., & Seifert, C. M. (2016). College students' views of creative process instruction across disciplines. *Thinking Skills and Creativity*, 22, 1-13.
- Dehaan, R. L. (2011). Teaching creative science thinking. *Science*, 334(6062), 1499-1500.
- Destler, B. (2014). Critical thinking skills: Higher education must lead business to maximize full value of employees. *Huffpost Business*. Retrieved from <http://www.huffingtonpost.com/bill-destler/critical-thinking-skills>
- Dilley, P. (2000). Conducting successful interviews: Tips for intrepid research. *Theory into Practice*, 39(3), 131-137.
- Eckel, P. D., & King, J. E. (2004). *An overview of higher education in the United States: Diversity, access and the role of the marketplace*. Retrieved from American

Council on Education website: <http://www.acenet.edu/news-room/Pages/An-Overview-of-Higher-Education-in-the-United-States.aspx>

Eddy, P. (2010, January). The professions meet the liberal arts – Fit or Folly? *William & Mary College Conversations*. Retrieved from https://www.wm.edu/about/administration/provost/documents/conversation/conv3_pamelaeddy.pdf

Facione, P. (1990). *Critical thinking: A Statement of expert consensus for purposes of educational assessment and instruction (The Delphi Report)*. Millbrae, CA: The California Academic Press.

Facione, P. (2013). *Critical thinking: What it is and why it counts*. Retrieved from www.insightassessment.com/content/download/1176/7580/file/what&why

Faculty Affairs Committee [W&M]. (2010, December 20). [*Memorandum: Review of undergraduate curriculum*]. Retrieved from https://www.wm.edu/as/dean/curriculum_review/docs/feb_2_2011-curriculumRevComm.pdf

Faculty Survey of Student Engagement. (2016). *FSSE 2016 survey*. Retrieved from http://fsse.indiana.edu/pdf/2016/FSSE16_Instrument.pdf

Feller, I. (2008). *Neoliberalism, performance measurement, and the governance of American academic science*. (Center for Studies in Higher Education Research and Occasional Paper Series CSHE.13.08). Retrieved from University of California, Berkeley website: <https://cshe.berkeley.edu/publications/neoliberalism-performance-measurement-and-governance-american-academic-science>

- Fish, S. (2008). *Save the world on your own time*. New York, NY: Oxford University Press.
- Fishman, R., Ekowo, M., & Ezeugo, E. (2017). *Varying degrees: New America's annual survey on higher education*. Retrieved from New American Foundation website: <https://www.newamerica.org/in-depth/varying-degrees/>
- Flores, K. L., Matkin, G. S., Burbach, M. E., Quinn, C. E., & Harding, H. (2012). Deficient critical thinking skills among college graduates: Implications for leadership. *Educational Philosophy and Theory*, 44(2), 212-230.
- Friedman, T. L. (2016). *Thank you for being late: An optimist's guide to thriving in the age of accelerations*. New York, NY: Farrar, Straus, and Giroux.
- Gaff, J. G., Ratcliff, J. L., & Associates. (1997). *Handbook of the undergraduate curriculum: A comprehensive guide to purposes, structures, practices and change*. San Francisco, CA: Jossey-Bass.
- Gall, M. D., Gall, J. P., & Borg, W. R. (2007). *Educational research: An introduction* (8th ed). New York, NY: Pearson.
- Gardner, H. (2008). *Five minds for the future*. Boston, MA: Harvard Business Press.
- Garvin, D. A., Edmondson, A. C., & Gino, F. (2008). Is yours a learning organization? *Harvard Business Review*, 86(3), 109-116.
- Giroux, H. A. (2002). Neoliberalism, corporate culture, and the promise of higher education: The university as a democratic public sphere. *Harvard Educational Review*, 72(4), 425-463.
- Golden, J. (2011, April 14). *Celebrating tradition & forging change: An evolving plan for William & Mary*. Presentation at the meeting of the W&M Board of Visitors

by Vice President for Strategic Initiatives, Williamsburg, VA. Retrieved from
[https://www.wm.edu/about/administration/bov/_documents/meetings/2010_2011/
04-11-strategic-initiatives-presentation.pdf](https://www.wm.edu/about/administration/bov/_documents/meetings/2010_2011/04-11-strategic-initiatives-presentation.pdf)

Golich, V. L., Boyer, M., Franko, P., & Lamy, S. (2000). *The ABCs of case teaching: Pew case studies in international affairs*. Washington D.C.: Georgetown University Institute for the Study of Diplomacy

Gomez, J. G. (2013). What do we know about creativity? *The Journal of Effective Teaching*, 7(1), 31-43.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105-117). London, UK: Sage.

Halleran, M. R. (2010). *William & Mary as a leading liberal arts university in the 21st century: from conversation to future direction* [White paper]. Retrieved from
[https://www.wm.edu/about/administration/provost/documents/conversation/white
_paper_final_9-15-10.pdf](https://www.wm.edu/about/administration/provost/documents/conversation/white_paper_final_9-15-10.pdf)

Halleran, M. R. (2010, September 15). [Provost memorandum to deans: Curriculum review]. Retrieved from
[https://www.wm.edu/as/dean/curriculum_review/docs/9_15_%2010-curriculum-
review-memo-to-deans.pdf](https://www.wm.edu/as/dean/curriculum_review/docs/9_15_%2010-curriculum-review-memo-to-deans.pdf)

Halleran, M. R. (2011, December 8). [Provost Presentation to Board of Visitors]. Retrieved from
[https://www.wm.edu/about/administration/bov/_documents/meetings/2011_2012/
12-11-strategic-initiatives.pdf](https://www.wm.edu/about/administration/bov/_documents/meetings/2011_2012/12-11-strategic-initiatives.pdf)

- Halleran, M. R. (2013, February 8). [*Board of Visitor Presentation: Strategic Initiatives and New Ventures*]. Retrieved from https://www.wm.edu/about/administration/bov/_documents/meetings/2012_2013/02-08-13-stategic-initiatives.pdf
- Halleran, M. R. (2014a, February 6). [Memorandum to BOV academic affairs committee: *Report on revised curriculum*]. Retrieved from <https://www.wm.edu/about/administration/provost/documents/bov-curriculum-report-2014.pdf>
- Halleran, M. R. (2014b, February 25). [Memorandum to members of the faculty assembly: Specified-term faculty report]. Retrieved from https://www.wm.edu/sites/facultyassembly/documents/reports_resolutions_current/ProvostReportOnSpecifiedTermFacultyFeb2014/all_documents.pdf
- Hannover Research. (2013). *Strategic planning in higher education – Best practices and benchmarking*. Arlington, VA: Author.
- Hart Research Associates. (2007). *How should colleges prepare students to succeed in today's global economy?* Retrieved from <http://www.aacu.org/leap/students/employers-top-ten>
- Hart Research Associates. (2013). *It takes more than a major: Employer priorities for college learning and student success*. Retrieved from http://www.aacu.org/leap/documents/2013_EmployerSurvey.pdf
- Hart Research Associates. (2015). *Falling short? College learning and career success*. Retrieved from

<http://www.aacu.org/sites/default/files/files/LEAP2015employerstudentsruvey.pdf>

Hart Research Associates. (2016a). *Trends in learning outcomes assessment: Key findings from a survey among administrators at AAC&U member institutions.*

Retrieved from <http://www.aacu.org/about/2015-membersurvey>

Hart Research Associates. (2016b). *Recent trends in general education design, learning outcomes, and teaching approaches. Key findings from a survey among administrators at AAC&U member institutions.* Retrieved from

<http://www.aacu.org/about/2015-membersurvey>

Hart Research Associates. (2018). *Fulfilling the American dream: Liberal education and the future of work. Selected findings from online surveys of business executives and hiring managers.* Retrieved from

<http://www.aacu.org/sites/default/files/files/LEAP/2018EmployerResearchReport.pdf>

Harvard Business School. (n.d.). *Case method teaching.* Retrieved from

www.hbs.edu/teaching/

Hatch, J. (2012). *Doing qualitative research in education settings.* Albany, NY: State

University of New York Press.

Hatcher, D. L. (2006). Stand-alone versus integrated critical thinking courses. *Journal of General Education*, 55(3/4), 247-272.

Henderson, L., Herrington, A., & Stassen, M. (2011). Defining critical thinking in higher education. *To Improve the Academy*, 30, 126-141.

- Herreid, C. F. (2004). Can case studies be used to teach critical thinking? *Journal of College Science Teaching*, 6, 12-14.
- Hersh, R. H., & Keeling, R. P. (2011). *We're losing our minds: Rethinking American higher education*. New York, NY: Palgrave MacMillan.
- Hess, E. D. (2016, September 20). Leadership in the smart machine age: The 4 Es [Blog post]. Retrieved from <https://ideas.darden.virginia.edu/2016/09/leadership-in-the-smart-machine-age-the-4es/>
- Hetherington, L. (2013). The potential of 'complex case study' for educational research. *Complicity: An International Journal of Complexity and Education*, 10(1/2), 71-85
- Higher Education Research Institute UCLA. (2017). *2017 Freshman*. Retrieved from <https://www.heri.ucla.edu/infographics/TFS-2017-Infographic.pdf>
- Hinton, K. E. (2012). *A practical guide to strategic planning in higher education*. Ann Arbor, MI: Society for College and University Planning.
- Hussar, W. J., & Bailey, T. M. (2017). *Projection of Education Statistics to 2025* (NCES 201-019). Retrieved from National Center for Education Statistics website: <https://nces.ed.gov/pubs2017/2017019.pdf>
- Indiana University School of Education. (2016). *Carnegie classification of higher education center for postsecondary research*. Retrieved from <http://carnegieclassifications.iu.edu/index.php>
- Jaschik, S. (2016, January 22). Provosts in challenging times: Inside Higher Ed's 2016 survey of chief academic officers. *Inside Higher Education*. Retrieved from

<https://www.insidehighered.com/news/survey/2016-inside-higher-ed-survey-chief-academic-officers>

JBL Associates. (2014, October). *Statewide strategic plan for higher education in Virginia development project- Final report*. Retrieved from the State Council of Higher Education for Virginia website: <http://www.schev.edu/docs/default-source/virginia-plan/virginiafinalreport20141024c.pdf>

Jonsson, A. (2014). Rubrics as a way of providing transparency in assessment. *Assessment & Evaluation in Higher Education*, 39(7), 840-852.

July 2 remarks of W&M president Katherine A. Rowe. (2018, July). Retrieved from <https://www.wm.edu/news/stories/2018/prepared-remarks-of-wm-president-katherine-a.-rowe.php>

Kahlenberg, R. D. (2011, September 1). The purpose of higher education [Blog post]. Retrieved from <http://www.chronicle.com/blogs/innovations/the-purposes-of-higher-education/30258>

Kennedy, B. (2016). Liftoff: A new universe of information overload and changing disciplines is coming. *W&M Alumni Magazine*, 81(2), 39-43. Retrieved from <http://wmalumnimagazine.com/2015/winter/feature/liftoff/>

Kezar, A. (2005). What campuses need to know about organizational learning and the learning organization. *New Directions for Higher Education*, 131, 7-22.

Kim, K. H. (2006). Can we trust creativity tests? A review of the Torrance tests of creative thinking (TTCT). *Creativity Research Journal*, 18(1), 2-14.

Knowles, M. S. (1979). Speaking from experience: The professional organization as a learning community. *Training and Development Journal*, 33(12), 36-40.

- Knowlton, D. S., & Sharp, D. C. (2015). Students' opinions of instructional strategies in a graduate-level creativity course. *International Journal for the Scholarship of Teaching and Learning*, 9(2). Retrieved from <http://digitalcommons.georgiasouthern.edu/ij-sotl/vol9/iss2/6/>
- Korn, M. (2014, October 21). Bosses seek critical thinking – What is that? *Wall Street Journal*. Retrieved from <http://www.wsj.com/articles/bosses-seek-critical-thinking-but-what-is-that-1413923730>
- Ku, K. Y. L., Ho, I. T., Hau, K., & Lai, E. (2014). Integrating direct and inquiry-based instruction in the teaching of critical thinking: An intervention study. *Instructional Science*, 42, 251-269.
- Kuhn, D. (1999). A development model of critical thinking. *Educational Researcher*, 28(2), 16-25.
- Lattuca, L. R., & Stark, J. S. (2009). *Shaping the college curriculum: Academic plans in context* (2nd ed.). San Francisco, CA: Jossey-Bass.
- Leslie, D. (2014). "Orthogonality" in learning and assessment. *New Directions for Higher Education*, 165, 41-50. doi:10:1002/he.20079
- Liberal arts university. (n.d.). Retrieved from <https://www.wm.edu/about/administration/strategicplanning/plan/liberalarts/index.php>
- Lundeberg, M., Levin, B. B., & Harrington, H. L. (1999). *Who learns what from cases and how? The research base for teaching and learning with cases*. Mahwah, NJ: Lawrence Erlbaum.

- Ma, J., Pender, M., & Welch, M. (2016). *Education pays 2016: The benefits of higher education for individuals and society*. Retrieved from The College Board website: <https://trends.collegeboard.org/>
- Marquis, E., & Henderson, J. A. (2015). Teaching creativity across disciplines at Ontario universities. *Canadian Journal of Higher Education*, 45(1), 148-166.
- Maxwell, J. A. (2013). *Qualitative research design: An interactive approach*. Thousand Oaks, CA: Sage.
- McCadden, L., & Brown, A. (2014, December 17). Do companies want critical thinkers or problem solvers? [Blog post]. Retrieved from <http://www.gallup.com/opinion/gallup/180032/companies-actually-critical-thinkers.aspx>
- McFarlane, D. A. (2015). Guidelines for using case studies in the teaching-learning process. *College Quarterly*, 18(1), 4.
- Miles, R. (2015). Complexity, representation and practice: Case study as method and methodology. *Issues in Educational Research*, 25(2), 309-318.
- Mintzberg, H. (2000). The professional bureaucracy. In M. C. Brown (Ed.), *ASHE reader on organization and governance in higher education* (pp. 50-70). Boston, MA: Pearson. (Original work published 1979)
- Most, R., & Wellmon, C. (2015). Engaging students in advising and general education requirements. *The Journal of General Education*, 62(2), 106-116.
- Mulnix, J. W. (2012). Thinking critically about critical thinking. *Educational Philosophy and Theory*, 44(5), 464-479.

- National Association of Colleges and Employers. (2015, November 18). *Job outlook 2016: Attributes employers want to see on new college graduates' resumes*. Retrieved from <http://www.naceweb.org/s11182015/employers-look-for-in-new-hires.aspx>
- National Center for Education Statistics (NCES). (2016). *Fast facts*. Retrieved from <https://nces.ed.gov/fastfacts/display.asp?id=76>
- National Center for Education Statistics (NCES). (2017). *U.S. Department of Education Digest of Education Statistics: Table 301.10 Enrollment, staff and degree/certificates fall 2016*. Retrieved from <https://nces.ed.gov/pubs2017/2017019.pdf>
- National Survey of Student Engagement. (2013). *A fresh look at student engagement- Annual results 2013*. Bloomington, IN: Indiana University Center for Postsecondary Research.
- New Leadership Alliance for Student Learning and Accountability. (2012). *Committing to quality: Guidelines for assessment and accountability in higher education*. Washington, DC: Author.
- Nicholas, M. C., & Raider-Roth, M. (2016). A hopeful pedagogy to critical thinking. *International Journal for the Scholarship of Teaching and Learning*, 10(2), 1-10.
- Orlando, M. (2012). Fostering creativity in higher education. *Review of Higher Education and Self-Learning*, 5(14), 54-61.
- Paris, K. A. (2003). *Strategic planning in the university*. Ann Arbor, MI: Society
- Paul, R., & Elder, L. (2006). *The miniature guide to critical thinking: Concepts and tools*. Retrieved from www.criticalthinking.org

- Peterson, D. R., Barrett, J. D., Hester, K. S., Robledo, I. C., Hougen, D. F., Day, E. A., & Mumford, M. D. (2013). Teaching people to manage constraints: Effects on creative problem-solving. *Creativity Research Journal*, 23(3), 335-347.
- Pew Research Center. (2011, May 15). *Is college worth it? College presidents, public assess value, quality and mission of higher education*. Retrieved from <http://www.pewsocialtrends.org/2011/05/15/is-college-worth-it/>
- Piergiovanni, P. R. (2014). Creating a critical thinker. *College Teaching*, 62, 86-93.
- Ponterotto, J. G. (2005). Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *Journal of Counseling Psychology*, 52(2), 126-136.
- Pink, D. H. (2005). *A whole new mind: Moving from the information age to the conceptual age*. New York, NY: Riverhead Books.
- Ramocki, S. P. (2014). Teaching creativity in the marketing curriculum. *Marketing Education Review*, 24, 183-196.
- Ratcliff, J. L., Johnson, K., & Gaff, J. G. (Ed.). (2004). *Changing general education curriculum*. San Francisco, CA: Jossey-Bass.
- Reddy, Y. M., & Andrade, H. (2010). A review of rubric use in higher education. *Assessment & Evaluation in Higher Education*, 35(4), 435-448.
- Reiter-Palmon, R., Robinson-Morrall, E. J., Kaufman, J. C., & Santo, J. B. (2012). Evaluation of self-perception of creativity: Is it a useful criterion? *Creativity Research Journal*, 24, 107-114.

- Reynolds, C., Stevens, D. D., & West, E. (2013). I'm in a professional school! Why are you making me do this? A cross-disciplinary study of the use of creative classroom projects on student learning. *College Teaching*, 61, 51-59.
- Rotterham, A. J., & Willingham, D. (2009). 21st century skills: The challenges ahead. *Educational Leadership*, 67(1), 16-21.
- Roy R. Charles Center for Academic Excellence. (2017). *Annual report: 2016-2017*. Retrieved from https://www.wm.edu/as/charlescenter/_documents/annual-reports/2016-17_annual_report.pdf
- Saunders, D. B. (2010). Neoliberal ideology and public education in the United States. *Journal for Critical Education Policy Studies*, 8(1), 42-77.
- Sawyer, K. (2015). A call to action: The challenges of creative teaching and learning. *Teachers College Record*, 117, 1-34
- Selingo, J. L. (2015, February 2). What's the purpose of college: A job or an education? *Washington Post*. Retrieved from https://www.washingtonpost.com/news/grade-point/wp/2015/02/02/whats-the-purpose-of-college-a-job-or-an-education/?utm_term=.a4162c3620ea
- Senge, P. M. (1990). Building learning organization. In M. C. Brown (Ed.), *ASHE reader on organization and governance in higher education* (pp. 50-70). Boston, MA: Pearson.
- Shim, W., & Walczak, K. (2012). The impact of faculty teaching practices on the development of student's critical thinking skills. *International Journal of Teaching and Learning in Higher Education*, 24(1), 16-30.

Southern Association of Colleges and School – Commission on Colleges (SACS-COC).

(2011). *Handbook for institutions seeking reaffirmation*. Retrieved from

<http://www.sacscoc.org/pdf/081705/Handbook%20for%20Institutions%20seeking%20reaffirmation.pdf>

Southern Association of Colleges and School – Commission on Colleges (SACS-COC).

(2016). *Annual report and proceedings 2016*. Retrieved from

<http://www.sacscoc.org/proceedings.asp>

Southern Association of Colleges and School – Commission on Colleges (SACS-COC).

(2018a). *The principles of accreditation: Foundations for quality enhancement*.

Retrieved from <http://www.sacscoc.org/principles.asp>

Southern Association of Colleges and School – Commission on Colleges (SACS-COC)

(2018b). *Resource manual for the principles of accreditation: Foundations for quality enhancement*. Retrieved from

<http://www.sacscoc.org/pdf/2018%20POA%20Resource%20Manual.pdf>

State Council of Higher Education for Virginia (SCHEV). (2007, October 1). *Report of*

SCHEV's 2007 task force on assessment. Retrieved from

<http://surveys.schev.edu/reports/reportsindex.asp>

State Council of Higher Education for Virginia (SCHEV). (2014). *Framework of the statewide strategic plan for higher education*. Retrieved from

<http://www.schev.edu/docs/default-source/about-section/council-files/2014-council-meetings/nov2014/framework-statewidestrategicplanforhighered-2014-10-28.pdf>

- State Council of Higher Education of Virginia (SCHEV). (2015). *The Virginia plan for higher education: Measures and targets*. Retrieved from <http://surveys.schev.edu/StrategicPlan/MeasuresandTargetsApproved07212015.pdf>
- State Council of Higher Education for Virginia (SCHEV). (2017a). *Roles and responsibilities*. Retrieved from <http://www.schev.edu/index/agency-info/agency-overview/schev-roles-and-responsibilities>
- State Council of Higher Education for Virginia (SCHEV). (2017b). *The Virginia plan for higher education: Annual report for 2016 to the general assembly of Virginia*. Retrieved from <http://www.schev.edu/docs/default-source/virginia-plan/Reports-and-Updates/annualreport2016finalad3eb850bece61aeb256ff000079de01.pdf>
- State Council of Higher Education for Virginia (SCHEV). (2017c). *Policy on student learning assessment and quality in undergraduate education*. Retrieved from <http://www.schev.edu/docs/default-source/institution-section/GuidancePolicy/assessment/policy-on-student-learning-assessment-and-quality-in-undergraduate-education.pdf>
- State Council of Higher Education for Virginia (SCHEV). (2018). *A Day of Dialogue: Developing Core Competencies*. Conference on 1 June 2018 at W&M School of Education. Retrieved from: http://www.schev.edu/docs/default-source/Documents/agenda_final.pdf
- Sternberg, R. J. (2006). The nature of creativity. *Creativity Research Journal*, 18(1), 87-98.

- Sternberg, R. J. (2012). The assessment of creativity: An investment based approach. *Creativity Research Journal*, 24(1), 3-12.
- Sternberg, R. J. (2013, June 17). Giving employers what they don't really want. *The Chronicle of Higher Education*. Retrieved from <http://chronicle.com/article/Giving-Employers-What-They/139877/?cid=at>
- Sternberg, R. J., & Williams, W. (2003). *Teaching for creativity: Two dozen tips*. Retrieved from Center for Development and Learning website: <http://www.cdl.org/articles/teaching-for-creativity-two-dozen-tips/>
- Strauss, K. (2016, May 17). These are the skills bosses say new college grads do not have. *Forbes*. Retrieved from: <https://www.forbes.com/sites/karstenstrauss/2016/05/17/these-are-the-skills-bosses-say-new-college-grads-do-not-have/#3a91cd754916>
- Syed, M. (2015). *Black box thinking: Why most people never learn from their mistakes – but some do*. New York, NY: Portfolio/Penguin.
- Thompson, C.A., Eodice, M., & Tran, P. (2015). Student perceptions of general education requirements at a large public university: No surprises? *The Journal of General Education*, 64(4), 278-293.
- Tiruneh, D. T., Weldeslassie, A. G., Kassa, A., Tefera, Z., DeCock, M., & Elen, J. (2015). Systematic design of a learning environment for domain-specific and domain-general critical thinking skills. *Educational Technology Research & Development*, 64, 481-505.
- Torrance, E. P. (1977). *Creativity in the classroom: What research says to the teacher*. Retrieved from <http://files.eric.ed.gov/fulltext/ED132593.pdf>

- Torrance, E. P. (2003). The millennium: A time for looking forward and looking back. *Illinois Association for Gifted Children Journal*, 2003, 53-59. Retrieved from <http://files.eric.ed.gov/fulltext/ED477217.pdf#page=55>
- Tuchman, G. (2011). The untended decentering of teaching and learning. *Society*, 48, 216-219
- University of Notre Dame. (2018). *Core Curriculum – Ways of Knowing*. Retrieved from <https://corecurriculum.nd.edu/starting-fall-2018/ways-of-knowing/>
- U.S. Department of Education. (2006). *A test of leadership: Charting the future of U.S. higher education*. Retrieved from <https://www2.ed.gov/about/bdscomm/list/hiedfuture/index.html>
- U.S. Department of Education. (2016). *College scorecard for the College of William and Mary*. Retrieved from <https://collegescorecard.ed.gov/school/?231624-College-of-William-and-Mary>
- U.S. News & World Report. (2017). *College of William and Mary* [Ranking]. Retrieved from <https://www.usnews.com/best-colleges/william-and-mary-3705>
- Vision statement. (n.d.). Retrieved from <https://www.wm.edu/about/administration/strategicplanning/vision/index.php>
- Wagner, T. (2008). *The global achievement gap*. New York, NY: Basic Books
- Washington State University. (2006). *Guide to rating critical and integrative thinking*. Retrieved from Central Piedmont Community College website: http://www.cpcc.edu/learningcollege/learning-outcomes/rubrics/WST_Rubric.pdf
- Wassermann, S. (1994). *Introduction to case method teaching: A guide to the galaxy*. New York, NY: Teachers College Press.

- White, E. R. (2015). Academic advising in higher education: A place at the core. *The Journal of General Education*, 64(4), 263-277.
- Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the process of sensemaking. *Organization Science*, 16(4), 409-421.
- W&M. (2005). *Arts & sciences handbook*. Retrieved from <https://www.wm.edu/as/english/documents/facultymanual.pdf>
- W&M. (2010, April 2). *Summary of campus conversations: "Changing understandings of liberal education."* Retrieved from <https://www.wm.edu/about/administration/provost/initiatives/conversation/summaries/index.php>
- W&M. (2012a, May). *Curriculum review steering committee (CRSC) – Year end report*. Retrieved from <https://www.wm.edu/as/facultyresources/fas/documents/crsc/crsc-year-end-report.pdf>
- W&M. (2012b, November). *Executive summary – Curriculum review steering committee (CRSC)*. Retrieved from https://www.wm.edu/as/facultyresources/fas/documents/crsc/executive-summary_11_12.pdf
- W&M. (2013a, February 5). [Faculty of arts & sciences meeting minutes]. Retrieved from <https://www.wm.edu/as/facultyresources/fas/minutes/20130205.pdf>
- W&M. (2013b, May 7). [Faculty of arts & sciences meeting minutes]. Retrieved from <https://www.wm.edu/as/facultyresources/fas/minutes/20130507.pdf>

- W&M. (2013c, November 19). [Faculty assembly meeting minutes]. Retrieved from https://www.wm.edu/sites/facultyassembly/documents/minutes/2013_2014/approved_11_19_13.pdf
- W&M faculty approve new general education curriculum. (2013, December 12). Retrieved from <https://www.wm.edu/news/stories/2013/story-123.php>
- W&M. (2013d, December 12). [Faculty of arts & sciences special meeting minutes: COLL curriculum approval]. Retrieved from https://www.wm.edu/as/facultyresources/committees/educationalpolicy/about/documents/COLL_Curriculum-2016-05-15.pdf
- W&M. (2015). [Response to Virginia public higher education policy on the assessment of student learning conducted 2011 - 2015]. Retrieved from <http://www.schev.edu/docs/default-source/about-section/committees-and-groups/virginia-assessment-group/4year/assesscwm.pdf>
- W&M. (2016a). *College of William and Mary undergraduate catalog 2016-2017 requirements for degrees*. Retrieved from <http://catalog.wm.edu/content.php?catoid=13&navoid=2320>
- W&M. (2016b). *Center for the liberal arts*. Retrieved from <http://www.wm.edu/as/center-liberal-arts/>
- W&M. (2017a). *Six-year plan (2018-20 through 2022- 24): Part II narrative*. Retrieved from <http://www.schev.edu/docs/default-source/institution-section/6-year-plans/cwm/2017/cwm-2017-six-year-plan-part-iicbf7bb50bece61aeb256ff000079de01.pdf>

- W&M. (2017b). *Faculty handbook*. Retrieved from
<https://www.wm.edu/about/administration/provost/forfacstaff/faculty-handbook/index.php>
- W&M. (n.d.1). W&M mission statement. Retrieved from
<https://www.wm.edu/about/administration/provost/about/mission/>
- W&M. (n.d.2). Summaries of campus conversations. Retrieved from
<https://www.wm.edu/about/administration/provost/initiatives/conversation/summaries/index.php>
- W&M. (n.d.3). [Listing of faculty arts & sciences meeting minutes (1985- 2018)]. Retrieved from <https://www.wm.edu/as/facultyresources/fas/minutes/index.php>
- W&M. (n.d. 4). Strategic review: 2008-2018. Retrieved from
<https://www.wm.edu/about/administration/president/documents/strategic-review-2008-to-2018.pdf>
- Willingham, D. T. (2007). Critical thinking: Why it so hard to teach? *American Educator*. Retrieved from
http://www.aft.org/sites/default/files/periodicals/Crit_Thinking.pdf
- Yin, R. K. (2009). *Case Study Research: Design and Methods* (4th ed.). Thousand Oaks, CA: Sage.
- Zai, R. III. (2015). Reframing general education. *The Journal of General Education*, 64(3), 196-217.
- Zeng, L., Proctor, R. W., & Salvendy, G. (2011). Can traditional divergent thinking tests be trusted in measuring and predicting real-world creativity? *Creativity Research Journal*, 23(1), 24-37.

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