WISDOM, ELOQUENCE, AND ACADEMIC RIGOR IN ACCS SCHOOLS: A MIXED METHODS STUDY

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Chase Tolliver Austin

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APPROVAL SHEET

WISDOM, ELOQUENCE, AND ACADEMIC RIGOR

IN ACCS SCHOOLS: A MIXED METHODS STUDY

Chase Tolliver Austin

Read and Approved by:

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Jeffrey M. Horner (Chair)

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Anthony W. Foster

Date_____

For Reagan, James, and Piper Austin.

May the Lord bless you and keep you, may He make His face to shine upon you, and be gracious to you. May He lift up His countenance upon you and give you peace.

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LIST OF ABBREVIATIONS

ACCS	Association of Classical Christian Schools
ANOVA	Analysis of Variance
ANCOVA	Analysis of Variance with Covariates
AP	Advanced Placement Program
AP_{avail}	Advanced Placement Courses Available at ACCS Schools
CCE	Classical Christian Education
CCS	Classical Christian Schools
CR + M	Critical Reading Plus Mathematics SAT scores
EngIFL	English Course Descriptions with IFL Language
IFL	Integration of Faith and Learning
IH	Integrated Humanities
MathIFL	Math Course Descriptions with IFL Language
MFIA	Median Family Income for all ZIP codes Bordering a School
MFIZ	Median Family Income for the ZIP Code of a School
NVivo	NVivo 12 Pro from QSR International
SAT	Scholastic Achievement Test (also Scholastic Aptitude Test)
SAT_{med}	Median Score of SAT
SciIFL	Science Course Descriptions with Integration of Faith and Learning Language
SSIFL	Social Studies Course Descriptions with Integration of Faith and Learning Language
SPSS	Statistical Package for Social Sciences from IBM
TopCU	Top Fifty Colleges and Universities Based on Rankings from *US News and World Report*

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PREFACE

This project represents the culmination of a long journey. Thanks be to God the Father and my Lord and savior Jesus Christ. I am truly blessed to count myself as a child of God. I am also blessed to call myself a husband, father, and son. This work could not have been completed much less started without the love, support, patience, and kindness of my wife, Bret. Thank you for the sacrifices you have made for me so that I could accomplish this goal. I love you. Thank you to my mom and dad, Jenny and Jim Austin, for your love, support, and help over countless summer days and Saturdays while I completed this work.

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To Jeffrey Horner, my doctoral supervisor, thank you for sharing your expertise and your time with me over the last two years. I appreciate the way you have challenged me along with the kindness, grace, and patience you have continually shown me throughout our time working together. To Anthony Foster, thank you for speaking

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Chase Austin

Crestwood, Kentucky

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CHAPTER 1

RESEARCH CONCERN

In 2017 noted author and editor Rod Dreher published *The Benedict Option: A Strategy for Christians in a Post-Christian Nation*.[1] Upon its release, *The Benedict Option* triggered a host of reactions from both secular and religious observers alike.[2] The book touches on a broad range of topics from politics to smartphones, yet one issue above all others is most relevant for this study. In chapter 7, Dreher focuses on the formative role of education in the Christian tradition by highlighting an emerging phenomenon within the United States:

> Today, across the Christian community, there is a growing movement called classical Christian education. It is counter-cultural in both form and content and presents to students the Western tradition—both Greco-Roman and Christian—in all its depth.[3]

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[1] Dreher argues that the time has come for Christians in the United States to make a strategic withdrawal from the culture and develop creative, communal, counter-cultural solutions to hold onto their Christian faith and values in an increasingly hostile world, Rod Dreher, introduction to *The Benedict Option: A Strategy for Christians in a Post-Christian Nation* (New York: Sentinel, 2017), 2. The book is named for Saint Benedict of Nursia, who in the sixth century fled the city of Rome and spent three years in a cave living a life of prayer and contemplation. Later Benedict founded monasteries throughout Europe and wrote a slim book, *The Rule of Saint Benedict*, which provided guidance for living in a Christian community. During the Middle Ages, Benedictine monasteries soon spread across Europe. While adhering to *The Rule,* these monasteries kept faith and learning alive by evangelizing and teaching the lost how to pray, read, and plant crops among other skills. These monasteries helped to preserve the cultural and intellectual treasures of the West. Dreher, *Benedict Option*, 14-15, 148. For different perspectives on Benedict of Nursia and his impact on Western monasticism, see Gerald L. Sittser, *Water from a Deep Well: Christian Spirituality from Early Martyrs to Modern Missionaries* (Downers Grove, IL: InterVarsity Press, 2007), 106-14; Michael J. Anthony and Warren S. Benson, *Exploring the History and Philosophy of Christian Education: Principles for the 21st Century* (Grand Rapids: Kregel Publications, 2003), 138-41; J. M. Roberts, *A History of Europe* (New York: Allen Lane, 1997), 87; and Justo L. González, *A History of Christian Thought,* vol. 2*, From Augustine to the Eve of the Reformation* (Nashville: Abingdon Press, 1971), 73, 189.

[2] For divergent reactions and responses to Dreher's *Benedict Option,* see James K. A. Smith, "The New Alarmism: How Some Christians Are Stoking Fear Rather Than Hope," *Washington Post*, March 10, 2017, https://-www.washingtonpost.com/news/acts-of-faith/wp/2017/03/10/the-new-alarmism-how-some-christians-are-stoking-fear-rather-than-hope/?noredirect=on&utm_term=.861ae990ada4; Collin Hansen, "If Politics Can't Save Us, What Will?" *Gospel Coalition* (U.S. ed.), March 13, 2017, https://www.thegospelcoalition.org/reviews/benedict-option/; David Brooks, "The Benedict Option," *New York Times*, March 14, 2017, https://www.nytimes.com/2017/-03/14/opinion/the-benedict-option.html; Joshua Rothman, "Rod Dreher's Monastic Vision," *New Yorker*, May 1, 2017, https://www.newyorker.com/magazine/2017/05/01/rod-drehers-monastic-vision; Steve Thorngate, "Who is the Benedict Option for?" *Christian Century*, May 8, 2017, https://www.christiancentury.org/review/who-is-benedict-option-for; Dale M. Coulter, "The Benedict Option and Mediating Structures," *First Things*, May 24, 2018, https://-www.firstthings.com/web-exclusives/2018/05/the-benedict-option-and-mediating-structures.

[3] Dreher, *Benedict Option*, 146.

Dreher's focus on classical Christian education (CCE) is central to his thesis and amounts to an outright rejection of the public school option for Christian families. What Dreher sees in classical Christian schools (CCS) is a mechanism through which to revolutionize education by way of reknitting and restoring the bonds of society.[4] While a discussion on the merits of the Benedict Option is beyond the scope of this research, Dreher's attention to CCE is noteworthy as the movement has been a part of the landscape of American education for roughly forty years.[5]

Introduction to the Research Problem

The birth of CCE as a movement goes back to 1980 when Reformed pastor Douglas Wilson and many of his close associates opened one of the first CCS schools in the United States. In 1991, Crossway published Wilson's *Recovering the Lost Tools of Learning* wherein he argues for CCE as a classical, Christ-centered approach to K-12 education and documents his experience of creating and operating a CCS in Moscow, Idaho.[6] Four years later, the Association of Classical Christian Schools (ACCS) was established by Wilson along with a group of Christian educators dedicated to CCE. At that time CCE was a new phenomenon just beginning to gain notoriety as an approach to Christian education.[7] When *Classical Education: The*

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[4] Dreher, *Benedict Option*, 144–46.

[5] For a brief survey of the classical Christian school movement, see Gene Edward Veith Jr. and Andrew Kern, *Classical Education: The Movement Sweeping America*, ed. Brian Phillips, 3rd ed. (Washington, DC: Capital Research Center, 2015), 22.Veith and Kern mark the release of Douglas Wilson's 1991 book, *Recovering the Lost Tools of Learning*, as the spark for the current classical Christian school movement. *Recovering the Lost Tools* details Wilson's first-person account of opening Logos School in Moscow, ID in 1980 as well as lays out his vision for classical Christian education, 22. For similar works detailing certain aspects of the classical Christian school movement within the United States, see Douglas Wilson, *Recovering the Lost Tools of Learning: An Approach to Distinctively Christian Education* (Wheaton, IL: Crossway, 1991); David V. Hicks, *Norms & Nobility: A Treatise on Education* (Lanham, MD: University Press of America, 1999); Douglas Wilson, ed., *Repairing the Ruins: The Classical and Christian Challenge to Modern Education* (Moscow, ID: Canon Press, 1996); Wilson, *The Paideia of God and Other Essays on Education* (Moscow, ID: Canon Press, 1999); Wilson, *The Case for Classical Christian Education* (Wheaton, IL: Crossway, 2003); Robert Littlejohn and Charles T. Evans, *Wisdom and Eloquence: A Christian Paradigm for Classical Learning* (Wheaton, IL: Crossway Books, 2006).

[6] "ACCS Membership Handbook," Association of Classical Christian Schools, 3, last modified December 28, 2016, accessed February, 20, 2018, https://classicalchristian.org/wp-content/uploads/2016/12/G-Membership-Handbook-Join-With-Us-12.28.16.pdf; Veith and Kern, *Classical Education*, 22.

[7] Around the same time that ACCS formed, another CCS organization formed, the Society for Classical Learning (SCL). See "About Us | The Society for Classical Learning," accessed March 6, 2019, https://societyforclassicallearning.org/about/. Whereas ACCS is more financially costly for member schools, SCL is far less financially burdensome though the data available through the SCL website is limited compared to the data

Movement Sweeping America was published in 1997, ACCS had 56 member schools.[8] Today ACCS has expanded to 290 member schools across the United States.[9] To date, ACCS schools represent a distinct form of classical Christian private schooling that has emerged as an alternative to both public schools and private non-classical Christian schools alike.[10]

With regard to public education, philosopher and educator Mortimer J. Adler argued that "the reform of basic schooling—or any other institution—is not something to be accomplished overnight, or even in a decade or two."[11] With CCE emerging in the 1980s, gaining national exposure in the late 1990s, and continuing today, the movement has withstood Adler's test of time.[12] Furthermore, while CCS schools do not signify a reform of public education, as Adler put forward with his *Paideia Proposal*, the movement does represent an intentional shift in philosophic positions, teaching methods, and educational practices when compared to the progressive education of the twentieth-century.[13] Seen in this light, CCS schools represent a unique reform of education through the recovery of classical education.[14]

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provided on ACCS. For the purposes of this project, only ACCS schools were studied.

[8] Veith and Kern, *Classical Education*, 22.

[9] Association of Classical Christian Schools, "The Mission of the ACCS," last modified November 21, 2018, accessed November 21, 2018, https://classicalchristian.org/the-mission-of-the-accs/.

[10] See the first two chapters of Wilson, *Recovering the Lost Tools*. Before describing what classical Christian education is, Wilson carefully describes the milieu which gave birth to the classical Christian school movement. In his view, both public and non-classical Christian schools have been plagued with problems and are in desperate need of repair.

[11] Mortimer Jerome Adler, *Paideia Problems and Possibilities* (New York: Macmillan; London: Collier Macmillan, 1983), 33.

[12] See Wilson, *Recovering the Lost Tools*; Veith and Kern, *Classical Education*; Wilson, *Case for Classical Christian*; Daniel Carl Peterson, "A Comparative Analysis of the Integration of Faith and Learning between ACSI and ACCS Accredited Schools" (PhD diss., The Southern Baptist Theological Seminary, 2008), 11; Peter J. Leithart, "The New Classical Schooling," *Intercollegiate Review* 43, no. 1 (2008): 6.

[13] Regarding reform and using the same language as Adler—though in drastically different terms, Wilson acknowledges that "true educational reform is nothing less than an insistence on the paideia of God." See Wilson, *The Case for Classical Christian Education*, 111-13; for a comparison between traditional education and twentieth-century progressive education, see Diane Ravitch, *Left Back: A Century of Failed School Reforms* (New York: Simon & Schuster, 2000), 459–65.

[14] While this study primarily focused on questions related to the academic rigor of classical Christian schooling, indirectly this research describes certain outcomes that have been put forward in theories, practices, and methods which directly contend against progressive education. For works touching on aspects of reforms to public education in the United States dating back to the early 1980s, see Diane Ravitch, *Left Back: A Century of Failed School Reforms* (New York: Simon & Schuster, 2000); Mortimer Jerome Adler, *Reforming Education: The Opening*

While the CCS movement represents a new arrival to the field of contemporary American education, comparisons between public and private schooling continues to be an area of ongoing research, especially under the topic of school quality and academic excellence.[15] Given that private schools— unlike their public counterparts—are not legally tethered to annual high-stakes testing realities, how might CCS schools be academically measured?[16] Alternatively, how would CCS schools' test scores compare to other private non-classical Christian schools? One answer to such queries is provided on the ACCS website wherein bar graphs and charts are displayed along with the accompanying text:

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of the American Mind, ed. Geraldine Van Doren (New York: Macmillan; London: Collier Macmillan, 1988); E. D. Hirsch, Joseph F. Kett, and James Trefil, *Cultural Literacy: What Every American Needs to Know* (Boston: Houghton Mifflin, 1987); Diane Ravitch, *The Schools We Deserve: Reflections on the Educational Crises of Our Times* (New York: Basic Books, 1985); Mortimer Jerome Adler, ed., *The Paideia Program: An Educational Syllabus*, 1st Macmillan paperbacks ed. (New York: Macmillan; London: Collier Macmillan, 1984); The National Commission on Excellence in Education, *A Nation at Risk: The Imperative for Educational Reform* (Washington, DC: US Govt. Printing Office, 1983); Adler, *Paideia Problems and Possibilities*; Mortimer Jerome Adler, *The Paideia Proposal: An Educational Manifesto*, 1st Touchstone ed. (New York: Simon and Schuster, 1998).

[15] For studies over the last two decades focusing on the intersection of public, private, and even CCS schools, see Robert D. Wrinkle, Joseph Stewart, and J. L. Polinard, "Public School Quality, Private Schools, and Race," *American Journal of Political Science* 43, no. 4 (1999): 1248–53; William H. Jeynes, "The Learning Habits of Twelfth Graders Attending Religious and Non-Religious Schools," *International Journal of Education & Religion* 4, no. 2 (September 2003): 145–67; Jeynes, "A Meta-Analysis: Has the Academic Impact of Religious Schools Changed over the Last Twenty Years?" *Journal of Empirical Theology* 17, no. 2 (November 2004): 197–216; Jeynes, "Religion, Intact Families, and the Achievement Gap," *Interdisciplinary Journal of Research on Religion* 3 (January 2007): 1–24; Jeynes, "The Relationship between Biblical Literacy, Academic Achievement, and School Behavior Among Christian- and Public-School Students," *Journal of Research on Christian Education* 18, no. 1 (March 2009): 36–55; Jeynes, "A Meta-Analysis on the Effects and Contributions of Public, Public Charter, and Religious Schools on Student Outcomes," *Peabody Journal of Education* 87, no. 3 (July 1, 2012): 305–35; Jeynes, "What Public and Religious Private Schools Can Learn from One Another," *Peabody Journal of Education* 87, no. 3 (July 1, 2012): 283–84; Christy Anne Vaughan, "Differences of Mean Scores on the Preliminary Scholastic Aptitude Test (PSAT) for Classical Christian Schools Compared to Non-Classical Christian Schools" (EdD diss., Liberty University, 2018).

[16] For recent research on high-stakes testing and public education, see Sheryl J. Croft, Mari Ann Roberts, and Vera L. Stenhouse, "The Perfect Storm of Education Reform: High-Stakes Testing and Teacher Evaluation," *Social Justice* 42, no. 1 (January 2015): 70–92; David Hursh, "Raising the Stakes: High-Stakes Testing and the Attack on Public Education in New York," *Journal of Education Policy* (January 1, 2013); Susan Peters and Laura Ann Oliver, "Achieving Quality and Equity through Inclusive Education in an Era of High-Stakes Testing," *Prospects: Quarterly Review of Comparative Education* 39, no. 3 (September 1, 2009): 265–79; Wayne Au, "Between Education and the Economy: High-Stakes Testing and the Contradictory Location of the New Middle Class," *Journal of Education Policy* 23, no. 5 (September 1, 2008): 501–13; David Hursh, "The Growth of High-Stakes Testing in the USA: Accountability, Markets and the Decline in Educational Equality," *British Educational Research Journal* 31, no. 5 (October 1, 2005): 605–22; Michael G. Gunzenhauser, "High-Stakes Testing and the Default Philosophy of Education," *Theory into Practice* 42, no. 1 (Winter 2003): 51; Audrey L. Amrein and David C. Berliner, "High-Stakes Testing, Uncertainty, and Student Learning," *Education Policy Analysis Archives* 10, no. 18 (March 28, 2002): 18; Asa G. Hilliard III, "Excellence in Education versus High-Stakes Standardized Testing," *Journal of Teacher Education* 51, no. 4 (January 1, 2000): 293–304.

> Whether it's the college readiness index, Verbal, Math, or Writing SAT performance, or ACT scores, students at ACCS member schools score above all other types of schools—public, religious, and even independent. Independent schools are typically college preparatory schools that charge an average of $20,000 per year. Our schools outperform all of these categories, charging much lower tuition— averaging under $8,000 per year.[17]

This self-reported data appears to indicate some level of academic excellence among ACCS member schools when compared to both public and non-classical private schools, yet there is more to be said. For one, the scores cited on the ACCS website represent a comparison of the cumulative averages for all ACCS, public, and non-classical private schools. This data set is uniquely grouped, considering that ACCS member schools represent a much lower number of schools as opposed to the vast amount of schools found in the public sphere and the number of non-classical private schools in the United States.[18] Second, by only using one data point—a single high-stakes test—as a comparison between these three groups, the comparative analysis is significantly limited. A more convincing approach at measuring ACCS schools would use multiple data points to shed light on indicators of academic excellence. Furthermore, a study focusing solely on ACC schools and using multiple variables to compare these schools to one another would aid in measuring indicators of academic excellence within ACCS schools. The present study sought to address this gap by identifying aspects of academic excellence within the ACCS approach to CCE and measuring such indicators by school.

Presentation of the Research Problem

One unique aspect of the CCS movement is an identification with historic Protestant orthodoxy, clearly illustrated by the ACCS statement of faith which contains the first two chapters of the Westminster Confession.[19] CCE as seen in ACCS schools, is an approach to primary and secondary education that synthesizes evangelical Christianity with the classical

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[17] Association of Classical Christian Schools, "Measure It," last modified November 14, 2018, accessed November 14, 2018, https://classicalchristian.org/measure-it/.

[18] The most recent figures offered by the National Center for Education Statistics for 2015-16 show 98,277 public schools and 34, 576 private schools in the United States. See "Digest of Education Statistics, 2017," accessed March 7, 2019, https://nces.ed.gov/programs/digest/d17/tables/dt17_105.50.asp?current=yes.

[19] Wilson, *Paideia of God*, 55.

liberal arts and sciences.[20] While the latter part of this chapter will explore what is meant by "the classical liberal arts and sciences," the terms "historic Protestant orthodoxy" and "evangelical Christianity" must first be addressed and briefly discussed.

Douglas Wilson's *The Paideia of God* represents a collection of his earlier essays written around the topic of CCE. In an essay titled "Does Classical Mean Reformed?" Wilson argues that by emphasizing certain parts of the Westminster Confession, the CCS movement—and by extension historic Protestant orthodoxy—thereby excludes Roman Catholicism and broad, modern evangelicalism.[21] While this analysis rightly describes the theological incompatibility of Catholicism and Protestantism, Wilson's division between historic Protestant orthodoxy and evangelicalism is less accurate. Shortly after the Second World War, Protestant fundamentalism gave birth to evangelicalism, a theological orientation much more open to the general society than its predecessor.[22] Historian David Bebbington developed a quadrilateral of priorities which form the basis of evangelicalism.[23] Bebbington's quadrilateral consists of four distinctives: biblicism (a particular regard for the Bible as God's Word), conversionism (belief that lives need to be changed through a saving knowledge of Christ), crucicentrism (stress on the necessity that the cross and the resurrection represent the central acts of salvation), and activism (the expression of the gospel in effort through active proselytizing and missions work).[24]

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[20] Veith and Kern, *Classical Education*, 22–26; Littlejohn and Evans, *Wisdom and Eloquence*, 22; Wilson, *Recovering the Lost Tools of Learning*, 97–101.

[21] Wilson, *Paideia of God*, 55–56.

[22]Ken Badley, "The Faith/Learning Integration Movement in Christian Higher Education: Slogan or Substance?" *Journal of Research on Christian Education* 3, no. 1 (March 1994): 16.

[23] D. W. Bebbington, *Evangelicalism in Modern Britain: A History from the 1730s to the 1980s* (London: Unwin Hyman, 1989), 2–3; Barry Hankins, ed., *Evangelicalism and Fundamentalism: A Documentary Reader* (New York: University Press, 2008), 1–2.

[24] Bebbington, *Evangelicalism in Modern Britain*, 10–14; Hankins, *Evangelicalism and Fundamentalism*, 2. One theologian describes Bebbington's definition of evangelicalism as "the standard boilerplate understanding for academics and journalists on both sides of the Atlantic." R. Albert Mohler, "The Way the World Thinks," in *Thinking, Loving, Doing,* ed. John Piper and David Mathis (Wheaton, IL: Crossway, 2011), 47.

According to Bebbington's descriptions of evangelicalism, there exists no distinction between historic Protestant orthodoxy and evangelical Christianity.

For ACCS schools, the heart and mind of CCE is represented by an evangelical statement of faith and a unified curriculum with the Word of God at the center.[25] In summary, the ACCS approach to education represents a synthesis of evangelical Christianity and the seven liberal arts and sciences. In ACCS schools, both commitments converge to form an integrated center of faith and learning.[26] The remainder of this chapter will provide a brief description of ACCS schools and their approach to the classical curriculum, present the research problem, and the current status in recent literature. Finally, the research questions which shape the bulk of this study will be presented. Each of the research questions address aspects of one main research question: what is the relationship between academic rigor and the liberal arts and sciences curriculum in CCS schools?

The work of Arthur Ellis provides a paradigm for analyzing curriculum theory. Ellis sets up a theoretical-historical framework for understanding different approaches to the curriculum, beginning with the three most basic models or worldviews which establish what the curriculum is or ought to be. Ellis then highlights eight theoretical examples or exemplars of curriculum theory derived from the three models.[27] Ellis describes theories of education such as progressivism, perennialism, and essentialism, as stemming from these curricular models or worldviews which exist on a spectrum ranging from learner-centered, society-centered, and knowledge-centered. The knowledge-centered model is an approach to the curriculum which

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[25] Wilson, *Recovering the Lost Tools*, 59, 60, 63, 68.

[26] Association of Classical Christian Schools, "ACCS Membership Handbook," 7-8, last modified December 28, 2016, accessed February, 20, 2018, https://classicalchristian.org/wp-content/uploads/2016/12/G-Membership-Handbook-Join-With-Us-12.28.16.pdf;" Littlejohn and Evans, *Wisdom and Eloquence*, 29-31, 39.

[27] Arthur K. Ellis, introduction to *Exemplars of Curriculum Theory* (Larchmont, NY: Eye on Education, 2004), xiii.

stresses academic rigor.[28] Expounding on the heart of the knowledge-centered curriculum, Ellis unpacks what is meant by academic rigor, writing,

> The quest is to become an educated person. Often this quest is measured for better or worse by such academic outcomes as grades, test scores, and other means of sorting students. These inevitably become significant educational markers. SAT results and the results of other tests are used by colleges and universities to decide who gets in and who gets left out. Particularly as students in a knowledge-centered curriculum or school progress through the grades, they are made increasingly aware that their schoolwork represents preparation for university studies.[29]

The academic outcomes identified by Ellis such as SAT results, college and university acceptances, and other means of sorting students, point to indicators of academic excellence which can be considered when measuring for the academic rigor of a school.

While explaining the knowledge-centered model, Ellis also uses the term "academic curriculum" to describe this approach.[30] Academic curriculum is a term also used by education historian Diane Ravitch. Ravitch describes the academic curriculum as, "the systematic study of languages and literature, science and mathematics, history, the arts, and foreign languages."[31] These studies are commonly known as a "liberal education" or "the liberal arts and sciences," because they convey important ideas, knowledge and skills, which cultivate aesthetic imagination, and help students to begin to think critically and reflectively about their world.[32] The liberal arts and sciences as a curricular approach will be expanded upon and addressed by other scholars and educators within this chapter but before leaving the work of Ellis one final observation will be made.

Jeffrey Horner noted that Ellis's categories omit a major focus for Christian school curriculum, that of Christ-centered curriculum.[33] What might a Christ-centered curriculum

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[28] Ellis, *Exemplars of Curriculum Theory*, 93.

[29] Ellis, *Exemplars of Curriculum Theory*,108–9.

[30] Ellis, *Exemplars of Curriculum Theory*, 93.

[31] Ravitch, introduction to *Left Back*, 15.

[32] Ravitch, introduction to *Left Back*, 15.

[33] Jeffrey Michael Horner, "Christian Curricular Emphases and Academic Rigor: A Mixed Methods

consist of? Douglas Wilson uses the term "Christ-centered" as a way of representing three significant objectives: an integrated whole with the Scriptures at the center; a clear model of the Biblical Christian life modeled through the faculty, staff, and board; and a call to disciple every student.[34] With dual emphases on evangelical Christianity and the seven liberal arts and sciences, CCE represents an approach to Christian education which blends the knowledge-centered model with a Christ-centered model.[35] One place where this integration can clearly be seen is through the curricula of CCS schools, and more specifically measuring CCS schools through an analysis of their curricula— the seven liberal arts and sciences.

Before an analysis of the classical curriculum can take place, the term "curriculum" must first be narrowly defined. Many educators and theorists have defined curriculum in a number of different ways.[36] George Posner suggests the seven most common concepts of curriculum include: a scope and sequence of intended learning outcomes, a syllabus, a content outline, standards, textbooks, a formal course of study, or planned experiences.[37] Arthur Ellis and Wayne Au have both offered similar definitions of curriculum, narrowing down Posner's list. Ellis succinctly defines curriculum as a course of study, akin to a plan, map or prescription to be followed.[38] Au suggests that the most common definition for curriculum among scholars and

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Study" (EdD thesis, The Southern Baptist Theological Seminary, 2016), 3.

[34] Wilson, *Recovering the Lost Tools*, 97–99.

[35] For discussions of particular aspects of the classical Christian school movement in the United States, see David Hicks, "Is Classical Education Still Possible?" FORMA, December 5, 2017, https://formajournal.com-/article/possible; Josh Herring, "No, A Classical Education Is Not Impossible to Revive in America's Degenerate Society," *The Federalist*, September 12, 2017, http://thefederalist.com/2017/09/12/no-classical-education-not-impossible-revive-americas-degenerate-society/; Katherine Burgess, "Classical Christian Education Looks to Past, Thrives Today," *Wichita Eagle*, July 15, 2017; John J. Miller, "Back to Basics," *National Review* 67, no. 19 (October 19, 2015): 42–44; Mark Eckel et al., *Perspectives on Your Child's Education: Four Views*, ed. Timothy P. Jones (Nashville: B&H Academic, 2009); Leithart, "The New Classical Schooling"; Christopher A. Perrin, *An Introduction to Classical Education: A Guide for Parents* (Camp Hill, PA.: Classical Academic Press, 2004); Hicks, *Norms & Nobility*.

[36] See David J. Flinders and Stephen J. Thornton, eds., *The Curriculum Studies Reader*, 3rd ed (New York: Routledge, 2009).

[37] George J. Posner, *Analyzing the Curriculum*, 3rd ed. (New York: McGraw-Hill, 2004), 6–12.

[38] Ellis, *Exemplars of Curriculum Theory*, 3, 5.

educators alike is a body of content knowledge to be learned in some way, shape, or form.[39] For the purpose of this research, curriculum will be defined as a formal course of study. Classical educators Littlejohn and Evans describe the curriculum using a different metaphor, that of the scholastic organism's "skeleton" because it provides form and capacity while bringing the school's mission to the classroom.[40]

Posner lists five concurrent curricula: the official curriculum, the operational curriculum, the hidden curriculum, the null curriculum, and the extra curriculum.[41] The official curriculum is what schools set out to teach—what they say upfront or what is contained in scope and sequence documents.[42] Of primary interest for this study was the degree to which the official or planned curricula in CCS schools—the liberal arts and sciences—provides academic rigor while integrating faith and learning.

Current Status of the Research Problem

Dissatisfied with the milieu of American public education in the 1970s, Douglas and Nancy Wilson decided that when their toddler was old enough to enter kindergarten, there would be a Christian school for her to attend—at the time there was not one in Moscow, Idaho.[43] Soon Douglas Wilson began meeting with two other like-minded parents to pray, investigate, and plan. Logos School opened in 1980 with nineteen students including the Wilsons' daughter, who was starting kindergarten.[44]

In 1991, Crossway published *Recovering the Lost Tools of Learning* wherein Wilson describes his journey in opening a classical Christian school, lays out his vision for CCE, and

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[39] Wayne Au, "High-Stakes Testing and Curriculum Control: A Qualitative Metasynthesis," in Flinders and Thornton, *The Curriculum Studies Reader*, 286.

[40] Littlejohn and Evans, *Wisdom and Eloquence*, 53, 71.

[41] Posner, *Analyzing the Curriculum*, 12-14.

[42] Posner, *Analyzing the Curriculum*, 12.

[43] Wilson, *Recovering the Lost Tools of Learning*, 13–14.

[44] Wilson, *Recovering the Lost Tools of Learning*, 14.

provides a formula for others to follow. The book resonated with nearly every corner of the evangelical world including—Christian schools, parents, schoolteachers and headmasters, even sparking the creation of a host of schools organized around the Logos model.[45] Wilson soon began receiving requests for help in forming and creating similar schools.[46]

By 1993 Logos School was hosting a classical teacher-training conference, which soon led to the formation of ACCS.[47] The stated mission of ACCS is as follows:

> We promote, establish, and equip schools committed to a classical approach to education in light of a Christian worldview grounded in the Old and New Testament Scriptures. We promote the classical approach and provide accountability for member schools to ensure that our cultural heritage is not lost again. Through these various means, ACCS seeks to set an educational standard for a united and directed approach to classical and Christian learning.[48]

Aside from promoting the classical approach to Christian education and providing accountability for member schools, ACCS also organizes an annual summer conference, "Repairing the Ruins," which attracts over one thousand attendees and most recently has drawn over fifty different speakers.[49] While ACCS started with only ten member schools in 1994, today there are 290 schools throughout the United States.[50]

There are currently four types of membership models ACCS offers: full, nontraditional, transition, and accredited.[51] The major distinction between the four types of memberships is that only accredited members have gone through the ACCS accreditation

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[45] Veith and Kern, *Classical Education,* 22; Leithart, "The New Classical Schooling," 6.

[46] Leithart, "The New Classical Schooling," 6.

[47] Leithart, "The New Classical Schooling," 6; Veith and Kern, *Classical Education,* 22.

[48] Association of Classical Christian Schools, "ACCS Membership Handbook," 7, last modified December 28, 2016, accessed February, 20, 2018, https://classicalchristian.org/wp-content/uploads/2016/12/G-Membership-Handbook-Join-With-Us-12.28.16.pdf.

[49] Association of Classical Christian Schools, "2017 Report," Repairing the Ruins, last modified November 23, 2018, accessed November 23, 2018, https://2018.repairingtheruins.org/2017-report/.

[50] Association of Classical Christian Schools, "Find a School," last modified November 14, 2018, accessed November 14, 2018, https://classicalchristian.org/find-a-school/.

[51] Association of Classical Christian Schools, "ACCS Membership Handbook," 5, last modified December 28, 2016, accessed February, 20, 2018, https://classicalchristian.org/wp-content/uploads/2016/12/G-Membership-Handbook-Join-With-Us-12.28.16.pdf.

process, though a majority of ACCS schools are member schools that are not accredited by ACCS or are transitioning to become ACCS member schools. The present research intended to measure the formal or official school curricula of all ACCS schools offering all secondary grades (9-12), for academic rigor and the integration of faith and learning. Preliminary research of all 290 ACCS schools, identified approximately 140 schools which have websites with official, published, publicly available documents and offer grades 9-12. This study sought to identify the correlation between a classical approach to education, as per the ACCS mission, and the overall academic rigor of these schools through an analysis of the official or planned ACCS school curricula.

The current curricular structure of secondary schools in the United States was founded on recommendations contained in a report published in 1983 by the federal government.[52] After an eighteen-month study, the National Commission on Excellence in Education published *A Nation at Risk: The Imperative for Educational Reform*. The report offered five major recommendations in the areas of (1) content, (2) standards and expectations, (3) time, (4) teaching, (5) leadership and fiscal support. The first two recommendations put forward in the report are central to the research problem. The Commission defined content as the very "stuff" of education. In other words, content is the curriculum.[53] Furthermore, the Commission recommended that the curriculum should be strengthened by changing high school graduation requirements by establishing the following subjects to be taken during four years of high school: (1) four years of English; (2) three years of mathematics; (3) three years of science; and (4) three years of social studies.[54] Within this research, the four aforementioned subjects will be referred to as the "core four."

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[52] National Commission on Excellence in Education, *A Nation at Risk*.

[53] National Commission on Excellence in Education, *A Nation at Risk,* 26. Through an 18-month investigation, the Commission found that the secondary school curriculum had been altered in such a dramatic way that it no longer contained a central purpose.

[54] National Commission on Excellence in Education, *A Nation at Risk,* 32-35.

Regarding standards and expectations, the National Commission on Excellence in Education encouraged schools, colleges, and universities to adopt more rigorous and measurable standards alongside of higher expectations for academic performance. Four-year colleges and universities were also encouraged to raise their admission requirements.[55] Both the curricular changes recommended in *A Nation at Risk* and the call for more rigorous standards, higher expectations, and raised college admission requirements represent key areas of interest for this study. Many of these variables will be used to determine the academic rigor of the Christian liberal arts and sciences curriculum within ACCS member schools. Lastly, *A Nation at Risk* largely focuses on high schools both in the data gathered by the Commission as well as the recommendations made.[56] This project carried those delimitation forward by only focusing on ACCS schools in the United States which include all secondary school or high school grades (9-12).

Christian Liberal Arts and Sciences

The ACCS approach to the curriculum represents a blending of both the knowledge-centered and Christ-centered models of education. This synthetic approach to the curriculum includes the core four couched within a larger classical framework—the Christian liberal arts and sciences. The term "Christian liberal arts and sciences" is drawn from the work of classical educators Robert Littlejohn and Charles T. Evans as well as the earlier work of Arthur F. Holmes.[57] The works of Littlejohn and Evans and Holmes helped to inform this study by describing a framework for genuine, classical Christian education.[58] Two themes at the very heart

[55] National Commission on Excellence in Education, *A Nation at Risk,* 35-37.

[56] National Commission on Excellence in Education, *A Nation at Risk,* 10.

[57] See Littlejohn and Evans, *Wisdom and Eloquence*, 86; Arthur Frank Holmes, *The Idea of a Christian College,* rev. ed (Grand Rapids: Eerdmans, 1987), 36.

[58] Though Holmes's approach to the liberal arts was meant for the Christian college, there is absolutely no reason why his argument and reasoning could not be extended to the world of classical Christian schools as the same approach to the liberal arts curriculum is present in both.

of the CCS framework are wisdom and eloquence. Littlejohn and Evans assert that "the classical liberal arts and sciences, have for centuries, provided and continue to provide the best way to impart genuine wisdom and eloquence to all who are willing to take up the challenge."[59] Though not writing from a Christian perspective, Arthur Ellis makes a similar observation, pointing out that the knowledge-centered model embraces a fixed idea, a recurring theme that there is in fact a wisdom that teachers and other experts possess, one that children simply do not have.[60]

One area where the work of Arthur Holmes influenced this study, is with regard to the integration of faith and learning. Holmes was one of the first evangelical scholars to use the term "integration of faith and learning" (IFL), which he did in *The Idea of a Christian College*.[61] Holmes identified IFL as the distinct task of the Christian liberal arts college.[62] Holmes observed, "In principle Christian perspectives are all-redeeming and all-transforming, and it is this which gives rise to the idea of integrating faith and learning."[63] Aside from classical schools operating as communities of faith and learning, the actual Christian liberal arts curriculum is where the community of faith and learning finds its most thorough expression.[64] Drawing on the collective works of Littlejohn and Evans and Holmes, the term "Christian liberal arts and sciences" represents a meta-category of curriculum combining: the trivium, the quadrivium, the humanities, the core four, and IFL.[65]

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[59] Littlejohn and Evans, *Wisdom and Eloquence*, 21–22. Whereas Dreher focuses on St. Benedict regarding classical Christian education, Littlejohn and Evans use Augustine as the forbearer for their model.

[60] Ellis, *Exemplars of Curriculum Theory*, 108.

[61] Holmes, *The Idea of a Christian College*.

[62] Holmes, *The Idea of a Christian College*, 8.

[63] Holmes, *The Idea of a Christian College*, 45.

[64] Littlejohn and Evans, *Wisdom and Eloquence*, 53.

[65] Many of these terms are different ways of saying the same thing as the liberal arts and sciences are synonymous with the humanities, and the trivium and quadrivium are two parts of the liberal arts and sciences whole. More information on these terms and how they are used within this study as well as how they have historically been used, see the "Terminology" section in chapter 1, as well as the precedent literature in chapter 2. See Horner, "Christian Curricular Emphases and Academic Rigor," for the use of a meta-category in analyzing curriculum for IFL and academic rigor.

Lastly, the work of Kenneth Badley has been used in a significant way within the present study. Badley's work has proven useful to other researchers in examining IFL frameworks and Christian secondary education.[66] To date Badley has identified a total of seven paradigms of IFL.[67] This study utilized the earlier work of Badley wherein his total number of paradigms were limited to five: fusion integration, incorporation integration, correlation integration, dialogical integration, and perspectival integration.[68] This study examined the official core academic curricula as well as the presence or non-presence of a Bible or Christian studies curriculum among all secondary ACCS schools in the United States. Badley's terminology guided the directed content analysis of core curricula descriptions as a means of assessing the Christian liberal arts and sciences curricula for IFL within all ACCS secondary schools with all grades (9-12).[69]

Academic Rigor

A Nation at Risk reset the curriculum of the secondary schools throughout the United States and put forward a recommendation to upgrade textbooks and other tools of learning and teaching to assure more rigorous content.[70] An emphasis on more rigorous content, sometimes described as academic intensity, or challenge associated with a student's course work in high school, have all been terms or phrases synonymous with academic rigor.[71] Beginning with a

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[66] Horner, "Christian Curricular Emphases and Academic Rigor," 8-10; Lesli DeAnn Welch, "An Analysis of the Integration of Faith and Learning in Evangelical Secondary Schools" (EdD thesis, The Southern Baptist Theological Seminary, 2008), 8, 37–39.

[67] Kenneth R. Badley, "Clarifying 'Faith-Learning Integration': Essentially Contested Concepts and the Concept-Conception Distinction," *Journal of Education & Christian Belief* 13, no. 1 (Spring 2009): 7-17.

[68] Ken Badley, "The Faith/Learning Integration Movement in Christian Higher Education: Slogan or Substance?" *Journal of Research on Christian Education* 3, no. 1 (March 1994): 13–33.

[69] Horner, "Christian Curricular Emphases and Academic Rigor," 12.

[70] National Commission on Excellence in Education, *A Nation at Risk,* 36.

[71] Jeffrey N. Wyatt et al., "The Development of an Index of Academic Rigor for College Readiness Research Report No. 2011-11" (College Board, 2012), 6, https://eric.ed.gov/?id=ED561023; Krista D. Mattern and Jeffrey N. Wyatt, "The Validity of the Academic Rigor Index (ARI) for Predicting FYGPA. Research Report 2012-5" (College Board, 2012), 3, https://eric.ed.gov/?id=ED563119.

latitudinal study conducted by Clifford Adelman, Senior Research Analyst for the United States Department of Education, academic rigor has been a topic of numerous reports and empirical studies including a host of quantitative, qualitative, and mixed methods approaches.[72]

One organization which has distinguished itself as a leader in the business of preparing students for college and career success is the College Board.[73] The College Board sponsored two recent academic rigor studies, both helped to empirically define academic rigor through an academic rigor index (ARI) and then test the validity of such an index.[74] The College Board's ARI consists of: SAT scores, high school grade point average, percentage enrolled in college, and first-year grade point average. Standardized test scores such as the SAT as well as the ACT are frequently used as indicators of academic rigor.[75]

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[72] Clifford Adelman, "Answers in the Tool Box, Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment" (Washington, DC: US Department of Education, Office of Educational Research and Improvement, June 1999), https://eric.ed.gov/?id=ED431363; Clifford Adelman, "The Toolbox Revisited: Paths to Degree Completion from High School through College" (Washington, DC: US Department of Education, Office of Educational Research and Improvement, February 2006), https://eric.ed.gov/?ID=ED490195; Jeffrey Wyatt et al., "SAT Benchmarks: Development of a College Readiness Benchmark and Its Relationship to Secondary and Postsecondary School Performance, Research Report 2011-5" (College Board, 2011), https://eric.ed.gov/?id=-ED521173; Wyatt et al., "The Development of an Index of Academic Rigor"; Mattern and Wyatt, "The Validity of the Academic Rigor Index (ARI) for Predicting FYGPA, Research Report 2012-5"; Lela M. Horne, John R. Rachal, and Kyna Shelley, "Academic Rigor and Economic Value: GED® and High School Students' Perceptions and Misperceptions of the GED® vs. the High School Diploma," *Journal of Research & Practice for Adult Literacy, Secondary & Basic Education* 1, no. 1 (Spring 2012): 4–18; Adam S. Beatty et al., "A Comparison of Alternate Approaches to Creating Indices of Academic Rigor, Research Report 2012-11" (College Board, 2013), https://eric.ed.gov/?id=ED562581; John Draeger et al., "The Anatomy of Academic Rigor: The Story of One Institutional Journey," *Innovative Higher Education* 38, no. 4 (August 2013): 267–79; Shannon M. Suldo and Elizabeth Shaunessy-Dedrick, "The Psychosocial Functioning of High School Students in Academically Rigorous Programs," *Psychology in the Schools* 50, no. 8 (September 2013): 823–43; John Draeger, Pixita Prado Hill, and Ronnie Mahler, "Developing a Student Conception of Academic Rigor," *Innovative Higher Education* 40, no. 3 (June 2015): 215–28; Jeff Allen, Edwin Ndum, and Krista Mattern, "An Empirically-Derived Index of High School Academic Rigor, ACT Working Paper 2017-5" (ACT, Inc., June 2017), https://eric.ed.gov/?id=ED583560.

[73] The College Board, "About Us," last modified October 31, 2018, accessed April 16, 2018, https://www.collegeboard.org/about. The College Board was founded in 1900; today it describes itself as "a mission-driven not-for-profit organization that connects students to college success and opportunity." The College Board is made up of over 6,000 of the world's leading educational institutions and is dedicated to promoting excellence in education.

[74] See Wyatt et al., "The Development of an Index of Academic Rigor "; Mattern and Wyatt, "The Validity of the Academic Rigor Index."

[75] Krista Mattern et al., "Broadening the Definition of College and Career Readiness: A Holistic Approach. ACT Research Report Series, 2014 (5)" (ACT, Inc., 2014), https://eric.ed.gov/?id=ED555591; College Board, "Research Foundations: Empirical Foundations for College and Career Readiness," accessed November 27, 2018, https://collegereadiness.collegeboard.org/pdf/research-foundations-college-career-readiness.pdf; Ashley M. Cromwell, Katie Larsen, and Sarah J. Larson, "College Readiness Indicators," *Bulletin*, no. 25 (Pearson, May 2013), http://images.pearsonassessments.com/images/tmrs/tmrs-rin_bulletin_25crindicators_051413.pdf; Beatty et al., "A Comparison of Alternate Approaches to Creating Indices of Academic Rigor. Research Report 2012-11"; Wyatt et

While the SAT and ACT are very similar there are significant differences between the two tests such as: the ACT includes a science section, the SAT includes a math section on which students may not us a calculator, and the ACT is scored on a scale of 1-36 whereas the SAT is scored on a scale of 400-1600.[76] As a result, the two companies have established a conversion table that allows for comparisons between the two tests.[77] Using the concordance conversion tables available on the Princeton Review website when necessary, the SAT was used as an indicator of academic rigor for the present study.

A second indicator for determining academic rigor came by way of evaluating the extent of a school's Advanced Placement courses (AP courses). AP courses, designed by the College Board, offer rigorous college-level curricula and assessments to students in high school. The AP program includes more than 30 courses, each culminating in a standardized exam. Each course taught by a high school teacher and AP certified instructor, is modeled on an equivalent college class. All AP courses and exams are developed by committees of college faculty members and expert AP teachers.[78] Numerous studies and reports have identified AP courses as an indicator for academic rigor.[79] The extent to which AP courses are included in ACCS secondary schools is quite extensive, 72 percent of all ACCS secondary schools provide data on the availability of AP courses within their curriculum.

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al., "SAT Benchmarks."

[76] The Princeton Review, "ACT vs. SAT," last modified December 1, 2018, accessed November 30, 2018, https://www.princetonreview.com/college/act-sat.

[77] The College Board, "Concordance," SAT Suite of Assessments, last modified November 16, 2018, accessed November 30, 2018, https://collegereadiness.collegeboard.org/educators/higher-ed/scoring/concordance.

[78] The College Board "College Credit in High School: Working Group Report," 7, accessed November 27, 2018, https://secure-media.collegeboard.org/pdf/research/college-credit-high-school-working-group-report.pdf.

[79] Allen, Ndum, and Mattern, "An Empirically-Derived Index of High School Academic Rigor ACT Working Paper 2017-5"; Suldo and Shaunessy-Dedrick, "The Psychosocial Functioning of High School Students in Academically Rigorous Programs"; Cromwell, Larsen, and Larson, "College Readiness Indicators"; Wyatt et al., "The Development of an Index of Academic Rigor for College Readiness Research Report No. 2011-11"; Beatty et al., "A Comparison of Alternate Approaches to Creating Indices of Academic Rigor Research Report 2012-11"; Wyatt et al., "SAT Benchmarks."

A third measurement for examining academic rigor was the ranking of colleges and universities to which students are admitted. Selective colleges and universities have been the focus of recent research and discussions regarding the impact these schools have, not only on their students but also on American society.[80] If students have been admitted to top-ranked colleges and universities, then it is more likely that those higher educational institutions perceived a given secondary school as graduating students who have demonstrated academic rigor.[81]

While an imperfect measure, this indicator helped to establish the overall academic rigor of an academic program at a secondary school for two reasons. First, top-ranked colleges and universities, through their admission requirements, have clearly placed an emphasis on measures for college readiness, often described as "college and career readiness." Second, given that top-ranked colleges and universities have an interest in admitting students who can flourish academically, it is likely that they would only admit students judged to have the aptitude and knowledge necessary for higher education. Therefore, ranking the selectivity of the colleges and universities to which a high school's graduates are admitted provided a measure for the overall academic rigor of that high school. Two lists were used, each distributed by the *US News & World Report* containing the top fifty rankings for national liberal arts colleges and national universities. Both lists were combined for a total of one hundred top-ranked schools in the United States.[82]

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[80] Chronicle of Higher Education, "Which Highly Selective Colleges Have the Highest and Lowest Percentages of Asian Undergraduates?" *Chronicle of Higher Education* 65, no. 2 (September 14, 2018): 1; Chronicle of Higher Education, "Selective Colleges Whose Undergraduate Borrowers Accumulated the Lowest Median Federal-Loan Debt, 2015-16," *Chronicle of Higher Education* 64, no. 10 (November 3, 2017): 15; Jeremy E. Uecker, "Social Context and Sexual Intercourse among First-Year Students at Selective Colleges and Universities in the United States," *Social Science Research* 52 (July 2015): 59–71; Catharine B. Hill and Gordon C. Winston, "Low-Income Students and Highly Selective Private Colleges: Geography, Searching, and Recruiting," *Economics of Education Review* 29, no. 4 (August 2010): 495–503; Margarita Mooney, "Religion, College Grades, and Satisfaction among Students at Elite Colleges and Universities," *Sociology of Religion* 71, no. 2 (Summer 2010): 197–215; Douglas S. Massey et al., "Black Immigrants and Black Natives Attending Selective Colleges and Universities in the United States," *American Journal of Education* 113, no. 2 (February 1, 2007): 243–71; Clayton Rose, "Colleges Make America Stronger," *US News—The Report*, January 19, 2018, 12–13.

[81] Horner, "Christian Curricular Emphases and Academic Rigor," 11.

[82] Michael N. Bastedo and Nicholas A. Bowman, "'*US News & World Report*' College Rankings:

This study evaluated the curricula of those ACCS schools with all secondary grades (9-12) by considering three indicators for academic rigor: median SAT scores, percentage of AP courses offered, and acceptance at highly-ranked US colleges and universities.[83]

Research Purpose

This research was intended to explore the correlation of educating along an explicitly classical Christian framework and academic rigor. In my researching academic rigor, college and career readiness, and other such indicators, one phenomenon emerged—a correlation between SAT scores and household income.[84] As a result, one aspect of the research design for this study was to control for the influence of income factors on academic rigor. The purpose of this mixed methods study was to determine and describe the relationship between academic rigor and the Christian liberal arts and sciences within the secondary school curricula of all ACCS schools in the United States.

Research Population

The official ACCS secondary schools' course descriptions which are published, publicly available documents on the website plus other official documentation constituted the research population for this study. The study was a census of all ACCS schools offering all secondary grades (9-12) in the United States as of February 2019. Preliminary research indicated that of the 290 ACCS schools approximately 140 had websites with official, published, publicly

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Modeling Institutional Effects on Organizational Reputation," *American Journal of Education* 116, no. 2 (February 2010): 163–83; James Monks and Ronald G. Ehrenberg, "*US News & World Report's* College Rankings," *Change* 31, no. 6 (December 11, 1999): 42; Eric Hoover, "The '*US News*' Rankings Roll On," *Chronicle of Higher Education* 54, no. 2 (September 7, 2007): 44–44; Brian Rosenberg, "The '*US News*' College Rankings: A Modest Proposal," *Chronicle of Higher Education* 65, no. 1 (September 7, 2018): 1.

[83] Horner successfully demonstrated that each of the indicators of academic rigor outlined for this study help in constructing a foundation by which the relationship between IFL and academic rigor may be ascertained. See "Christian Curricular Emphases and Academic Rigor," 12.

[84] See Ezekiel J. Dixon-Román, Howard T. Everson, and John J. McArdle, "Race, Poverty and SAT Scores: Modeling the Influences of Family Income on Black and White High School Students' SAT Performance," *Teachers College Record* 115, no. 4 (2013): 1–33; Mattern and Wyatt, "The Validity of the Academic Rigor Index"; Hill and Winston, "Low-Income Students and Highly Selective Private Colleges."

available data and offer all secondary grades (9-12).[85] Further analysis revealed, the total number of ACCS secondary schools included in the research population to be 127. See appendix 2 for an exhaustive list of these schools.

Research Questions

1. How are the Christian liberal arts and sciences at ACCS secondary schools expressed as reflected in the presence of Bible courses and integration of faith and learning language to core curricula (English/language arts, history/social studies, mathematics, and science)?

2. How academically rigorous are ACCS secondary school curricula as reflected by median SAT scores, AP courses, and acceptances at the top-ranked colleges and universities in the United States?

3. What is the relationship between the presence of the Christian liberal arts and sciences and overall academic rigor at ACCS secondary schools?

Delimitations of Research

This research was limited to all ACCS schools in the United States. This study has considered all ACCS secondary schools in the United States that offer all secondary grades (9-12); thus, the study constituted a census of the research population. The research population consisted of official, published, publicly available documents found on school websites including course descriptions for English, mathematics, science, and social studies courses taught in secondary grades at ACCS schools within the research population. The research population also examined the presence or absence of Bible and Christian courses at ACCS secondary schools. Finally, the research population considered school or graduate profiles (occasionally referred to as college profiles), which are official, published, publicly available documents, from every ACCS secondary school in the study to provide lists of AP courses, median SAT scores, and recent college and university acceptances. Lastly, the tuition data for every ACCS school in the United States with a secondary program was included in the research population.

[85] See appendix 1 for an exhaustive list of all 290 ACCS member schools as of February 2019.

Terminology

Academic rigor. The measurements of a secondary school's academic program, which for the purposes of this study were defined as number of AP courses available (AP $_{avail}$), median SAT scores (SAT $_{med}$), and acceptance to top ranked colleges and universities (Top Univ).

ACCS. The Association of Classical Christian Schools is an evangelical Christian organization without denominational affiliation. ACCS is the largest and most recognized support and advocacy organization for classical Christian education, boasting 290 member schools. All ACCS member schools are strongly committed to evangelical Christianity.[86]

ACCS schools. Those traditional day schools within ACCS that have all secondary grades (9-12) and are accredited members, full members, or are transitioning to classical.[87]

ACT. The test conducted six times a year by the American College Testing company. One of two major college admissions tests taken by American students. ACT and its competitor SAT have created a conversion table that allows for comparison between the two.[88]

AP. The Advanced Placement program conducted by the College Board. The College Board provides course audits, syllabi, and annual tests conducted nationally each year. The College Board offers over thirty Advanced Placement tests, and many colleges and universities accept scores on those tests as equivalent to one of their own courses.[89]

AP $_{avail}$. A measure of the number of AP courses offered by a secondary school divided by the number of total AP courses available in the College Board's list of AP courses in the core

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[86] Association of Classical Christian Schools, "The Mission of the ACCS," last modified November 21, 2018, accessed November 21, 2018, https://classicalchristian.org/the-mission-of-the-accs/; "ACCS Membership Handbook," Association of Classical Christian Schools, 7-8, last modified December 28, 2016, accessed February, 20, 2018, https://classicalchristian.org/wp-content/uploads/2016/12/G-Membership-Handbook-Join-With-Us-12.28.16.pdf.

[87] Association of Classical Christian Schools, "ACCS Membership Handbook," 5, last modified December 28, 2016, accessed February, 20, 2018, https://classicalchristian.org/wp-content/uploads/2016/12/G-Membership-Handbook-Join-With-Us-12.28.16.pdf.

[88] The College Board, "Concordance," SAT Suite of Assessments, last modified November 16, 2018, accessed November 30, 2018, https://collegereadiness.collegeboard.org/educators/higher-ed/scoring/concordance.

[89] The College Board, "Advanced Placement® (AP)–The College Board," last modified April 16, 2018, accessed April 16, 2018, https://ap.collegeboard.org/.

four courses and expressed as a ratio of the number of students. Schools with more students usually have a greater number of faculty and can offer more AP courses.

Christian liberal arts and sciences. A meta-category of curriculum combining: the trivium, the quadrivium, the humanities, the core four, and IFL. Littlejohn and Evans offer a revised approach to the liberal arts and sciences for classical Christian schools: grammar (reading, writing, spelling, vocabulary, English grammar, literature, history, foreign and classical language, computer navigation); dialectic (logic, debate, civics); rhetoric (persuasive speech, composition, theatrical performance, thesis writing and defense); arithmetic (elementary math through algebra, statistics, calculus, computer science); geometry (plane, solid, geography, visual arts); astronomy expanded to the natural sciences (geology, physics, chemistry, biology); music (theory, history, appreciation, performance, dance, sport); and philosophy and theology.[90]

Classical education. A collection of disciplines, the study of which imparts a set of linguistic skills and knowledge that are transferable to other subjects.[91] Together the seven liberal arts and sciences —the trivium and the quadrivium—have historically been considered the prerequisite to the undertaking of all further learning.[92] The authoritative, traditional, and enduring form of education begun by the Greeks and Romans, developed throughout history and currently being renewed in the late twentieth and early twenty-first century.[93] Veith and Kern propose four elements which define classical education: a high view of man, logocentrism (the idea that organized knowledge can be discovered, arranged, and even taught), a responsibility for

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[90] Littlejohn and Evans, *Wisdom and Eloquence*, 86–88.

[91] Littlejohn and Evans, *Wisdom and Eloquence*, 74; Ravitch, introduction to *Left Back*, 15.

[92] Littlejohn and Evans, *Wisdom and Eloquence*, 31.

[93] Perrin, *An Introduction to Classical Education*, 6.

the Western tradition, and a pedagogy that sustains these commitments.[94] The purpose of classical education is to cultivate human excellence or virtue.[95]

Classical Christian school. A Christian school which holds to evangelical Christian orthodoxy and the Apostles' Creed as well as incorporates the following aspects of schooling throughout the primary and secondary grades: the unification of truth in Jesus Christ, the integration of faith and learning, and a blending of all contents with the trivium, and the quadrivium.[96]

College Board. The division of the Educational Testing Services dedicated to distinguishing high achieving, high school students who are well-prepared for college learning.[97]

Core four. First identified in *A Nation at Risk*, the four main areas (English, math, social studies, and science) of academic study pursued in virtually every American school.[98]

Curriculum. As defined by Posner, Ellis, and Au, a course of study which encompasses a body of content knowledge to be learned in some way, shape, or form.[99]

Great Books. A massive collection of books edited by Robert Maynard Hutchins and Mortimer J. Adler, consisting of roughly one hundred of the works of the West that contain the best in ideas and thought.[100]

Humanities. Everything that belongs to general human learning or humanistic learning. In other words, the humanities include all the subject, a unified curriculum representing

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[94] Veith and Kern, *Classical Education*, 13.

[95] Veith and Kern, *Classical Education*, 14.

[96] Association of Classical Christian Schools, *Membership Handbook*.

[97] Horner, "Christian Curricular Emphases and Academic Rigor," 16.

[98] National Commission on Excellence in Education, *A Nation at Risk*, 32-35.

[99] Ellis, *Exemplars of Curriculum Theory*, 3; Posner, *Analyzing the Curriculum*, 6–12; Wayne Au, "High-Stakes Testing and Curriculum Control: A Qualitative Metasynthesis," in Flanders and Thornton, *The Curriculum Studies Reader*, 286.

[100] George R. Knight, *Philosophy & Education: An Introduction in Christian Perspective*, 4th ed. (Berrien Springs, MI: Andrews University Press, 2006), 115.

the seven liberal arts and sciences.[101] Emerging in the Renaissance this approach toward education placed an emphasis on the seven liberal arts and sciences, the classic Greek authors, Roman authors, the early church fathers and the Bible. One who had mastered their academic studies and was able to grasp the full scope of this literature was referred to as a humanist.[102]

IFL. Acronym for the "integration of faith and learning." The term seeks to describe the integration of the Christian faith and academic learning in various forms. Holmes described integration as combining the positive contributions of human learning to an understanding of the faith and to the development of a Christian worldview.[103]

Integrated humanities. This term is used to describe an approach to Bible, English, and social studies wherein Bible/theology, English/literature, history/social studies, and philosophy are all blended together into one content. Of the 127 secondary schools in the study, seventeen identified such a course within the Christian liberal arts and sciences.

Liberal arts. Originating in classical antiquity as a system of educating those who would be political and cultural leaders in society, though first canonized in medieval times and numbered seven they include: grammar, dialectic, rhetoric, arithmetic, geometry, astronomy, and music.[104]

Paideia. This term is used differently by Adler, Wilson, Hicks, and Littlejohn and Evans, with meanings ranging from a general education to that which is done only by Christians and only for Christians.[105] For the purposes of this research, *paideia* will be defined as the highest ideal of education to which one may aspire.

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[101] Mortimer Jerone *Adler, "Reconstituting the Schools," in Reforming Education: The Opening of the American Mind,* ed. Geraldine Van Doren (New York: Macmillan; London: Collier Macmillan, 1988), 283-84.

[102] Michael J. Anthony and Warren S. Benson, *Exploring the History & Philosophy of Christian Education: Principles for the 21st Century* (Grand Rapids: Kregel, 2003), 171.

[103] Holmes, *The Idea of a Christian College*, 46.

[104] Littlejohn and Evans, *Wisdom and Eloquence*, 29.

[105] Adler, *The Paideia Proposal*; Adler, *Paideia Problems and Possibilities*; Adler, *The Paideia Program*; Wilson, *Paideia of God*; Wilson, *Case for Classical Christian*, 107–13; Hicks, *Norms & Nobility*, 90–104; Littlejohn and Evans, *Wisdom and Eloquence*, 44.

Perennialism. A philosophy of education which rejects the progressive perspective and maintains that human beings are rational, human nature is consistent, knowledge is consistent, subject matter is central to education, the great works of the past contain a repository of wisdom and knowledge, and education is preparation for life.[106]

Perennialist. An educator who subscribes to the philosophy of perennialism. Perennialists see the purpose of education as the cultivation of the mind through the study of great ideas and permanent or lasting truths.[107]

Progressivism. A philosophy of education which arose as a reaction against traditional, formal methods of instruction. Knight lists six principles of progressivism: education is child-centered, students are active not passive in learning, the teacher is a facilitator and guide, the school is a microcosm of society, a preference for problem-solving as a method, a cooperative and democratic social atmosphere.[108]

Quadrivium. The latter part of the seven liberal arts, the traditional medieval university curriculum consisting of: arithmetic, geometry, astronomy, and music.[109]

SAT. The Scholastic Admissions or Aptitude Test administered since 1901 by the College Board. The test originally sought to identify highly qualified high school students for colleges and universities.

Secondary education. American school grades 9, 10, 11, and 12. Distinguished from primary education (kindergarten until fifth grade) or middle grades education (grades 6, 7, and 8).

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[106] Knight, *Philosophy & Education*, 114–19.

[107] Ellis, *Exemplars of Curriculum Theory*, 129.

[108] Knight, *Philosophy & Education:* 109–19.

[109] Anthony and Benson, *Exploring the History & Philosophy*, 55; Littlejohn and Evans, *Wisdom and Eloquence*, 29.

Seven liberal arts and sciences. A combination of the trivium and the quadrivium.[110] Emerging in the Renaissance this approach toward education placed an emphasis on the liberal arts, the classic Greek authors, Roman authors, the early church fathers and the Bible.[111]

Top-ranked colleges and universities. These are the fifty national liberal arts colleges and the fifty national universities ranked by *US News & World Report*. Both lists were combined in order to provide better indicator for one measure of academic rigor among ACCS secondary schools.

TopCU. This represents the aggregate score of a combined list of the fifty national liberal arts colleges and the fifty national university rankings by *US News and World Report* for the purpose of assessing a high school's success at helping students achieve admission to top-ranked colleges and universities.

Trivium. The first part of the seven liberal arts, representing the three subjects or arts of grammar, logic, and rhetoric which together make up the Western tradition for learning and language study.[112]

Sample and Delimitations

The present study constituted a census of all ACCS secondary schools in the United States offering all secondary grades (9-12). The content was exhaustively sampled. All official, published, and publicly available content meeting the delimitations were analyzed. Only constituent schools' courses in English, math, social studies, and science, were included in the directed content analysis phase. The school's academic profile or college profile, which is annually distributed to colleges was also part of the quantitative data collection phase, along with the school's list of recent college acceptances (when separate from the college profile).

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[110]Anthony and Benson, *Exploring the History & Philosophy*, 55; Littlejohn and Evans, *Wisdom and Eloquence*, 29.

[111]Anthony and Benson, *Exploring the History & Philosophy*, 171.

[112] Anthony and Benson, *Exploring the History & Philosophy*, 55; Littlejohn and Evans, *Wisdom and Eloquence*, 29.

Limitations of Generalization

This study constituted a census, as it analyzed the official, published, publicly available course descriptions of all ACCS member schools with secondary programs in the United States. The findings of this study may not generalize to institutions dedicated to vocational training at the secondary level, nor populations that do not seek to integrate faith and learning. Since the study was a census, it should generalize to all ACCS secondary schools in the United States but may not generalize to institutions beyond the ACCS schools in the study.

Methodological Design

The present study was a correlational descriptive mixed methods research design. The research project was descriptive in nature and used a convergent data-transformation design wherein the qualitative research involved underwent a content analysis to determine the presence of IFL language within the Christian liberal arts and sciences. The quantitative research phase assessed academic rigor from official, published, publicly available ACCS school profile or college profile data about median SAT, AP courses, and recent college acceptances. The study involved a concurrent data collection process for both the quantitative and qualitative data, followed by a data-transformation process in which qualitative data was quantitized.[113] After quantitizing the qualitative data, Christian liberal arts and sciences data and academic rigor data was then analyzed to assess the relationship between the four core academic fields in the Christian liberal arts and sciences and median SAT scores, percentage of AP courses offered, and acceptance into highly ranked colleges and universities.[114]

The basis for the research problem was the extent to which ACCS school curricula correlate to their academic priorities of a knowledge-centered and Christ-centered curriculum.

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[113] The term quantitized was coined to describe the process of transforming coded qualitative data into quantitative data, see David L Driscoll et al., "Merging Qualitative and Quantitative Data in Mixed Methods Research: How to and Why Not" 3, no. 1 (2007): 20. The mixed methods methodology of a concurrent data collection process for both the quantitative and qualitative data, followed by a data-transformation process wherein the qualitative data is quantitized, closely follows one design suggested by Driscoll et al.

[114] John W. Creswell, "Choosing a Mixed Methods Design," in *Designing and Conducting Mixed Methods Research*, 2nd ed. (Thousand Oaks, CA: Sage Publications, 2010), 81.

The qualitative stage involved a directed content analysis of all the ACCS secondary schools' official, publicly available, published course descriptions for English, social studies, sciences, and mathematics courses. Course descriptions indicated whether ACCS secondary schools had separate Bible or Christian studies courses. ACCS secondary schools' course curricula and course descriptions were examined using word frequency counts including wildcards, word stems, and synonyms of terms highlighted as important in Kenneth Badley's five paradigms of Faith/Learning Integration from his 1994 IFL article.[115] The content analysis was applied across all secondary grades levels (9-12) in the United States to ascertain if ACCS schools truly have integration in their official curriculum The content analysis revealed the frequency of use of Christian specifications in course descriptions of the core four. If a separate Bible curriculum was absent, then the course descriptions were the primary basis for establishing whether a school had a focus on IFL through the Christian liberal arts and sciences and the extent of such in the instructional life of the school.

The quantitative stage sought to develop a baseline for assigning the term "academic rigor" to ACCS secondary schools. The baseline was then applied to all ACCS secondary schools in the research population by examining SAT and ACT scores, (converted to SAT scores through The Princeton Review conversion tables), AP course offerings, and college acceptances at top-ranked US colleges and universities. The findings were then be analyzed using quantitative data to examine the correlation between academic rigor and Christian liberal arts and sciences curricula. Once the findings were analyzed, grouped, and refined, a descriptive framework of classical Christian curricula and academic rigor at all ACCS secondary schools in the research population was established. These findings enable the continued development of an exemplar curricula description for CCS schools, displaying both academic rigor and the integration of faith and learning within the Christian liberal arts and sciences.

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[115] Badley, "The Faith/Learning Integration Movement," 25.

Research Assumptions

1. All information accessible to a member of the general public via electronic formats, email, websites, or otherwise, was considered public data.
2. Public data was an accurate reflection of the intention of the institution publishing the data.
3. Public data was accurate as published.
4. Special permissions were not required for anonymous data analysis for research purposes.
5. Badley had accurate characterizations of IFL.

Instrumentation

This study represented a correlational descriptive mixed methods research design. The qualitative portion of the research used a directed content analysis to detect the presence or non-presence of IFL language in course descriptions for secondary grade courses in English, math, social studies, and science. The qualitative portion of the study detected the presence or non-presence of a separate Bible or Christian studies curriculum. The qualitative portion of the study used the NVivo 12 Pro software package, produced by QSR International. This software enabled accurate, fast analysis of numerous course descriptions. The quantitative portion of the study utilized the following indicators for academic rigor: median SAT scores, the percentage of AP course offerings available, and the percentage of top colleges and universities to which students were admitted. After collecting all available information about academic rigor at ACCS schools, I determined whether meaningful inferential statistics could be performed on the resultant data.

Research Competencies to Conduct the Study

This mixed method study required me to be adept at collecting, sorting, and analyzing both qualitative and quantitative data. I had to be familiar with and skilled at using empirical research instruments to accurately synthesize and analyze all the data that was collected.

The qualitative research phase required me to visit the website of every ACCS secondary school in the United States. A vast amount of data was collected and then converted

into a file format readable by the NVivo 12 Pro software. A knowledge of Badley's categories and language, was necessary in order to detect the presence of IFL language in the course descriptions and to record the coding processes and protocols.

The quantitative research phase also required me to visit the website of every ACCS secondary school in the United States to access the college profile data, as well as SAT, and AP courses available. When ACT scores were reported, I used the published accepted concordance available through the Princeton Review website. Median family income for families with children ages 18 and under for the ZIP code in which the school is located as well as surrounding locations was accessed using the US Census Bureau website. Percentage of AP courses offered at ACCS member schools out of the possible AP courses available in each discipline according to the College Board's list of possible AP courses was also calculated.

The data-transformation and mixing were essential for statistical analyses, I used the SPSS software package for these procedures. This process required me to convert the information regarding IFL to a percentage, as well as to convert information about the school's tuition data relative to the median family income in their ZIP codes into a percentage of the school's tuition, and to perform meaningful inferential statistics using the SPSS software package (ANOVA and ANCOVA).

Conclusion

Although the CCS movement represents a new arrival to the field of contemporary American education, the merits of such an approach to schooling continue to gain national attention. Likewise, classical educators argue that the curriculum found within CCS schools is an approach that is superior to that of progressive education, as ACCS school curricula represents a blending of both the knowledge-centered and Christ-centered models of education.[116] This study

[116] Ellis observed that "debates between the knowledge-centered, learner-centered, and society-centered approaches to the curriculum lack any sort of empirical support for the clear and definite superiority of one view over-and-above the others." Ellis, *Exemplars of Curriculum Theory*, 95.

represented a correlational descriptive mixed methods research design by examining the relationship between IFL and academic rigor at all ACCS secondary schools with all secondary grades (9-12) in the United States. I first identified all ACCS secondary schools with all secondary grades (9-12) within the United States to conduct a census of specified indicators of academic rigor. Upon collecting and examining such data, I conducted a second census of the same schools took place to determine the degree of IFL within the Christian liberal arts and sciences curricula using Badley's 1994 paradigms. By examining IFL of all ACCS secondary schools within the research population, this study sought to identify the correlation between academic rigor and the Christian liberal arts and sciences.

CHAPTER 2

PRECEDENT LITERATURE

Classical Christian schools (CCS), the integration of faith and learning (IFL), and academic rigor represent three significant topics within the field of Christian secondary education. Much has been written about each of these areas as the present chapter will demonstrate, yet research synthesizing these variables is limited, therefore the present study was both timely and necessary in filling this void. This study of CCS schools' rests on an understanding of classical education as being primarily a curricular approach, one that integrates evangelical Christianity with the liberal arts and sciences. This chapter first will focus on the classical curricula and the philosophical and theological foundations of classical Christian education (CCE), then turn to a discussion of the qualitative and quantitative variables of this mixed methods study.

With the growing attention that the CCE movement has received, along with the emergence of more CCS schools across the United States, an analysis of the academic rigor of these institutions was necessary.[1] One common yet significant entry point for measuring such schools is through an analysis of the classical curricula. Of primary

[1] For discussions of particular aspects of the CCS movement in the United States, see David Hicks, "Is Classical Education Still Possible?" FORMA, December 5, 2017, https://formajournal.com-/article/possible; Josh Herring, "No, A Classical Education Is Not Impossible to Revive in America's Degenerate Society," *The Federalist*, September 12, 2017, http://thefederalist.com/2017/09/12/no-classical-education-not-impossible-revive-americas-degenerate-society/; Katherine Burgess, "Classical Christian Education Looks to Past, Thrives Today," *Wichita Eagle*, July 15, 2017; John J. Miller, "Back to Basics," *National Review* 67, no. 19 (October 19, 2015): 42–44; Mark Eckel et al., *Perspectives on Your Child's Education: Four Views*, ed. Timothy P. Jones (Nashville: B&H Academic, 2009); Peter J. Leithart, "The New Classical Schooling," *Intercollegiate Review* 43, no. 1 (2008); Christopher A. Perrin, *An Introduction to Classical Education: A Guide for Parents* (Camp Hill, PA: Classical Academic Press, 2004); David V. Hicks, *Norms & Nobility: A Treatise on Education* (Lanham, MD: University Press of America, 1999).

interest for this study, was the degree to which the classical curricula—the seven liberal arts and sciences—provided academic rigor for students at ACCS secondary schools.

The Liberal Arts and Sciences

Arthur F. Holmes argued that the liberal arts and sciences refer to a set of academic disciplines which can be traced back to the Middle Ages. The Medieval curriculum consisted of a trivium and a quadrivium. The trivium representing the art of language and the quadrivium the art of reasoning and abstract thought.[2] In other words, the liberal arts and sciences are a group of disciplines having to do with both language and thinking, the former were the focus of a humanistic and rhetorical emphasis, while the latter reflected a more philosophical emphasis.[3] Holmes concludes that "by the time we get to the eighteenth and nineteenth-centuries, the extension of the liberal arts broadens and becomes synonymous with classical education."[4] In this vein and for the purposes of this chapter the liberal arts will be used synonymously with classical education and the seven liberal arts and sciences.

Classical Education

In *Classical Education: The Movement Sweeping America*, Veith and Kern synthesize four different contemporary approaches to classical education by offering the following definition, "classical education is the deliberate training in perceiving the true, the good, and the beautiful through the tools of learning."[5] They propose four elements which define classical education: a high view of man, logocentrism (the idea that

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[2] Arthur Frank Holmes, *The Idea of a Christian College*, rev. ed. (Grand Rapids: Eerdmans, 1987), 26.

[3] Arthur F. Holmes, *Building the Christian Academy* (Grand Rapids: Eerdmans, 2001), 11.

[4] Holmes, *The Idea of a Christian College*, 26.

[5] Gene Edward Veith Jr. and Andrew Kern, *Classical Education: The Movement Sweeping America*, ed. Brian Phillips, 3rd ed. (Washington, DC: Capital Research Center, 2015), 16.

organized knowledge can be discovered, arranged, and even taught), responsibility for the Western tradition, and a pedagogy that sustains the three aforementioned commitments. Whereas Veith and Kern emphasize pedagogy, others have approached classical education in a different light.

While scholars like J.M. Roberts emphasize the "classical" in classical education as a measurable standard, other educators and researchers have used "classical" to describe specific aspects of education.[6] For example, classical educator Christopher Perrin defines classical education as the very educational methods the Greeks and Romans used.[7] Wilson provides a definition similar to Perrin's stating that classical education "includes two basic things—the methodology of the trivium and the heritage of Western civilization."[8] Each of these approaches to classical education is instructive, yet there is more to the liberal arts and sciences than a pedagogical method, a measurable standard, or the Western tradition.

The classical curriculum. Several educators and theorists have described classical education as a robust curriculum.[9] For the purposes of this research project Robert Littlejohn and Charles T. Evans definition of classical education will be used. These classical educators view the liberal arts as a curricular structure and framework.

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[6] For examples of different approaches to classical education, see J. M. Roberts, *A History of Europe* (New York: Allen Lane, 1997); Veith and Kern, *Classical Education*; Scott Calhoun, "The Classical Trivium in Contemporary Contexts: Receptions and Re-Formations of an Ancient Model of Schooling" (PhD diss., Bowling Green State University, 1999); Eileen Joy Dietrich, "Leading Classical Christian Schools: Job Satisfaction, Job Efficacy, and Career Aspirations" (EdD diss., Fordham University, 2010); Eileen J. Council and Bruce S. Cooper, "Leading Classical Christian Schools: An Exploratory Study of Headmasters," *Journal of Research on Christian Education* 20, no. 2 (May 2011): 117–37; Timothy James Dernlan, "Spiritual Formation: A Comparative Study of Modern and Classical Christian Schools" (EdD diss., Ashland University, 2015); Rod Dreher, *Benedict Option* (New York: Sentinel, 2017).

[7] Perrin, *An Introduction to Classical Education*, 6.

[8] Douglas Wilson, *The Case for Classical Christian* (Wheaton, IL: Crossway, 2003) 132.

[9] See Robert Littlejohn and Charles T. Evans, *Wisdom and Eloquence: A Christian Paradigm for Classical Learning* (Wheaton, IL: Crossway Books, 2006), 71–88; Veith and Kern, *Classical Education*, 17–20; Michael J. Anthony and Warren S. Benson, *Exploring the History & Philosophy of Christian Education: Principles for the 21st Century* (Grand Rapids: Kregel, 2003) 55; Hicks, *Norms & Nobility*, 66, 110, 132.

Littlejohn and Evans define classical education as "a collection of disciplines, the study of which imparts a set of linguistic skills and knowledge that are transferrable to other subjects."[10] In short, the liberal arts and sciences, when operating as a curriculum, represent one of the greatest creations of Western thought.[11]

Summary

Classical education is a well-established, comprehensive approach to education, artfully cultivated over time and drawing from the rich inheritances of the Middle Ages. Together the seven liberal arts and sciences —the trivium and the quadrivium—have historically been considered the prerequisite to the undertaking of all further learning.[12] With a definition of the liberal arts and sciences firmly in place and situated within a larger historical context, focus turns to the theological and philosophical foundations of classical Christian education to better understand ACCS and the classical Christian school movement. One prominent classical Christian educator has argued that CCE is grounded on a dialectic between pagan humanism and Christianity.[13] If that is the case then what is the nature of such an approach to Christian education? The next section elaborates on the theological and philosophical foundations of CCE.

Contemporary Christian Foundations of Classical Education

The current classical Christian movement in the twenty-first century is one carefully orchestrated attempt to marry a Christian philosophy of education with the content of the classics. In his seminal work, *Philosophy & Education*, George Knight argues that a Christian philosophy of education covers a great deal of common ground

[10] Littlejohn and Evans, *Wisdom and Eloquence,* 74.

[11] Veith and Kern, *Classical Education,* 20.

[12] Littlejohn and Evans, *Wisdom and Eloquence,* 31.

[13] Hicks, *Norms & Nobility,* 91.

with what might be understood as a theology of education.[14] Knight supports this assertion, explaining that the basic perspective of biblical Christianity sees no bifurcation between philosophy and theology, for the Bible sheds light on metaphysics, epistemology, and axiology.[15] Given Knight's view of the philosophical-theological aspects of education, this section will approach classical Christian education from two distinct yet overlapping perspectives. The first will unpack the philosophical commitments which are contained in the Christian liberal arts and sciences curriculum, followed by a similar treatment on the theological convictions embedded in the approach to CCE championed by ACCS.

Philosophical Commitments

The CCS movement exemplifies philosophical commitments regarding objective truth, the wisdom of the trivium, the intellectual heritage of Western civilization, and an educational philosophy known as perennialism. Though the scope and sequence of the liberal arts can be traced back to the Middle Ages, the philosophical foundations for the classical Christian school movement gained traction in the middle of the twentieth-century in two separate works delivered as lectures. First, a series of lectures on education delivered by C. S. Lewis, later published as a book under the title *The Abolition of Man; or, Reflections on Education with Special Reference to the Teaching of English in the Upper Forms of School*.[16] A few years later, a young classicist named Dorothy Sayers gave a lecture at Oxford, later published under the title, "The Lost

[14] George R. Knight, *Philosophy & Education: An Introduction in Christian Perspective*, 4th ed. (Berrien Springs, MI: Andrews University Press) 168. On describing this work as seminal, Knight first published *Philosophy & Education* in 1980; to date it is in its 4th ed., published in 2006.

[15] Knight, *Philosophy & Education*, 168.

[16] C. S. Lewis, *The Abolition of Man; or, Reflections on Education with Special Reference to the Teaching of English in the Upper Forms of Schools* (San Francisco: HarperOne, 2001); Holmes, *Building the Christian Academy*, 103; Holmes, *The Idea of a Christian College*, 32; Wilson, *Case for Classical Christian*, 96; Douglas Wilson, *Recovering the Lost Tools of Learning* (Wheaton, IL: Crossway, 1991), 63–65; Richard M. Gamble, ed., *The Great Tradition: Classical Readings on What It Means to Be an Educated Human Being* (Wilmington, DE: Intercollegiate Studies Institute Books, 2017), 596.

Tools of Learning." In challenging modern education, both lectures sounded an alarm. Whereas Lewis called for a return to ideals and objective truth, Sayers advocated for the reunion of teaching methods, something progressive education sought to divorce itself from.

In their writings, both Lewis and Sayers offer pointed criticisms on the dire state of education within Great Britain and provide suggestions for how to escape the current situation. Though the collective arguments were made against British education, the larger educational movement which Sayers and Lewis both attacked—progressivism—was an educational movement at the time that was running rampant in Great Britain and the United States.[17] *The Abolition of Man* and "Lost Tools of Learning" have had a tremendous impact on the CCS movement, both works argue for the recovery of classical education, grounded in medieval scholasticism.

The Abolition of Man is regarded by some classical educators as one of Lewis's finest books and represents a provocative analysis of modern education.[18] In the book, Lewis wages an all-out assault on the presuppositions of the progressive educational philosophy of his day. Lewis laments, that allowing room only for observable facts and in turn treating value judgements as merely subjective feelings will result in producing "men without chests."[19] Instead, Lewis argued persuasively for modern educators to turn back to the classics and listen to the voices of the past—Augustine, Aristotle, and Plato—

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[17] Knight, *Philosophy & Education*, 104–10; Ravitch, *Left Back*, 53-61. Knight describes progressive education as the dominant theory in American education from the 1920s to the 1950s. Knight identifies six principles of progressivism: education should be child-centered, learning should be active, the teacher as facilitator or advisor rather than authoritarian director, school as a microcosm of society, classroom activity should focus on problem solving, and the social atmosphere should be cooperative and democratic. Likewise, Diane Ravitch describes progressivism as encompassing four ideas which taken together collectively undermined the premise that all students should study a solidly academic curriculum as was offered in the liberal arts. Ravitch's ideas are: (1) education was understood to be a science so the methods and ends of education could be measured with precision, (2) education should be child-centered, (3) education could prepare children for a specific role in society, and (4) education could be changed in ways that would reform society.

[18] Gamble, *The Great Tradition*, 596; Wilson, *Recovering the Lost Tools*, 63–64.

[19] Holmes, *Building the Christian Academy*, 103.

in order to recover the formative nature of education, along with a sense of objective truth.[20] This argument for universals and absolutes is one reason Lewis's only book on education resonates with so many classicists and classical Christian educators today.[21]

Like Lewis, Dorothy Sayers opposed the programs for educational reform circulating in Britain after World War II. Gamble describes "The Lost Tools of Learning" as Sayers turning the tables on modernity by suggesting that the very thing modern man cherishes most can only be salvaged by recovering the wisdom of the Middle Ages.[22] Sayers suggests, the panacea for true educational reform consists of securing the tools of medieval scholasticism through grammar, logic, and rhetoric—the trivium.[23] What is unique to Sayers argument is her exclusive emphasis on the trivium as a method, a pedagogical technique, as opposed to a curriculum.[24] According to Sayers, the trivium did not represent subjects at all but only methods of dealing with subjects.[25] In fact, she saw the whole of the trivium as being intended to teach the pupil the proper use of the tools of learning before they began to apply the tools to subjects.[26] Sayers understanding of the trivium rests on three enduring factors: the need for students to accumulate the tools for learning, the process by which any subject can be learned, and the developmental stages of a child's growth.[27] Sayers even went so far as to argue that the sequence of the trivium

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[20] Lewis, *Abolition of Man*, 13–17.

[21] Lewis's influence on the classical Christian school movement can be observed in at least two ways. First, *The Abolition of Man* is included on the ACCS Membership Handbook "Suggested Reading List." Second, Lewis is frequently mentioned in the works of Richard Gamble, Arthur F. Holmes, Gene Veith Jr. and Andrew Kern, and Douglas Wilson.

[22] Gamble, *The Great Tradition*, 602.

[23] Gamble, *The Great Tradition*, 602.

[24] Gamble, *The Great Tradition*, 602. This point of departure will be picked up by Littlejohn and Evans as a misstep which their work intends to correct, see *Wisdom and Eloquence*, 39.

[25] Dorothy L. Sayers, "The Lost Tools of Learning," *National Review* 31, no. 3 (January 19, 1979): 92.

[26] Sayers, "The Lost Tools of Learning," 92.

[27] Veith and Kern, *Classical Education*, 24.

complements human development as the three component parts correspond to three stages in a child's growth.[28]

Disillusioned with the state of American education in the late 1970s and early 1980s, Douglas Wilson joined with other concerned Christian parents in his community to pray for a solution.[29] The result was the formation of Logos School, the first classical Christian school in Moscow, Idaho.[30] Roughly ten years after opening Logos, Crossway published *Recovering the Lost Tools of Learning* wherein Wilson describes his journey in creating a classical Christian school, lays out his larger vision for classical Christian education, and provides a formula for similar schools to follow.[31]

Wilson's thinking on education was strongly influenced both by his Reformed background as a pastor, as well as his exposure years earlier to Sayers "The Lost Tools of Learning" which he encountered in an issue of *National Review* while serving in the Navy.[32] The hallmark of the ACCS approach is a dedication to Sayers' understanding of the trivium.[33] Picking up on Sayers' view of the trivium, Wilson narrowly sees classical education as two things—the methodology of the trivium and the heritage of Western

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[28] Veith and Kern, *Classical Education,* 24. While Sayers identifies developmental stages of intellectual growth, she stays away from any developmental theories gleaned from psychology, instead offering her own subjective understanding of such stages. For twentieth-century research in developmental psychology which at times overlaps with Sayers own observations, see Jean Piaget, *The Psychology of Intelligence* (London: Routledge & Paul, 1950); Jean Piaget, *Science of Education and the Psychology of the Child* (New York: Orion Press, 1970); Jean Piaget, *Memory and Intelligence* (New York: Basic Books, 1973); Jean Piaget, *To Understand Is to Invent: The Future of Education.* (New York: Grossman Publishers, 1973); Jean Piaget, *The Essential Piaget* (New York: Basic Books, 1977).

[29] Veith and Kern, *Classical Education,* 22; Wilson, *Recovering the Lost Tools*, 13–14. For works on the state of American education during the middle and latter part of the twentieth-century, see Diane Ravitch, *The Schools We Deserve: Reflections on the Educational Crises of Our Times* (New York: Basic Books, 1985) and Ravitch, *Left Back.*

[30] Veith and Kern, *Classical Education,* 22.

[31] Much of what Wilson included in *Recovering the Lost Tools* influenced the organization of ACCS.

[32] Leithart, "The New Classical Schooling," 6.

[33] Veith and Kern, *Classical Education,* 24.

civilization.[34] Wilson describes his approach to Christian education as "classical and Christ-centered education."[35]

Lastly, a dependence on the educational philosophy known as perennialism can be seen within the CCS movement.[36] Perennialism represents a reaction against progressive education, advocating a return to the absolutes through a focus on the time-honored ideas of human culture—those ideas that have proven their validity and usefulness by having withstood the test of time.[37] Knight argues that the key to understanding perennialism is the concept of a liberal or classical education, those studies that have historically been understood to make people free and truly human.[38] Perennialists argue that the liberal arts and sciences are the only curriculum for the development of the free or liberal person.[39] A distinctive feature of perennialism is a mode of teaching and learning centering on a collection of "Great Books" consisting of

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[34] Wilson, *Case for Classical Christian*, 132.

[35] Wilson, *Recovering the Lost Tools*, 97. The Christ-centered aspect of Wilson's approach will be unpacked in the next section on the theological convictions of ACCS. Suffice to say, Wilson understands Christ-centered to mean an approach to education wherein all subjects are presented as parts of an integrated whole with the Scriptures at the center. Wilson, *Recovering the Lost Tools*, 58–60.

[36] See Veith and Kern, *Classical Education*, 31–46. While perennialists offer their own brand or type of classical education reform, the argument made here is that Knight's principles of perennialism are carried over into the classical Christian school movement. Other researchers studying classical Christian schools have mentioned perennialism in their work, but a survey of the available literature reveals that no one as of yet has closely associated perennialism with ACCS schools. There is sufficient proof within the literature that this connection can be made as the rest of this section will argue.

[37] Knight, *Philosophy & Education*, 114; Arthur K. Ellis, *Exemplars of Curriculum Theory* (Larchmont, NY: Eye on Education, 2004), 109–10, 128–30. Knight describes perennialism using six fundamental principles: (1) people are rational beings, (2) human nature is universally consistent, (3) knowledge is universally consistent, (4) the subject matter stands at the center of education, (5) the great works of the past contain a repository of knowledge and wisdom which is still relevant in any time period, and (6) education is preparation for life. Knight, *Philosophy & Education*, 110–13.

[38] Knight, *Philosophy & Education*, 114. Perennialism is founded upon an updated approach to Thomism or scholasticism, as a result, perennialism is often described as an educational philosophy grounded in Neo-Thomism or Neo-Scholastic thought. See Anthony and Benson, *Exploring the History & Philosophy*, 396-99; and Knight, *Philosophy & Education*, 54–60.

[39] Knight, *Philosophy & Education*, 115; Ellis, *Exemplars of Curriculum Theory*, 129–30.

fiction, poetry, essays, history, science, and philosophy.[40] An emphasis on the "Great Books" as an aspect of the classical curricula can be seen in the ACCS Handbook.

The two most influential representatives for perennialism were Robert Maynard Hutchins and Mortimer J. Adler.[41] Both men were active lecturers and writers who sought to shape public sentiment in favor of the liberal arts for over fifty years.[42] Veith and Kern argue that Hutchins and Adler are the two men most responsible for the revival of classical education in the late twentieth and early twenty-first century.[43] Ravitch describes the team as "the Don Quixote and Sancho Panza of American education, tilting at the huge windmill of the education establishment on behalf of the 'Great Books'."[44]

The CCS movement aims to recover what has been lost in the progressivism of the twentieth-century. CCE is grounded in objective truth, an appreciation for the liberal arts—especially the trivium, a respect for the heritage of Western civilization, an emphasis on the humanities, and a love for the "Great Books." These philosophical

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[40] Mortimer Jerome Adler, *The Paideia Proposal: An Educational Manifesto,* 1st Touchstone ed. (New York: Simon and Schuster, 198), 28-30. These works are seen not only as examples of human artistry but also as a means to engage students in disciplined conversation about transcendent ideas and values, what is known as the great conversation.

[41] Knight, *Philosophy & Education,* 115. For a helpful treatment on the role of Hutchins and Adler in the larger American conversation on education, see Ravitch, *Left Back,* 298-307. For classical Christian educators interacting with the ideas and legacy of Adler, see Veith and Kern, *Classical Education,* 31–46; Wilson, *Case for Classical Christian,* 32–33, 37–38, 46–47; Hicks, preface to *Norms & Nobility,* v–vii.

[42] Knight, *Philosophy & Education,* 115. The high watermark for this mission was the release of a series of books in the 1980s which provided an educational program, curriculum, and syllabus for the full scale implementation of the humanities—the general learning that should be the possession of all human beings—for the first twelve years of American education, see Adler, *The Paideia Proposal*; Adler, *Paideia Problems and Possibilities*; Adler, *The Paideia Program*; Adler, *Reforming Education*. John Hattie recently compiled a meta-analyses of over 800 education studies related to achievement. In one of the studies within Hattie's meta-analysis, the effectiveness of Adler's Paideia Program on student learning was measured after being introduced into ninety-one schools in a North Carolina school district. To Hattie's surprise, the effectiveness of teacher's improved, even those described as "below average" and there was a desired increase in state achievement scores. See John Hattie, *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement* (New York: Routledge, 2009), 215.

[43] Veith and Kern, *Classical Education,* 21.

[44] Ravitch, *Left Back,* 298.

commitments represent some of the aims and purposes of CCE. For a consideration of the total aims and purposes of the CCE movement and given the nature of research within a theological institution, an analysis of the theological convictions is necessary.

Theological Convictions

From a theological standpoint, ACCS has identified itself with evangelical Christianity.[45] This self-identification is signaled by the organization's official statement of faith which includes a word-for-word rendering of the Apostles' Creed, as well as bulleted doctrinal statements drawn from select chapters of the Westminster Confession of Faith.[46] Mark Noll has described Christianity as being defined by the person and work of Jesus Christ.[47] Furthermore, this person and his work must be considered in the fullness of the Christian faith, therefore the Trinity—Father, Son, and Spirit in the unity of the Godhead—provides an essential starting point for understanding Christianity.[48] Finally, intrinsic to all Christian realities is the person of Christ and the meaning of his work for humanity within human history. To understand him and to fathom his work is to approach the center of Christianity itself.[49]

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[45] Douglas Wilson, *The Paideia of God and Other Essays on Education* (Moscow, ID: Canon Press, 1999) 55. In the introduction to *Repairing the Ruins* Wilson uses the term "evangelical Protestantism," to describe the historic confessions of the Reformation, therefore evangelical Protestantism is synonymous with historic Protestant orthodoxy. See Douglas Wilson, "Introduction to Antithesis in Education" in *Repairing the Ruins: The Classical and Christian Challenge to Modern Education*, ed. Douglas Wilson, (Moscow, ID: Canon Press, 1996) 21.

[46] Wilson, *Paideia of God*, 55; Association of Classical Christian Schools, *ACCS Membership Handbook*, 7-8, last modified December 28, 2016, accessed February, 20, 2018, https://classicalchristian-.org/wp-content/uploads/2016/12/G-Membership-Handbook-Join-With-Us-12.28.16.pdf. For treatments on the theological significance of the Apostles' Creed and the Westminster Confession of Faith, see Mark A. Noll, *Jesus Christ and the Life of the Mind* (Grand Rapids: William B. Eerdmans Pub, 2011), 1–22; and Justo L. González, *A History of Christian Thought*, vol. 3, *From the Protestant Reformation to the Twentieth-Century*, 3 (Nashville: Abingdon Press, 1975) 269–72.

[47] Mark A. Noll, introduction to *Jesus Christ and the Life of the Mind*, ix.

[48] Noll, introduction to *Jesus Christ and the Life of the Mind*, ix.

[49] Noll, introduction to *Jesus Christ and the Life of the Mind*, ix.

Evangelical Christianity emerged after World War II and has been described as a theological orientation more willing to engage with the larger culture than its predecessor, Protestant fundamentalism.[50] British-historian David Bebbington developed a quadrilateral of priorities which forms the basis of evangelicalism.[51] Bebbington's quadrilateral consists of four distinctives: biblicism (confidence that the Bible is God's inerrant Word), conversionism (belief that one must come to a saving knowledge of Christ), crucicentrism (belief that the cross and the resurrection represent the central acts of salvation), and activism (active proselytizing and missions work).[52]

Though he makes no mention of crucicentrism, Noll clearly had Bebbington's quadrilateral in mind when we wrote that "evangelical Christians do not necessarily need to abandon activism, the emphasis on conversion, or the democratic biblicism that define evangelical history in order to pursue the life of the mind."[53] In other words, Noll argues there is no contradiction between evangelical Christianity and the pursuit of the intellectual life. In defending a Christ-centered approach to human learning, Noll touches on a foundational theme of ACCS and the CCS movement, a Christ-centered approach to classical education.[54]

An integrated curriculum. Christ is the integration point or infinite reference point for CCE. Wilson argues that "history, art, music, mathematics, etc., must all be

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[50] Ken Badley, "The Faith/Learning Integration Movement in Christian Higher Education: Slogan or Substance?" *Journal of Research on Christian Education* 3, no. 1 (March 1994): 16.

[51] D. W. Bebbington, *Evangelicalism in Modern Britain: A History from the 1730s to the 1980s* (London: Unwin Hyman, 1989) 2–3; Barry Hankins, ed., *Evangelicalism and Fundamentalism: A Documentary Reader* (New York: University Press, 2008) 1–2.

[52] Hankins, *Evangelicalism and Fundamentalism*, 2.

[53] Noll, *Jesus Christ and the Life of the Mind*, 22. *Jesus Christ and the Life of the Mind* was written after Noll's much publicized work, *The Scandal of the Evangelical Mind*. In *Jesus and the Life*, Noll sets out to remind fellow evangelicals that "if what we claim about Jesus Christ is true, then evangelicals should be among the most active, most serious, and most open-minded advocates of general human learning," introduction to *Jesus Christ and the Life of the Mind*, x.

[54] Noll, introduction to *Jesus Christ and the Life of the Mind*, ix–xii.

taught in the light of God's existence and His revelation of Himself in His Son, Jesus Christ. Because the Scriptures occupy a central place in this revelation, they must also occupy a critical role in Christian education."[55] Furthermore, Littlejohn and Evans see Scripture as the measure or standard by which all other learning is weighted.[56] They describe their goal in classical Christian education as, training students to orient their conclusions about the world and its ways around Scripture rather than vice versa.[57] Scripture is at the center of the Christian liberal arts and sciences. Classical Christian teachers strive to effectively integrate their knowledge of the Bible and Christian doctrine with the various disciplines they teach. The result is that students gain an increasing familiarity with the Bible's contents and themes.[58] Ultimately, the authority of the Scriptures, and the person and work of Jesus Christ, is present in all aspects of CCE including: the direction, the purpose, the rationale, and the foundation.[59] This corresponds to what Veith and Kern mean by logocentrism, Jesus Christ as the unifying principle of thought.[60]

Summary

If schools are designed to be centers of teaching and learning, then for Christian schools that teaching and learning will be integrated with faith, and the education which occurs should lead to the transformation of young hearts and minds to be more Christlike in word, thought, and action.[61] In short, CCE is an approach to primary

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[55] Wilson, *Recovering the Lost Tools*, 62.

[56] Littlejohn and Evans, *Wisdom and Eloquence*, 128. For a similar understanding, see Wilson, *Case for Classical Christian*, 164.

[57] Littlejohn and Evans, *Wisdom and Eloquence*, 128–29.

[58] Littlejohn and Evans, *Wisdom and Eloquence*, 128.

[59] Wilson, *Case for Classical Christian*, 69.

[60] Veith and Kern, *Classical Education*, 14.

[61] Littlejohn and Evans, *Wisdom and Eloquence*, 52. Two observations can be made at this point. First, three of Bebbington's quadrilaterals—biblicism, crucicentrism, and activism—are clearly

and secondary education that synthesizes evangelical Christianity and the classical liberal arts and sciences, by drawing on time-honored philosophical commitments and Christ-centered theological convictions.[62] While the CCS movement in the United States is roughly forty years old, several research studies have focused on different aspects of the movement. The following section will include descriptions of recent empirical research on CCS schools in the United States, then move to identify a gap in the research with regard to the classical curricula in ACCS secondary schools.

Recent Dissertations and Studies

Over the past twenty years, various research studies of CCS schools have been conducted, yet no study has sought to measure the academic rigor of ACCS schools or the integration of faith and learning as evidenced in the formal or planned curricula. Current studies have compared classical Christian schools to non-classical Christian schools in areas such as: test scores, leadership styles of headmasters, IFL, and spiritual formation. According to many of these researchers, the common characteristic of CCS schools is an emphasis on the trivium as a pedagogical method.[63] This understanding is drawn from the work of Sayers and Wilson, yet as this chapter has stressed, such a view only represents a slice of the larger history of classical education. By approaching the Christian liberal arts and sciences as a curricular framework within CCS schools, the present study fills a void

represented in the three principles of Christ-centered classical education. Second, each of the three principles of Christ-centered classical education do not exist in isolation, instead they each interact with one-another. Discipleship is modeled and embodied by teaching others to confess and live out the Christian faith. Christian witness—confessing and living out one's faith is strengthened and nourished by daily interaction with the Scriptures, who have at their center Jesus Christ, the Word.

[62] Veith and Kern, *Classical Education*, 22–26; Littlejohn and Evans, *Wisdom and Eloquence*, 22; Wilson, *Recovering the Lost Tools of Learning*, 97–101.

[63] See Christy Anne Vaughan, "Differences of Mean Scores on the Preliminary Scholastic Aptitude Test (PSAT) for Classical Christian Schools Compared to Non-Classical Christian Schools" (EdD diss., Liberty University, 2018); Dernlan, "Spiritual Formation: A Comparative Study of Modern and Classical Christian Schools"; Daniel Carl Peterson, "A Comparative Analysis of the Integration of Faith and Learning between ACSI and ACCS Accredited Schools" (PhD diss., The Southern Baptist Theological Seminary, 2012); Council and Cooper, "Leading Classical Christian Schools."

in the research. Furthermore, this study used a qualitative content analysis to measure the integration of faith and learning within the Christian liberal arts and sciences.

In 1999, Scott Calhoun examined the trivium as a language arts curriculum within traditional and alternative sites of schools and found that the trivium approach within ACCS schools was stronger than other trivium proposals made for traditional schools.[64] Over a decade later, researchers Council and Cooper conducted an exploratory study of CCS school headmasters and their sense of job satisfaction, job efficacy, and career aspirations.[65] To date, Calhoun's research and that of Council and Cooper represent the only empirical studies which describe the classical Christian approach to education as consisting of content and methodology.[66]

Published in 2018, Christy Vaughan's research comparing the differences of mean scores on the Preliminary Scholastic Aptitude Test (PSAT) for classical Christian schools, represents the most recent research on ACCS schools included within this study.[67] Vaughan's study sought to identify differences in selected areas of academic performance when comparing classical Christian schools (ACCS) to non-classical Christian schools (Association of Christian Schools International, ACSI). Ultimately, Vaughan's study indicated that CCS schools had a statistically significant positive effect on PSAT scores. Vaughan obtained her data by conducting a causal-comparative study to measure archival data that was randomly selected from all schools answering a headmaster survey.[68]

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[64] Calhoun, "The Classical Trivium in Contemporary Contexts."

[65] Council and Cooper, "Leading Classical Christian Schools."

[66] Calhoun "The Classical Trivium in Contemporary Contexts", Council and Cooper, "Leading Classical Christian Schools."

[67] Vaughan, "Differences of Mean Scores on the Preliminary Scholastic Aptitude Test."

[68] Vaughan, "Differences of Mean Scores on the Preliminary Scholastic Aptitude Test," 3.

While Vaughan's research design and statistical analysis were insightful, her study only provided a quantitative analysis. The present study used a mixed method approach, to allow for more robust empirical analyses and conclusions. Lastly, in describing classical Christian education, Vaughan closely associates the educational philosophy of essentialism with the pedagogical methods of the trivium used by ACCS classical Christian schools.[69] This connection is one of convenience over accuracy. Essentialism which is identified by Arthur Ellis as a knowledge-centered approach to education, is conducive to certain aspects of the classical Christian school movement. Yet, by and large, classical Christian schools reflect more of a commitment to perennialism given the methods used, the content taught, and most importantly the philosophical-theological leanings of ACCS, as was described earlier in the chapter.[70]

In 2013, Timothy Dernlan conducted a quantitative comparative study on the spiritual formation of non-classical Christian schools (those that are a part of ACSI) as compared to ACCS schools in the Midwest.[71] Statistically significant differences were determined to exist between students of ACSI schools and ACCS schools. Furthermore, Dernlan's research indicates that ACCS schools produce students with higher levels of commitment to the Christian faith when compared to ACSI schools. Dernlan's research raises several interesting questions regarding the integration of faith and learning in ACCS schools and whether the curriculum might bear any impact with regard to spiritual formation.

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[69] Vaughan, "Differences of Mean Scores on the Preliminary Scholastic Aptitude Test,"12, 15, 17, 19.

[70] For more information on the philosophical differences between essentialism and perennialism, see Ellis, *Exemplars of Curriculum Theory*, 109–30; Knight, *Philosophy & Education*, 124–25; Anthony and Benson, *Exploring the History & Philosophy*, 394–99. One example of Vaughan's miscalculation can be seen when she makes mention of the classical Christian school inclusion of the Great Books in the curriculum, this is a staple of perennialism not essentialism. Vaughan, "Differences of Mean Scores on the Preliminary Scholastic Aptitude Test," 16.

[71] Dernlan, "Spiritual Formation: A Comparative Study of Modern and Classical Christian Schools."

Daniel Peterson also studied ACCS classical Christian schools by comparing them to the non-classical schools of ACSI.[72] Peterson's study, released in 2012, examined the integration of faith and learning occurring within both approaches to Christian education by utilizing a survey of ACSI and ACCS practices. Overall, Peterson's data indicated teachers were practicing a high level of IFL in their pedagogy in both ACSI and ACCS accredited schools. Peterson discovered that as the years of experience for teaching in Christian schools increases, the level of integration of faith and learning increases as well. While Peterson rightly mentions perennialism within his research, he stops short of linking Knight's principles of perennialism to the classical Christian school movement.[73]

Summary

Research on ACCS schools conducted by Vaughan, Dernlan, and Peterson falls within the scope of the present CCS school study and helps in identifying gaps in the areas of academic rigor, IFL, curriculum analysis, and the research population. While Vaughan studied the differences in mean scores of the PSAT, the present study measured for the academic rigor of ACCS secondary schools using standardized tests as one proxy among others. Whereas Vaughan used a headmaster survey to obtain her quantitative data, the quantitative portion of this study was conducted using official, publicly available data including standardized test scores. Where Dernlan studied spiritual formation of ACCS schools, the present research explored the integration of faith and learning of ACCS schools, a task Peterson accomplished. While Peterson's approach included a survey of randomly selected groups of teachers, this study diverged from his

[72] Peterson, "A Comparative Analysis of the Integration of Faith and Learning between ACSI and ACCS Accredited Schools."

[73] Peterson, "A Comparative Analysis of the Integration of Faith and Learning between ACSI and ACCS Accredited Schools," 23, 84.

quantitative design, instead using a qualitative analysis on the formal or planned curriculum of all the ACCS schools within the research population. In sum, Vaughan, Dernlan, and Peterson compared CCS schools over-and-against their non-classical Christian counterparts, yet extensive research measuring ACCS schools within a narrow field would help to provide a new level of analysis. Furthermore, an examination of the ACCS curriculum was absent from any of the CCS studies therefore the present study fills this gap.

Introductory Overview of Mixed Methods

This research study examined the relationship between approaches to the Christian liberal arts and sciences and academic rigor as represented through the official, publicly available documents of all ACCS schools in the research population. This study utilized a correlational descriptive mixed methods approach involving both independent and dependent variables. The core assumption behind mixed methods research is that the combination of qualitative and quantitative approaches provides a more complete understanding of a research problem than either approach alone.[74]

Given the nature of the research problem, a mixed methods design was most appropriate, considering a quantitative or qualitative approach, each by itself, is inadequate to best understand the problem. Furthermore, the strengths of both quantitative and qualitative research provided the best understanding of the data.[75] This study followed two research methodologies, the first—comprised of the independent variables of the study—was qualitative. The second methodology—compromising the dependent variables of the study—was quantitative. The qualitative research investigated the expression of the Christian liberal arts and sciences curricula in all ACCS schools

[74] John W. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 4th ed. (Thousand Oaks, CA: SAGE Publications, 2014), 4.

[75] Creswell, *Research Design*, 20.

with secondary grades, while the quantitative research investigated measures of academic rigor in all ACCS schools in the research population.

Qualitative Literature Review

The present research study was a correlational descriptive mixed methods research design, this portion of the literature review examines the qualitative portion of the study. This section involves studies of curriculum theory, classical Christian approaches to the curriculum, the Christian liberal arts and sciences, the integration of faith and learning, and concludes by reviewing recent doctoral studies of IFL.

Curriculum Theory

The field of curriculum studies is anything but narrow. One reason for this abundance is described by David J. Flinders and Stephen J. Thornton in their *Curriculum Studies Reader*, "Curriculum theorizing and development are as old as educating institutions because any educational program must have a content."[76] Rather than trace curriculum theory back to the medieval university, Raymond E. Callahan suggests that the early twentieth-century is when the field arose.[77] Callahan argues that curriculum theory came about in the United States as a way to solve problems that were faced by school administrators.

In *Education and the Cult of Efficiency*, Callahan describes the role of early curriculum theorists such as Franklin Bobbitt and Frank Spaulding in using the "scientific management" approach to improve public schools.[78] Flinders and Thorton's reader on

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[76] David J. Flinders and Stephen J. Thornton, eds., *The Curriculum Studies Reader,* 3rd ed. (New York: Routledge, 2009) 7.

[77] Raymond E. Callahan, *Education and the Cult of Efficiency: A Study of the Social Forces That Have Shaped the Administration of the Public Schools,* Paperback ed., (Chicago: University Press, 2007), 71–75; Michael Young, "Overcoming the Crisis in Curriculum Theory: A Knowledge-Based Approach," *Journal of Curriculum Studies* 45, no. 2 (April 2013): 104.

[78] Callahan, *Education and the Cult of Efficiency*; Young, "Overcoming the Crisis in Curriculum Theory," 104; Flinders and Thornton, *The Curriculum Studies Reader*.

curriculum studies includes aspects of Bobbitt and Spaulding's works as well as other theorists who have been influential in the field over the last one hundred years including Herbert Kliebard, Ralph Tyler, Jerome Bruner, Elliot Eisner, Paulo Freire, Mortimer Adler, and Michael Apple to name a few.[79] Flinders and Thornton argue that curriculum theory leads to curricular debates which represent intellectual traditions, pointing out that from its earliest days, the curriculum field has been characterized by vigorous disagreements about the proper aims and practices of education.[80] In their estimation, how one defines terms determines the resulting character of education. In other words, even in the field of curriculum theory debate exists as to what curriculum means and how it should relate to education.

More recently, in "Overcoming the Crisis in Curriculum Theory" Michael Young contends that the current crisis in curriculum theory is that the primary object of the field—what is taught and learned in school—has been forfeited for an ideological critique.[81] Young's analysis reveals content to be at the heart of curriculum theory. Responding to Young's paper in the same journal, David P. Baker agrees with Young's assessment of the state of curriculum theory and urges their colleagues to engage in empirical studies of the curriculum.[82] This project represents an understanding of curriculum theory as described by Young and involves a qualitative content analysis of the classical Christian curriculum, answering Baker's call.

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[79] Flinders and Thornton, *The Curriculum Studies Reader*.

[80] Flinders and Thornton, *The Curriculum Studies Reader* 2, 7.

[81] Young, "Overcoming the Crisis in Curriculum Theory," 105. Young offers a critique of the current trend in curriculum theory to fixate on aspects of critical pedagogy or the larger critical theory. As an unintended consequence to this shift Young observes that there are a whole range of writers in philosophy, literature, and cultural studies raising serious questions about culture and identity in modern society but who have very little to say about the school curriculum.

[82] David P. Baker, "A Note on Knowledge in the Schooled Society: Towards an End to the Crisis in Curriculum Theory," *Journal of Curriculum Studies* 47, no. 6 (December 2015): 763–72.

With regard to the meaning of curriculum, many educators and theorists have defined it in a number of different ways.[83] George Posner suggests the seven most common concepts of curriculum include: a scope and sequence of intended learning outcomes, a syllabus, a content outline, standards, textbooks, a formal course of study, or planned experiences.[84] Arthur Ellis and Wayne Au have both offered similar definitions of curriculum, narrowing down Posner's list. Ellis succinctly defines curriculum as a course of study, akin to a plan, map or prescription to be followed.[85] Au suggests that the most common definition for curriculum among scholars and educators alike is a body of content knowledge to be learned in some way, shape, or form.[86] Classical educators Littejohn and Evans describe the curriculum as the scholastic organism's "skeleton" which provides form and capacity, while bringing the school's mission to the classroom.[87]

Prominent Christian educator and scholar Robert Pazmiño defines curriculum as the educational content made available to students.[88] In *Foundational Issues in Christian Education,* Pazmiño organizes the curriculum into three broad categories: the explicit curriculum, the hidden curriculum, and the null curriculum. The explicit curriculum focuses on content—what gets taught, the hidden curriculum addresses the implicit formation of persons—what gets caught, and the null curriculum represents all the content which was not taught—either by willful negligence or forgetfulness.[89] Pazmiño argues that the curriculum embodies values in relation to those understandings,

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[83] See Flinders and Thornton, *The Curriculum Studies Reader*.

[84] George J. Posner, *Analyzing the Curriculum,* 3rd ed. (New York: McGraw-Hill, 2004) 6–12.

[85] Ellis, *Exemplars of Curriculum Theory*, 3, 5.

[86] Wayne Au, "High-Stakes Testing and Curriculum Control: A Qualitative Metasynthesis," in *The Curriculum Studies Reader,* ed. Flinders and Thornton, 286.

[87] Littlejohn and Evans, *Wisdom and Eloquence,* 53, 71.

[88] Robert W. Pazmiño, *Foundational Issues in Christian Education*, 3rd ed. (Grand Rapids: Baker Academic, 2008), 232.

[89] Pazmiño, *Foundational Issues in Christian Education,* 247.

attitudes, skills, and behaviors chosen to be shared with students.[90] Pazmiño describes the function of the curriculum as being central to what happens in the classroom, "it is through the curriculum that educational values and commitments actually become embedded in practice or take form.[91] Seen in this light, the curriculum is a platform used to deliver the most pertinent instructional objectives.

George Posner's work demonstrates a prescriptive guide for performing an analysis of the curriculum.[92] Like Pazmiño, Posner uses categorizes to differentiate between the curriculum. Whereas Pazmiño provided three categories, Posner lists five concurrent curricula: the official curriculum, the operational curriculum, the hidden curriculum, the null curriculum, and the extra curriculum.[93] The official curriculum is what schools set out to teach—what they say upfront or what is contained in scope and sequence documents.[94] The operational curriculum is what makes it to the student's desk—what actually gets taught.[95] The hidden curriculum is what has been taught implicitly—either intentionally or unintentionally.[96] The null curriculum is that which does not get taught—intentionally or unintentionally.[97] Lastly, the extra curriculum is the learning which occurs outside the classroom.[98]

Deborah Loewenberg Ball and David K. Cohen argue that the curriculum which most counts, is that which is enacted—the operational curriculum.[99] Ball and

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[90] Pazmiño, *Foundational Issues in Christian Education,* 242.

[91] Pazmiño, *Foundational Issues in Christian Education*, 234.

[92] Posner, *Analyzing the Curriculum*.

[93] Posner, *Analyzing the Curriculum,* 12-14.

[94] Posner, *Analyzing the Curriculum,* 12.

[95] Posner, *Analyzing the Curriculum,* 13.

[96] Posner, *Analyzing the Curriculum,* 13.

[97] Posner, *Analyzing the Curriculum,* 13.

[98] Posner, *Analyzing the Curriculum,* 13.

[99] Deborah Loewenberg Ball and David K. Cohen, "Reform by the Book: What Is: Or Might

Cohen assert that if the formal or intended curriculum is to contribute to the enacted one, then educators must find ways to design the first with the second in mind. It remains to be seen if this suggestion applies to the classical curriculum, as an examination of the enacted curriculum was beyond the scope of this research. Within this study, the official or formal curriculum was used to analyze different approaches to the liberal arts and sciences of classical Christian schools.

The work of Arthur Ellis provides a useful paradigm for understanding curriculum theory. Breaking away from Pazmiño and Posner, Ellis sets up a theoretical-historical framework for understanding different approaches to the curriculum. Beginning with the three most basic models of the curriculum, Ellis moves to eight different theoretical exemplars of curriculum theory derived from the earlier models.[100] Using popular theories of education such as progressivism, perennialism, and essentialism, Ellis describes three curricular models of those theories on a spectrum ranging from learner-centered, society-centered, and knowledge-centered. Other researchers have observed that Ellis's categories omit a major focus for Christian schools, that of Christ-centered curriculum.[101]

Of primary interest for this study is the degree to which a Christ-centered, liberal arts and sciences curriculum provides academic rigor for students at select CCS schools. In measuring for academic rigor, the formal or planned curriculum of select ACCS schools was analyzed. The next section includes a range of different curricular analyses to better understand the approaches various researchers have recently applied to studying the curriculum.

Be: The Role of Curriculum Materials in Teacher Learning and Instructional Reform?" *Educational Researcher* 25, no. 9 (December 1996): 14.

[100] Ellis, introduction to *Exemplars of Curriculum Theory*, xiii.

[101] Jeffrey Michael Horner, "Christian Curricular Emphases and Academic Rigor: A Mixed Methods Study" (EdD thesis, Southern Baptist Theological Seminary, 2016), 3.

Curriculum Analyses

One approach to curriculum analysis is through a qualitative metasynthesis or qualitative meta-analysis which involves synthesizing the results of qualitative studies to gain a better understanding of the general nature of a given phenomenon.[102] Wayne Au preformed such a study in order to determine if high-stakes testing had any effect on curriculum. The findings of Au's study suggest that high-stakes tests encourage curricular alignment to the tests themselves.[103] Au notes that this alignment tends to take place by a narrowing of the curriculum as the content delivered is shaped by those tested subjects to the detriment of the non-tested subjects. For the purposes of the current study, classical Christian schools and the classical curriculum are outside of the government-mandated, high-stakes testing milieu although the prevalence of AP courses within many ACCS schools (72%) may suggest a similar phenomenon is occurring.[104]

Kim and Marshall conducted a curriculum analysis on eight curriculum texts published in the United States during the 1990s.[105] The researchers constructed an analytical framework and scale to measure the degree of movement between traditional and reconceptualized approaches to curriculum scholarship through the measurement of curricular textbooks. Kim and Marshall's research reveals the benefits of using a qualitative content analysis to categorize themes within written texts. Such an approach proved instructive to the qualitative content analysis that was conducted within the present project.

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[102] Wayne Au, "High-Stakes Testing and Curriculum Control: A Qualitative Metasynthesis," in *The Curriculum Studies Reader*, 288.

[103] Wayne Au, "High-Stakes Testing and Curriculum Control: A Qualitative Metasynthesis," in *The Curriculum Studies Reader*, 296.

[104] The SAT and ACT test are both outside of this assertion as these tests represent aptitude tests or basic knowledge exams rather than tests designed to measure if certain academic standards have been mastered, see Ravitch, *The Schools We Deserve*, 60; Ravitch, *Left Back*, 47–48, 157–58, 403–4.

[105] Pyeong-Gook Kim and J. Dan Marshall, "Synoptic Curriculum Texts: Representation of Contemporary Curriculum Scholarship," *Journal of Curriculum Studies* 38, no. 3 (June 2006): 327–50.

David Berliner has analyzed research on elementary and secondary curricular approaches to education across the United States dating back 2001.[106] Berliner echoes Au's concern, that the negative effects of curriculum result in a narrowing of the curriculum as a result of high-stakes testing. Berliner argues that what students learn is heavily dependent on what they have already learned, thus the more narrow the curriculum the less likely the requisite background knowledge will be available in later grades or in the real world after formal schooling has ended.[107] Berliner's conclusions are significant for classical Christian educators to consider, as an emphasis on subjects which are not likely to appear on end of course examinations may result in a similar narrowing. As a result, measuring the integration of faith and learning within the Christian liberal arts and sciences may prove useful to such inquiries.

Finally, the work of Kempa and Zacny has been included. They conducted a curriculum content analysis using statistical methods in order to facilitate access to the "common knowledge" about the teaching process.[108] For Kempa and Zacny, the main reason for their research was to determine the degree of content repetition, focused particularly on detecting excessive repetitions thereby identifying curriculum content duplicates.[109] This project aimed to study common terms of the integration of faith and learning within the Christian liberal arts and sciences, using a similar process as Kempa and Zancy but to accomplish the opposite result. Whereas other researchers sought to eliminate overlapping courses, I measured the usage of terms within the research

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[106] David Berliner, "Rational Responses to High Stakes Testing: The Case of Curriculum Narrowing and the Harm That Follows," *Cambridge Journal of Education* 41, no. 3 (September 2011): 287–302; Amrein and Berliner, "High-Stakes Testing, Uncertainty, and Student Learning."

[107] Berliner, "Rational Responses to High Stakes Testing: The Case of Curriculum Narrowing and the Harm That Follows," 298–99.

[108] Anna Kempa and Bogna Zacny, "The Curriculum Content Analysis for the Construction of the Teaching Process," *ANALIZA TREŚCI PROGRAMOWYCH NA CELE KSZTAłTOWANIA PROCESU DYDAKTYCZNEGO.*, no. 60 (April 2012): 105.

[109] Kempa and Zacny, "The Curriculum Content Analysis for the Construction of the Teaching Process," 97–98.

population. This section has demonstrated the varied successes of using a content analysis to measure curricular approaches. The present project used an approach drawn from many of the studies included here to measure the degree of integration of faith and learning within the Christian liberal arts and sciences.

Earlier in this chapter, studies on classical Christian schools were included and a gap in studies related to the curriculum of classical Christian schools was identified. The present study performed a content analysis of the official, planned, classical curricula for all ACCS schools with all secondary grades (9-12) within the United States. The next section describes approaches to classical Christian curricula which exist within the classical Christian school movement.

Classical Christian Schools and Curriculum

Within his work, *Norms & Nobility: A Treatise on Education*, David Hicks relentlessly argues for a return to the classics, what he calls "normative learning."[110] Hicks includes an entire chapter on a classical curriculum proposal, complete with a list of suggested readings and a daily schedule to emphasize the practicality of such an approach.[111] Stephen Turley channels the work of Holmes, Knight, Adler, Sayers, and Wilson arguing that current research in biblical and patristic studies offers models for the integration of the classical curricula, providing interdisciplinary precision for a more effective approach to classical education.[112] While he doesn't offer a model curriculum, what Turley does provide is a paradigm shift:

> institutions and pursuits of education are situated within a social story, a metanarrative, in relation to which the totality of human experience is understood,

[110] Hicks, *Norms & Nobility,* 108. Hicks's emphasis on normative learning refers to an ideal type or a norm, referencing the same idea Lewis made mention to regarding absolutes.

[111] Hicks, *Norms & Nobility,* 110–21.

[112] Stephen Richard Turley, "Paideia Kyriou: Biblical and Patristic Models for an Integrated Christian Curriculum," *Journal of Research on Christian Education* 18, no. 2 (July 31, 2009): 127.

> however incoherent that relation may be. Therefore, Christian education if it is going to be distinctly Christian, must understand itself in relation to the divine narrative that climaxes in the messianic ministry and reign of Christ.[113]

Turley's observations are instructive and represent a theological, Christ-centered grounding for CCE.

To date, Douglas Wilson has written about classical Christian schools more than anyone else. When Wilson uses "classical" it is to refer to the structure, form, and content of the education.[114] Because Wilson's thinking about classical education was strongly shaped by Sayers "The Lost Tools of Learning" essay, the signature of the ACCS school is a dedication to Sayers' understanding of the trivium.[115] The Sayers-Wilson model is the most popular approach of classical Christian education most apparent in the available literature, yet this approach has little to say about curriculum. Veith and Kern even go so far as to state that "the trivium and quadrivium are not discrete subjects. They are modes of learning. Nor are they ends in themselves. They are tools for learning."[116]

The Sayers-Wilson model divorces the seven liberal arts, moving the trivium to center stage and pushing the quadrivium off until the completion of formal schooling.[117] The reason for the split is Sayers idea that the trivium was intended to teach skills, that it was more method than anything else.[118] Evidence of Wilson running with this idea can be seen in Wilson's writing, he picks up on Sayers notion that every subject has its grammar, logic, and rhetoric:

> By grammar, we mean the fundamental rules of each subject, as well as basic data that exhibit those rules…The logic of each subject refers to the ordered relationship

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[113] Turley, "Paideia Kyriou: Biblical and Patristic Models for an Integrated Christian Curriculum," 135–36.

[114] Wilson, *Recovering the Lost Tools*, 99.

[115] Veith and Kern, *Classical Education*, 22, 24.

[116] Veith and Kern, *Classical Education*, 19.

[117] Wilson, *Recovering the Lost Tools*, 91–92.

[118] Sayers, "The Lost Tools of Learning," 92.

> of that subject's particulars…The last emphasis is rhetoric. We want our students to be able to express clearly everything they learn.[119]

Both Wilson and Sayers see the trivium not as a larger curriculum but rather as a classical method akin to a pedagogical approach. Wilson closes out one of his chapters in *The Case for Classical Christian Education* writing, "Using pedagogical terms, we educate [our students] in grammar, dialectic, and rhetoric." [120]

Numerous researchers and educators understand the trivium to refer to an education method, as the studies on classical Christian schools included earlier in this chapter have demonstrated. Two prominent voices within the classical Christian school movement who have argued against this understanding are Robert Littlejohn and Charles T. Evans. Both Littlejohn and Evans have served in schools implementing the Sayers-Wilson model.[121] They cite their own personal experiences, as well as further research into the historical development of the liberal arts and sciences as reasons for shifting from the Sayers-Wilson model. The work of Littlejohn and Evans challenges Sayers' assertions with regard to the trivium and the quadrivium. Furthermore, they argue for a reexamination of the Christian liberal arts and sciences and in doing so, take Sayers to task on certain parts of her proposal.

The Christian Liberal Arts and Sciences

Littlejohn and Evans take strong exception to Sayers understanding of the trivium as a systematic pedagogy, they write that "we disagree with the notion that dialectic and rhetoric are not subjects but are merely methods of dealing with subjects. From ancient times these, together with grammar, have formed the curriculum—not the pedagogy—of the language arts."[122] One other area where Littlejohn and Evans reset the

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[119] Wilson, *Recovering the Lost Tools*, 100.

[120] Wilson, *Case for Classical Christian*, 137.

[121] Littlejohn and Evans, *Wisdom and Eloquence*, 34.

[122] Littlejohn and Evans, *Wisdom and Eloquence*, 38.

classical Christian understanding of the liberal arts is regarding the "lost tools." Littlejohn and Evans point out that Sayers never explains what the "lost tools" are, leaving her readers under the assumption that the tools are the language arts themselves—grammar, dialectic, rhetoric. Instead, they assert that the tools of learning are the skills that are learned during one's study of all the liberal arts and sciences as a curriculum.[123]

Wisdom and Eloquence

Considering their critique of the Sayers-Wilson model of CCE, Littlejohn and Evans offer an alternative. Their proposal—the Christian liberal arts and sciences—represents a top-down scope and sequence paradigm for the mastery of the classical liberal arts and sciences in a Christian context.[124] Behind this framework rests two themes, wisdom and eloquence. Littlejohn and Evans argue that, "the classical liberal arts and sciences, have for centuries, provided and continue to provide the best way to impart genuine wisdom and eloquence to all who are willing to take up the challenge."[125]

As opposed to the Sayers-Wilson model which emphasizes a method, the Littlejohn-Evans approach provides an adaptable framework through which schools can implement the classical curriculum. The distinctives of the Littlejohn-Evans paradigm for the Christian liberal arts and sciences includes roughly seven criteria but only two are within the scope of this study: write the curriculum backwards—from the top down (12-K rather than K-12) and involve as many categories of stakeholders as possible.[126] Each of the criteria represent purposeful and flexible ways schools can shape the robust

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[123] Littlejohn and Evans, *Wisdom and Eloquence*, 39.

[124] Littlejohn and Evans, introduction to *Wisdom and Eloquence*, 14.

[125] Littlejohn and Evans, *Wisdom and Eloquence*, 21–22.

[126] Littlejohn and Evans, *Wisdom and Eloquence*, 76–81. The backwards design approach to curriculum was made popular by Wiggins and McTighe. See Grant P. Wiggins and Jay McTighe, *Understanding by Design* (Alexandria, VA: Association for Supervision and Curriculum Development, 1998).

curriculum of the liberal arts and sciences for their faith community. Having examined the elements of curriculum theory, curriculum analysis, and the classical Christian curriculum, this literature review now turns to the intersection of curriculum and the integration of faith and learning.

Integration of Faith and Learning

Frank E. Gaebelein was one of the first Christian educators and scholars of the modern age to clearly articulate what it means to integrate Christianity with formal learning.[127] In his work *The Pattern of God's Truth*, Gaebelein sought a living union between Christianity and formal education. In his words, "At the heart of all thinking about education, whether Christian or secular, lies the problem of integration."[128] For Gaebelein, integration was simply the bringing together of parts into a whole.[129] He observed that, "God's truth is of universal scope. Every aspect of education must be brought into relation to it."[130] In other words, Gaebelein understood that the work of Christian education was not so much to integrate the faith with formal schooling but rather to unite all parts of both into a living whole. To achieve integration into the all-embracing truth of God, from the student, to the subject-matter, as well as the administration and school personnel.[131] Gaebelein's understanding of both the benefit and magnitude of such a task is evidenced in his writing, "It is simply an incentive for us to get to work and apply to every aspect of our schools the comprehensive pattern of God's truth."[132] Much of what was published in *The Pattern of God's Truth* was delivered in

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[127] Frank E. Gaebelein, *The Pattern of God's Truth: Problems of Integration in Christian Education.* (New York: Oxford University Press, 1954).

[128] Gaebelein, preface to *The Pattern of God's Truth,* v.

[129] Gaebelein, *The Pattern of God's Truth,* 7.

[130] Gaebelein, *The Pattern of God's Truth*, 7.

[131] Gaebelein, *The Pattern of God's Truth*, 7–23.

[132] Gaebelein, *The Pattern of God's Truth,* 19.

lectures at Dallas Seminary in 1954.[133] The content of the lectures and book represents a turning point in Christian higher education, as much of what Gaebelein articulated continues to surface in the contemporary discussion around IFL.

Writing after Frank Gaebelein, Arthur F. Holmes was one of the first evangelicals to use the term integration of faith and learning, he did so in *The Idea of a Christian College*.[134] Holmes identified IFL as the distinct task of the Christian liberal arts college.[135] Holmes observed that "in principle Christian perspectives are all-redeeming and all-transforming, and it is this which gives rise to the idea of integrating faith and learning."[136] Furthermore, Holmes grasp of the formative nature of the liberal arts is captured in the following quotation:

> The question to ask about education, is not 'What can I do with all this stuff?' because both I and my world are changing, but rather 'What will all this stuff do to me?' This question is basic to the concept of liberal education.[137]

While Holmes wrote for an audience in higher education, Littlejohn and Evans made a similar argument to Christian educators. Littlejohn and Evans observe,

> Ideally when Christians gather in [classical Christian schools], the teaching and learning is integrated with faith, and the education that occurs leads *to transforming* young hearts and minds to be more Christlike. Such schools are communities of faith and learning.[138]

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[133] On the importance of Texas within the area of Christian education, it is interesting to note that as of February 2019 there were 18 ACCS secondary schools in the state of Texas, the most by far of any state.

[134] Arthur F. Holmes, *The Idea of a Christian College,* rev. ed. (Grand Rapids: Eerdmans, 1987).

[135] Holmes, *The Idea of a Christian College,* 8.

[136] Holmes, *The Idea of a Christian College,* 45.

[137] Holmes, *The Idea of a Christian College,* 24.

[138] Littlejohn and Evans, *Wisdom and Eloquence,* 52.

Aside from classical schools operating as communities of faith and learning, the actual Christian liberal arts curriculum is where the community of faith and learning finds its most thorough expression.[139]

Lastly, the work of Ken Badley has proven useful to other researchers in examining IFL frameworks and Christian secondary education.[140] To date Badley has identified a total of seven paradigms of IFL.[141] This study will utilize the earlier work of Badley wherein his total number of paradigms were limited to five: fusion integration, incorporation integration, correlation integration, dialogical integration, and perspectival integration.[142] This study examined the official core academic curriculum as well as the presence or non-presence of a Bible or Christian studies curriculum among secondary ACCS member schools. Furthermore, Badley's terminology guided the directed content analysis of core curricular descriptions as a way of assessing the Christian liberal arts and sciences within all ACCS secondary schools.[143]

Recent Dissertations

Over the last ten years, Christian education in the form of private and public schools or institutions of higher learning have been the focus of empirical research. More specifically, Christian school associations and the integration of faith and learning have been within the purview of such studies.

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[139] Littlejohn and Evans, *Wisdom and Eloquence*, 53.

[140] Horner, "Christian Curricular Emphases and Academic Rigor," 8-10; Welch, "An Analysis of the Integration of Faith and Learning in Evangelical Secondary Schools," 8, 37–39.

[141] Kenneth R. Badley, "Clarifying 'Faith-Learning Integration': Essentially Contested Concepts and the Concept-Conception Distinction*" Journal of Education & Christian Belief* 13, no. 1 (Spring 2009): 7-17.

[142] Ken Badley, "The Faith/Learning Integration Movement in Christian Higher Education: Slogan or Substance?" *Journal of Research on Christian Education* 3, no. 1 (March 1994): 13–33.

[143] Horner, "Christian Curricular Emphases and Academic Rigor," 12.

Anthony Foster approached the topic of Christian curricula within the context of select Christian institutions of higher education. Foster used a mixed methods content analysis and descriptive study through which to determine and describe the core courses, program descriptors, stated modes of delivery, and described competencies of post-baccalaureate Leadership Studies curricula.[144] Within Foster's study, leadership curriculum was examined from a diverse standpoint including lifespan development, curriculum design, essential leadership competencies, and the integration of leadership literature.

Using a similar methodological design as Foster, Jeffrey Horner sought to determine the degree to which Christian curricular emphases provide academic rigor for students in select Christian schools using a mixed method, convergent data-transformation approach.[145] Horner's study revealed that his research population provided rigorous academics when compared to other categories of schools.

Daniel Peterson, whose study was mentioned earlier in the chapter, sought to compare Christian school associations which represent two different approaches to Christian education as seen in different pedagogical approaches and different philosophies of education.[146] Peterson investigated and compared the degree to which Christian schools practice the integration of faith and learning through a descriptive quantitative study. Peterson's study indicated that teachers were practicing a high-level of integration of faith and learning in their pedagogy in both ACSI and ACCS accredited schools. Peterson's findings suggest that as the years taught at Christian schools and

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[144] Anthony Wayne Foster, "A Study of Post-Baccalaureate Leadership Curricula at Select Christian Institutions of Higher Education" (PhD diss., The Southern Baptist Theological Seminary, 2010), 8, 14.

[145] Horner, "Christian Curricular Emphases and Academic Rigor," 4.

[146] Daniel Carl Peterson, "A Comparative Analysis of the Integration of Faith and Learning Between ACSI and ACCS Accredited Schools" (PhD diss., The Southern Baptist Theological Seminary, 2012), 4. Peterson compared ACSI schools with ACCS schools, ACCS school are the focus of the present study.

classical Christian schools increased the level of integration of faith and learning increased.

You Jung Jang, like Peterson, studied the integration of faith and learning at ACSI schools. Her study concluded that ACSI elementary school teachers ranked high in regard to the implementation of the integration of faith and learning.[147] Jang's findings suggest that teachers with credit hours in theology, training on biblical integration, and who spent more time to prepare for integrating their faith into their daily teaching tended to reach higher levels of implementation.

Mark Eckel combined multiple variables from a number of different fields such as Christian schools, Christian institutions of higher learning, and the integration of faith and learning. Eckel designed a comparative analysis of the practice of faith-learning integration between graduates of both Christian and secular institutions who were teachers in ACSI schools.[148] Eckel concluded that Christian university graduates are better prepared in their knowledge and equipping of faith-learning integration for the Christian classroom.

Research conducted by Lesli Welch considered the factors necessary for integration of faith and learning within private Christian secondary schools. Welch desired to determine various factors which facilitate the integration of faith and learning within Christian secondary schools.[149] One of Welch's findings was that hiring Christian faculty was identified as the most essential element of integration. Another finding was

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[147] You Jung Jang, "An Analysis of the Integration of Faith and Learning Implemented by Christian Elementary School Teachers" (PhD diss., The Southern Baptist Theological Seminary, 2011).

[148] Mark David Eckel, "A Comparison of Faith-Learning Integration between Graduates from Christian and Secular Universities in the Christian School Classroom" (PhD diss., The Southern Baptist Theological Seminary, 2009), 2.

[149] Welch, "An Analysis of the Integration of Faith and Learning in Evangelical Secondary Schools," 4.

that the most important institutional learning factor identified was providing a holistic approach to education.

Recent dissertations in the areas of Christian curriculum, Christian schools and associations, and the integration of faith and learning have been reviewed and many of the findings of these studies were included in this section. The areas of classical Christian curriculum, CCS schools, and academic rigor are apt for empirical analysis and further indicate that more research needs to be conducted in a number of these pressing areas with regard to CCE, thus the present study helps to fill this void in the literature.

Quantitative Literature Review

This portion of the literature review examines studies of academic rigor using the variables that were identified earlier in this study including ACT/SAT scores, Advanced Placement (AP) courses, and admission into top-ranked colleges and universities.

Academic Rigor

Dixon-Román, Everson, and McArdle focused on the influences of three factors on college admissions test scores.[150] Their study was a secondary analysis of a large national sample of Black and White college-bound high school students who took the SAT in 2003. Using data from the College Board's Student Descriptive Questionnaire, the researchers used structural equation modeling to estimate the effects of family income on SAT scores for Black and White examinees accounting for the simultaneous effects of parental education and high school achievement. The results suggest the effects of family income on SAT scores, though relatively modest in contrasts to high school achievement, are substantial, non-linear, and nearly twice as large for Black students.

[150] Ezekiel J. Dixon-Román, Howard T. Everson, and John J. McArdle McArdle, "Race, Poverty and SAT Scores: Modeling the Influences of Family Income on Black and White High School Students' SAT Performance," *Teachers College Record* 115, no. 4 (2013):1–33.

William Jeynes has conducted research looking at factors such as academic rigor and Christian secondary education. In one particular study, Jeynes used an analysis of the National Education Longitudinal Study and a meta-analysis to present data that indicate that in religious, mostly Christian, schools, the achievement gap between certain groups is considerably smaller than in public schools.[151] A statistical analysis was used to better explain the data and provide further clarification of the findings by examining three separate factors. Numerous findings emerged from the study including a shrinking achievement gap among some groups as well as other significant findings. Overall, the results of this study indicated that religious education is a vibrant part of the education system in the United States.

Sharon Paulson and Gregory Marchant have examined the role of student demographic characteristics in standardized achievement test scores at both the individual level and aggregated at three differing levels.[152] For several data sets, the majority of the variance among the different levels was related to one characteristic. The results of this study showed that the variance among states' test scores could be predicted by knowing the demographic characteristics of the students within each state.

Richard Sawyer presents correlational evidence suggesting that high school GPA is superior to admission test scores in predicting first-year college GPA.[153] Analyses of data from 192 institutions suggest that high school GPA is more useful than admission test scores in situations involving low selectivity in admissions and minimal to average academic performance in college. However, test scores are more useful than high school

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[151] William H. Jeynes, "Religion, Intact Families, and the Achievement Gap," *Interdisciplinary Journal of Research on Religion* 3 (January 2007): 1–24.

[152] Sharon E. Paulson and Gregory J. Marchant, "Background Variables, Levels of Aggregation, and Standardized Test Scores," *Education Policy Analysis Archives* 17 (2009).

[153] Richard Sawyer, "Beyond Correlations: Usefulness of High School GPA and Test Scores in Making College Admissions Decisions," *Applied Measurement in Education* 26, no. 2 (April 2013): 89–112.

GPA in situations involving high selectivity and high academic performance. In nearly all contexts, test scores have incremental usefulness beyond high school GPA; high school GPA by test score interactions are important in predicting academic success.

The research of Shannon Suldo and Elizabeth Shaunessy-Dedrick addressed whether students who take part in academically challenging high school curricula experience elevated levels of stress and whether this stress co-occurs with psychological and/or academic problems.[154] Data from self-report questionnaires and school records were collected from 480 students from four high schools. Results of the analyses suggested that stress is not always associated with injurious outcomes, as students in academically rigorous programs reported more perceived stress than did students in general education, while maintaining exceptionally high academic functioning. Despite their stress level, the psychological functioning of students in academically rigorous programs is similar or superior to varying levels reported by their peers in general education classes.

Steven Syverson examines the use of standardized tests in the college admission process.[155] Given the lack of literature exploring "test-optional" admission policies among selective colleges, much of the information described in the article is based on interviews with deans and directors of admission at colleges that have adopted such policies. The larger discussion within the article specifically centers on two standardized tests used for the college admission process. The level of dissatisfaction with one of the standardized tests has prompted an increasing number of selective institutions to adopt admission policies placing less emphasis on standardized tests, with some making them optional.

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[154] Suldo and Shaunessy-Dedrick, "The Psychosocial Functioning of High School Students in Academically Rigorous Programs," *Psychology in the Schools* 50, no. 8 (2013): 823–43.

[155] Steven Syverson, "The Role of Standardized Tests in College Admissions: Test-Optional Admissions," *New Directions for Student Services* 2007, no. 118 (Summer 2007): 55–70.

Finally, in studies of the SAT, correlations of three specific factors are usually obtained using a school or university as the unit of analysis. Rebecca Zwick and Rebecca Greif Green argue that this approach conceals an important aspect of the data: high school grades received by a given institution come from a large number of high schools which have potentially different grading standards. While SAT scores, on the other hand, can be assumed to have identical meanings across high schools. Their study analyzed a large national sample to show that high school grades and class rank have larger correlations with specific factors whereas SAT scores have smaller associations with those same factors.[156]

An emphasis on more rigorous content, sometimes described as academic intensity, or challenge associated with a student's coursework in high school have all been terms or phrases synonymous with academic rigor.[157] Beginning with a latitudinal study conducted by Clifford Adelman, Senior Research Analyst for the United States Department of Education, academic rigor has been a topic of numerous reports and empirical studies including a host of quantitative, qualitative, and mixed methods approaches.[158] Researchers Allen, Ndum, and Mattern derived an index of high school

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[156] Rebecca Zwick and Jennifer Greif Green, "New Perspectives on the Correlation of SAT Scores, High School Grades, and Socioeconomic Factors," *Journal of Educational Measurement* 44, no. 1 (2007): 23–45.

[157] Jeffrey N. Wyatt et al., "The Development of an Index of Academic Rigor for College Readiness Research Report No. 2011-11.," (College Board, 2012), 6; Krista D. Mattern and Jeffrey N. Wyatt, "The Validity of the Academic Rigor Index (ARI) for Predicting FYGPA. Research Report 2012-5," (College Board, 2012), 3.

[158] Clifford Adelman, "Answers in the Tool Box, Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment" (Washington, DC: US Department of Education, Office of Educational Research and Improvement, June 1999), https://eric.ed.gov/?id=ED431363; Clifford Adelman, "The Toolbox Revisited: Paths to Degree Completion from High School through College" (Washington, DC: US Department of Education, Office of Educational Research and Improvement, February 2006), https://eric.e-d.gov/?ID=ED490195; Jeffrey Wyatt et al., "SAT Benchmarks: Development of a College Readiness Benchmark and Its Relationship to Secondary and Postsecondary School Performance, Research Report 2011-5" (College Board, 2011), https://eric.ed.gov/?id=-ED521173; Wyatt et al., "The Development of an Index of Academic Rigor"; Mattern and Wyatt, "The Validity of the Academic Rigor Index (ARI) for Predicting FYGPA, Research Report 2012-5"; Lela M. Horne, John R. Rachal, and Kyna Shelley, "Academic Rigor and Economic Value: GED® and High School Students' Perceptions and Misperceptions of the GED® vs. the High School Diploma," *Journal of Research & Practice for Adult Literacy, Secondary & Basic Education* 1, no. 1 (Spring 2012): 4–18; Adam S. Beatty et al., "A Comparison of Alternate Approaches to Creating Indices of Academic Rigor, Research Report 2012-11" (College Board, 2013),

academic rigor consisting of: a prediction of first-year college GPA based on high school courses taken, grades, and indicators of advanced coursework.[159] Although Allen, Ndum, and Mattern were more interested in measuring how prepared for college high school students are, their decision to use courses taken in high school as one indicator of academic rigor is significant for the present study.

One organization which has distinguished itself as a leader in the business of preparing students for college and career success is the College Board.[160] The College Board has sponsored two academic rigor studies, both have helped to empirically define academic rigor through an academic rigor index (ARI) and then test the validity of such an index.[161] The College Board's ARI consists of: SAT scores, high school grade point average, percentage enrolled in college, and first-year grade point average. Standardized test scores such as the SAT as well as the ACT are frequently used as indicators of academic rigor.[162] While the SAT and ACT are very similar there are significant

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https://eric.ed.gov/?id=ED562581; John Draeger et al., "The Anatomy of Academic Rigor: The Story of One Institutional Journey," *Innovative Higher Education* 38, no. 4 (August 2013): 267–79; Shannon M. Suldo and Elizabeth Shaunessy-Dedrick, "The Psychosocial Functioning of High School Students in Academically Rigorous Programs," *Psychology in the Schools* 50, no. 8 (September 2013): 823–43; John Draeger, Pixita Prado Hill, and Ronnie Mahler, "Developing a Student Conception of Academic Rigor," *Innovative Higher Education* 40, no. 3 (June 2015): 215–28; Jeff Allen, Edwin Ndum, and Krista Mattern, "An Empirically-Derived Index of High School Academic Rigor, ACT Working Paper 2017-5" (ACT, Inc., June 2017), https://eric.ed.gov/?id=ED583560.

[159] Allen, Ndum, and Mattern, "An Empirically-Derived Index of High School Academic Rigor. ACT Working Paper 2017-5," 1.

[160] The College Board, "About Us," last modified October 31, 2018, accessed April 16, 2018, https://www.collegeboard.org/about. The College Board was founded in 1900, today it describes itself as "a mission-driven not-for-profit organization that connects students to college success and opportunity." The College Board is made up of over 6,000 of the world's leading educational institutions and is dedicated to promoting excellence in education.

[161] See Wyatt et al., "The Development of an Index of Academic Rigor for College Readiness, Research Report No. 2011-11."; Mattern and Wyatt, "The Validity of the Academic Rigor Index (ARI) for Predicting FYGPA, Research Report 2012-5."

[162] Krista Mattern et al., "Broadening the Definition of College and Career Readiness: A Holistic Approach. ACT Research Report Series, 2014 (5)" (ACT, Inc, 2014), https://eric.ed.gov/?id=ED555591; "Research Foundations: Empirical Foundations for College and Career Readiness" (College Board), accessed November 27, 2018, https://collegereadiness.collegeboard.org/pdf-/research-foundations-college-career-readiness.pdf; Ashley M. Cromwell, Katie Larsen, and Sarah J. Larson, "College Readiness Indicators," Bulletin (Pearson, May 2013), http://images.pearson-assessments.com-/images/tmrs/tmrs-rin_bulletin_25crindicators_051413.pdf; Beatty et al., "A Comparison of Alternate Approaches to Creating Indices of Academic Rigor. Research Report 2012-11"; Wyatt et al., "SAT Benchmarks."

differences between the two tests such as: the ACT includes a science section, the SAT includes a math section on which students may not use a calculator, and the ACT is scored on a scale of 1-36 whereas the SAT is scored on a scale of 400-1600.[163] As a result, the two companies have established a conversion table that allows for comparisons between the two tests.[164] Using the concordance conversion tables available on the College Board website when necessary, the SAT will be used as an indicator of academic rigor for the present study.

A second indicator for determining academic rigor comes through evaluating the extent of a school's Advanced Placement courses (AP courses). AP courses, designed by the College Board, offer rigorous college-level curricula and assessments to students in high school. The AP program includes more than 30 courses, each culminating in a standardized exam. Each course taught by a high school teacher and AP certified instructor, is modeled on an equivalent college class. All AP courses and exams are developed by committees of college faculty members and expert AP teachers.[165] Numerous studies and reports have identified AP courses as an indicator for academic rigor.[166]

A third measurement for examining academic rigor is the ranking of colleges to which students are admitted. Selective colleges and universities have been the focus of recent research and discussions regarding the impact these schools have, not only on their

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[163] The College Board, "ACT vs. SAT" The Princeton Review, last modified December 1, 2018, accessed November 30, 2018, https://www.princetonreview.com/college/act-sat.

[164] The College Board, "Concordance," SAT Suite of Assessments, last modified November 16, 2018, accessed November 30, 2018, https://collegereadiness.collegeboard.org/educators/higher-ed/scoring/concordance.

[165] "College Credit in High School: Working Group Report," 7.

[166] Allen, Ndum, and Mattern, "An Empirically-Derived Index of High School Academic Rigor, ACT Working Paper 2017-5"; Suldo and Shaunessy-Dedrick, "The Psychosocial Functioning of High School Students in Academically Rigorous Programs"; Cromwell, Larsen, and Larson, "College Readiness Indicators"; Wyatt et al., "The Development of an Index of Academic Rigor for College Readiness, Research Report No. 2011-11."; Beatty et al., "A Comparison of Alternate Approaches to Creating Indices of Academic Rigor, Research Report 2012-11"; Wyatt et al., "SAT Benchmarks."

students but also within American society.[167] If students have been admitted to top-ranked colleges and universities, then it is more likely that those higher educational institutions perceived a given secondary school as graduating students who have demonstrated academic rigor.[168] While an imperfect measure, this indicator does help to establish the overall academic rigor of an academic program at a secondary school for two reasons. First, top-ranked colleges and universities, through their admission requirements, have clearly placed an emphasis on measures for college readiness, often described as "college and career readiness." Second, given that top-ranked colleges and universities have an interest in admitting students who can flourish academically, it is likely that they would only admit students judged to have the aptitude and knowledge necessary for higher education. Therefore, ranking the selectivity of the colleges and universities to which a high school's graduates are admitted can provide a measure for the overall academic rigor of that high school.

This study evaluated those ACCS schools within the research population considering all three indicators for academic rigor: median SAT scores, percentage of AP courses offered at a school, and acceptance at high-ranked U.S. colleges and universities. As Horner successfully demonstrated, each of the indicators of academic rigor outlined

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[167] The Chronicle of Higher Education, "Which Highly Selective Colleges Have the Highest and Lowest Percentages of Asian Undergraduates?"; *The Chronicle of Higher Education*, "Selective Colleges Whose Undergraduate Borrowers Accumulated the Lowest Median Federal-Loan Debt, 2015-16"; Jeremy E. Uecker, "Social Context and Sexual Intercourse among First-Year Students at Selective Colleges and Universities in the United States," *Social Science Research* 52 (July 2015); Catherine B. Hill and Gordon C. Winston, "Low-Income Students and Highly Selective Private Colleges: Geography, Searching, Recruiting," *Economics of Education Review* 29, no. 4 (August 2010): 495–503; Margarita Mooney, "Religion, College Grades, and Satisfaction among Students at Elite Colleges and Universities," *Sociology of Religion* 71, no. 2 (Summer 2010): 197–205; Douglas S. Massey et al., "Black Immigrants and Black Natives Attending Selective Colleges and Universities in the United States," *American Journal of Education* 113, no. 2 (February 1, 2007): 243–71; Clayton Rose, "Colleges Make America Stronger," *US News*—The Report, January 19, 2018, 12–13.

[168] Horner, "Christian Curricular Emphases and Academic Rigor," 11.

for this study help in constructing a foundation by which the relationship between IFL and academic rigor may be ascertained.[169]

Research Hypothesis

This literature review has shown that a great deal of research exists in most components of this project, though none address all areas in one study. Several recent studies have examined the practices of the integration of faith and learning, but none have examined the official statements of the curricular intentionality of integrating faith and learning in CCS schools. Furthermore, recent CCS school studies have not examined written course descriptions and instead have used survey methods to obtain necessary data, as opposed to published, official statements.

The literature review reveals that numerous studies compare CCS schools with non-classical Christian schools yet extensive research measuring ACCS schools within a more narrowed field would help to provide a new level of analysis. Therefore, the present study fills this gap. Lastly, within most studies of the CCS school movement, the focus is on the trivium as a pedagogical method.[170] This understanding only represents a piece of the larger history of classical education. The present study fills a gap in the research by focusing on the Christian liberal arts and sciences as a curricular framework for CCS schools, as opposed to focusing on a medieval teaching method. Furthermore, this study used a qualitative content analysis to measure the integration of faith and learning within the classical curriculum.

Having identified a significant literature gap for examining the relationship of academic rigor to the Christian liberal arts and sciences, the following research

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[169] Horner, "Christian Curricular Emphases and Academic Rigor," 12.

[170] See Vaughan, "Differences of Mean Scores on the Preliminary Scholastic Aptitude Test"; Dernlan, "Spiritual Formation: A Comparative Study of Modern and Classical Christian Schools"; Peterson, "A Comparative Analysis of the Integration of Faith and Learning between ACSI and ACCS Accredited Schools"; and Council and Cooper, "Leading Classical Christian Schools."

hypothesis was proposed: ACCS secondary schools who emphasize the integration of faith and learning in their course descriptions for core subjects are more likely to report higher levels of academic rigor as measured by median SAT, AP courses, and college acceptances at highly ranked colleges and universities. Additionally, ACCS secondary schools that have a separate Bible curriculum are more likely to report higher levels of academic rigor, when measured by median SAT scores, AP courses, and college acceptances at highly ranked colleges and universities.

CHAPTER 3

METHODOLOGICAL DESIGN

Classical Christian schools (CCS) emerged onto the American landscape in the late 1970s and early 1980s.[1] Over a thirty year period, the number of CCS schools in the United States has increased exponentially.[2] The Association of Classical Christian Schools (ACCS) leads the CCS movement as the largest CCS organization.[3] With the growing national attention that the CCE movement has received and the emergence of more ACCS schools across the United States, the present study is both timely and necessary. To date, no analysis of the classical curriculum has been conducted.[4] This project sought to identify the correlation of educating along an explicitly classical Christian framework with academic rigor by examining the relationship between the Christian liberal arts and sciences, the integration of faith and learning (IFL), and academic rigor at ACCS secondary schools.

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[1] Peter J. Leithart, "The New Classical Schooling," *Intercollegiate Review* 43, no. 1 (2008): 4, 6.

[2] Gene Edward Veith Jr. and Andrew Kern, *Classical Education: The Movement Sweeping America*, ed. Brian Phillips, 3rd ed. (Washington, DC: Capital Research Center, 2015), 22; Association of Classical Christian Schools, "Find a School," accessed February 28, 2018, last modified February 28, 2018, https://classicalchristian.org/find-a-school/.

[3] Daniel Carl Peterson, "A Comparative Analysis of the Integration of Faith and Learning between ACSI and ACCS Accredited Schools" (PhD diss., The Southern Baptist Theological Seminary, 2012), 14.

[4] See David Hicks, "Is Classical Education Still Possible?" FORMA, December 5, 2017, https://formajournal.com-/article/possible; Josh Herring, "No, A Classical Education is Not Impossible to Revive in America's Degenerate Society," *The Federalist*, September 12, 2017, http://thefederalist.com-/2017/09/12/no-classical-education-not-impossible-revive-americas-degenerate-society/; Katherine Burgess, "Classical Christian Education Looks to Past, Thrives Today," *Wichita Eagle*, July 15, 2017; John J. Miller, "Back to Basics," *National Review* 67, no. 19 (October 19, 2015): 42–44; Mark Eckel et al., *Perspectives on Your Child's Education: Four Views*, ed. Timothy P. Jones (Nashville: B&H Academic, 2009); Leithart, "The New Classical Schooling"; Christopher A. Perrin, *An Introduction to Classical Education: A Guide for Parents* (Camp Hill, PA: Classical Academic Press, 2004).

This chapter describes the methodological approach and classification procedures that were used in the research study. The study was designed to examine the relationship between the Christian liberal arts and sciences (the independent variables) and academic rigor (the dependent variables). The study consisted of a content analysis of official, publicly available curriculum publications, and a quantitative measurement of ACCS schools' self-reported academic measurements. Leedy and Ormrod describe the purpose of a content analysis as the identification of patterns, themes, or biases.[5] They assert that a content analysis can be used to flesh out complex, multidimensional aspects of a descriptive study, such as a mixed methods design with both qualitative and quantitative elements.[6] Furthermore, Stemler describes a content analysis as, "any technique for making inferences by objectively and systematically identifying specified characteristics of messages."[7] Stemler describes a content analysis as, "a useful technique for allowing researchers to discover and describe individual, group, institutional, or social attention."[8] This study sought to discover and describe how ACCS secondary schools are organizing the Christian liberal arts and sciences curriculum with regard to IFL and academic rigor.

Hsieh and Shannon indicate that there are three different approaches to a qualitative content analysis: conventional, directed, and summative.[9] The present study utilized a directed content analysis. Hsieh and Shannon identify the goal of a directed content analysis as the validation or conceptual extension of a theory or theoretical

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[5] Paul D. Leedy and Jeanne Ellis Ormrod, *Practical Research: Planning and Design*, 10th ed (Boston: Pearson, 2013), 148.

[6] Leedy and Ormrod, *Practical Research*, 149.

[7] Steve Stemler, "An Overview of Content Analysis," *Practical Assessment, Research and Evaluation* 7, no. 17 (June 2001): 1.

[8] Stemler, "An Overview of Content Analysis," 1.

[9] Hsiu-Fang Hsieh and Sarah E. Shannon, "Three Approaches to Qualitative Content Analysis," *Qualitative Health Research* 15, no. 9 (November 2005): 1277–88.

framework. This study used a content analysis to apply Badley's paradigms of IFL by examining the course descriptions using language drawn from Badley's 1994 articulation of his paradigms. Badley's language describing each paradigm was used to identify the presence of IFL language in ACCS secondary school course descriptions. This analysis measured academic rigor in terms of school median SAT scores, percentage of Advanced Placement (AP) courses offered at the school in the four core areas, and the percentage of acceptances to top-ranked colleges and universities.

Purpose Statement

The purpose of this mixed methods study was to determine and describe the relationship between academic rigor and the Christian liberal arts and sciences among all ACCS schools with secondary grades (9-12) within the research population.

Research Synopsis

1. How are the Christian liberal arts and sciences at ACCS secondary schools expressed as reflected in the presence of Bible courses and integration of faith and learning language to core curricula (English/language arts, history/social studies, mathematics, and science)?

2. How academically rigorous are ACCS secondary school curricula as reflected by median SAT scores, AP courses, and acceptances at top-ranked colleges and universities in the United States?

3. What is the relationship between the presence of the Christian liberal arts and sciences and overall academic rigor at select ACCS schools?

Research Design Overview

Decisions about research design must be driven by the research problem and its subproblems.[10] CCS schools represent an approach to primary and secondary education that synthesizes evangelical Christianity and the classical liberal arts and

[10] Leedy and Ormrod, *Practical Research*, 259.

sciences.[11] With regard to the integration of faith and learning (IFL), Badley observed, "faced with the question of where educators believe integration occurs…there are but two choices: in the curriculum or in the student's consciousness."[12] This study sought to measure the former, using Badley's own IFL language within the Christian liberal arts and sciences curricula of ACCS schools.

The core assumption behind mixed methods research is that the combination of qualitative and quantitative approaches provides a more complete understanding of a research problem than either approach alone.[13] Given the nature of the research problem, a mixed methods design is not only appropriate but necessary, considering the inadequacies of only a quantitative or qualitative approach. Furthermore, the strengths of both quantitative and qualitative research provide the best understanding of the data.[14]

The present study is a convergent data-transformation design which included placing greater emphasis on the quantitative strand and used of a merging process of data transformation (quantitizing).[15] After the initial analysis of the two data sets, I quantified the qualitative findings. This step allowed the results from the qualitative data set to be combined with the quantitative data set, the results were then analyzed through direct comparison and interrelation.[16]

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[11] Veith and Kern, *Classical Education*, 22–26; Robert Littlejohn and Charles T. Evans, *Wisdom and Eloquence: A Christian Paradigm for Classical Learning* (Wheaton, IL: Crossway Books, 2006), 22; Douglas Wilson, *Recovering the Lost Tools of Learning: An Approach to Distinctively Christian Education* (Wheaton, IL: Crossway, 1991), 97–101.

[12] Badley, "The Faith/Learning Integration Movement in Christian Higher Education," 26.

[13] Creswell, *Research Design*, 4.

[14] Creswell, *Research Design*, 20.

[15] Margarete Sandelowski, Corrine I. Voils, and George Knafl, "On Quantitizing," *Journal of Mixed Methods Research* 3, no. 3 (July 1, 2009): 208–22; David L Driscoll et al., "Merging Qualitative and Quantitative Data in Mixed Methods Research: How to and Why Not" 3, no. 1 (2007): 11.

[16] John W. Creswell and Vicki L. Plano Clark, *Designing and Conducting Mixed Methods Research*, 2nd ed. (Los Angeles: SAGE Publications, 2011), 81.

The order in which the qualitative and quantitative data was collected had no bearing on the analysis, as the content analysis was quantitized into nominal (Yes/No) data prior to analysis. The present study represents a borrowed methodology drawn from the work of Horner, Foster, and Rowell and This.[17] The process outlined by these researchers included:

1. Identify all school websites within the research population
2. Collect all relevant data from those websites
3. Divide relevant data into related segments
4. Categorize the course descriptions
5. Examine course descriptions for IFL language
6. Record quantitative data
7. Analyze the data
8. Evaluate the results
9. Write the research report

Coding Criteria

The qualitative portion of the study consisted of a directed content analysis of the course descriptions of secondary grade English, math, social studies, and science. The NVivo 12 Pro software package from QSR International was used to search for Badley's paradigm vocabulary. During the qualitative portion of the study, each course description was classified by subject in order to detect the percentage of courses in a given academic discipline (English, math science, and social studies). These courses were then analyzed

[17] Jeffrey Michael Horner, "Christian Curricular Emphases and Academic Rigor: A Mixed Methods Study" (EdD thesis, The Southern Baptist Theological Seminary, 2016); Anthony Wayne Foster, "A Study of Post-Baccalaureate Leadership Curricula at Select Christian Institutions of Higher Education" (PhD diss., The Southern Baptist Theological Seminary, 2010); Katherine R. Rowell and Craig This, "Exploring the Sociology Curriculum at Community Colleges in the United States," *The American Sociologist* 44, no. 4 (December 1, 2013): 329–40.

for the presence of IFL language as a measure of the Christian liberal arts and sciences. Additionally, the qualitative portion of the study examined all published graduation requirements for the presence of required Bible or Christian studies courses, classifying them on a Yes/No scale according to the presence criterion. Each of these two analyses constituted the independent variables of the study.

During the quantitative portion of the study, I collected, recorded, and analyzed the following variables: median SAT, percentage of AP courses offered, and admission to top-ranked colleges and universities. The percentage of AP courses in each discipline available for that school was compared with the number of AP courses offered by the College Board in a specific discipline. The percentage of top college and university admittance was calculated using a five-year median average of the *US News and World Report* top-ranked national liberal arts colleges and national universities.

Population

The research population for this study consisted of all, published, publicly accessible course descriptions and academic profiles (sometimes referred to as college profiles) of ACCS secondary schools with all secondary grades (9 to 12). Preliminary research indicated that of the 290 ACCS schools approximately one hundred forty schools have websites with official, published, publicly available data and offer grades 9-12. Given that the purpose of the profiles and descriptions are to provide information for those outside of the school, the documents were presumed to be accurate reflections of the schools involved.

Sample and Delimitations

This study was a census of all ACCS secondary schools with all secondary grades (9-12). The content was exhaustively sampled, all published content meeting the delimitations was analyzed. In this study, ACCS schools were defined as those institutions within ACCS with secondary programs including all grades (9-12) and

designated as member, accredited member, or member transitioning to classical. Only constituent schools' courses in English, math, social studies, and science, were a part of the directed content analysis phase. The school's academic profile (or college profile), which is annually distributed to colleges, was included in the quantitative data collection phase and the school's list of recent college acceptances constituted the other part of the data collection phase (when separate from the college profile).

Limitations of Generalization

This project represents a census of all ACCS secondary schools. The official, published, publicly available course descriptions of all ACCS member schools with all secondary grades (9-12) within the United States were analyzed. The findings of this study may not generalize to institutions dedicated to vocational training at the secondary level, nor populations that seek no integration faith and learning. As a census, this study will generalize to all ACCS secondary schools in the United States but may not generalize to institutions beyond the ACCS schools in the study.

Research Method and Instrumentation

This study represents a correlational descriptive mixed methods research design. The qualitative portion of the research used a directed content analysis to detect the presence or non-presence of IFL language in course descriptions for secondary grade courses in Bible, English, math, social studies, and science. Additionally, the qualitative portion of the research will attempt to detect the presence or non-presence of a separate Bible or Christian studies curriculum. The qualitative portion of the study was accomplished using the NVivo 12 Pro software package, produced by QSR International. This software enabled accurate, fast analysis of countless course descriptions. The quantitative portion of the study sought to detect median SAT scores, the percentage of AP course offerings available, and the percentage of top-ranked colleges and universities

to which students were admitted. The data transformation of the qualitative data into quantitative data allowed for the use of various inferential statistics through SPSS.

Ethics Committee Process

Ethics committee approvals were granted through the Research Doctoral Studies Office of The Southern Baptist Theological Seminary. It was anticipated that all texts in this population were located primarily through institutional websites, however this assumption proved false. While the content analysis portion of this research required no interaction with human subjects, the data collection phase required such interactions as there were countless websites that did not provide official, publicly available curriculum documents. Appendix 4 contains a letter that I used to request official, publicly available curriculum documents via email communication from head school administrators and the ACCS school contact person. The ACCS school contact person was identified on the ACCS website under a listing of all members schools in the United States.

Research Procedures

Mixed methods research involves the combining or integration of both qualitative and quantitative data in a research study.[18] Leedy and Ormrod point out that regardless of the design, mixed method research requires considerable advance planning.[19] This project required several introductory steps to prepare for the establishment of the research procedures.

First, an exhaustive literature review of empirical studies over the past twenty years of the CCS school movement revealed a lack of information on the classical curriculum within CCS schools. The present study measured the integration of faith and

[18] Creswell, *Research Design*, 14.

[19] Leedy and Ormrod, *Practical Research*, 260.

learning within CCS schools and examined the correlation between academic rigor and the Christian liberal arts and sciences.

Second, ACCS has been selected as a study population. ACCS is the largest CCE organization in the US with 290 member schools. All ACCS schools with secondary grades from 9-12 were included in the study. Finally, in order to achieve a standard of comparison that would provide relatively common data for academic rigor, this study compared these CCS schools to one another based on nationally administered tests and acceptance at nationally-ranked colleges and universities.

Qualitative Procedures

The qualitative portion of the study involved collecting, sorting, and analyzing of the official, published, publicly available course descriptions of English, math, social studies, and science courses from the websites of all ACCS schools with all secondary grades (9-12). The following steps were carried out:

1. Visited the website of every ACCS secondary school within the delimitations of the study.

2. Gathered every course description of every English, math, social studies, and science course taught in grades 9-12.

3. Converted every course description into a file format readable by the NVivo 12 Pro software.

4. Performed keyword searches (stemmed text, synonyms, and wildcards) for the presence of IFL language on all the course descriptions of all the schools in each discipline by grade and school.

5. Used Badley's categories and language including stemmed text, synonyms, and wildcard text queries to detect the presence of IFL language in each course description and then recorded coding processes and protocols.

6. Examined each school for the presence of a required Bible or Christian studies curriculum separate from the rest of the core four curriculum.

7. Categorized course descriptions in a Yes/No (1 or 0) for the presence or non-presence of IFL language in every core four course description.

8. Categorized the presence or non-presence of Bible or Christian studies in a Yes/No coding (1 or 0).

9. Analyzed the courses within each core four academic discipline to determine the percentage of courses that display IFL.

Quantitative Procedures

During the quantitative portion of this study, I recorded and analyzed the SAT, AP, and college acceptance data reported in the college profile information provided by ACCS member schools with secondary grade programs. The following steps were carried out:

1. Visited the website of every ACCS school within the delimitations of the study.

2. Downloaded the academic profile (or college profile) of every ACCS school in the research population.

3. Recorded all SAT median scores (converted published ACT scores to SAT equivalents using the published accepted concordance from both the Princeton Review website).

4. Recorded the secondary grades tuition of each school.

5. Recorded the median family income for families with children ages 18 and under for the ZIP code in which the school is located.

6. Recorded the median family income for families with children under the age of 18 in all the ZIP codes bordering that ZIP code as a measurement of the relative affluence of the school's potential population.

7. Recorded the percentage of AP courses offered at an ACCS school out of the possible AP courses available in a given discipline according to the College Board's list of possible AP courses.

8. Recorded the five year median ranking of the top fifty national universities and liberal arts colleges according to the *US News and World Report* rankings for universities and liberal arts colleges.

Data Transformation and Mixing

Once all the qualitative data was collected it was quantitized to enable statistical analysis using the SPSS software package to conduct various inferential statistics.[20] Driscoll et al argue that a loss of depth and flexibility occurs when qualitative data are quantitized, essentially reducing rich qualitative data to dichotomous variables and thus rendering them single dimensional and immutable.[21] One way the present study compensated for the limitations of quantitizing qualitative data was to measure the relationship between IFL (qualitative data) and academic rigor (quantitative data). By using a yes/no dichotomization and thus keeping the percentages of IFL within the independent variables limited, the complexities between the independent variables (the qualitative data) and the dependent variables (the quantitative data) were accentuated.

After all data was collected, I followed these steps. First, the information about the IFL was converted to a percentage of courses which display IFL in each delimited academic discipline. Second, information about the member schools' tuition data relative to the median family income in their ZIP codes was converted into a percentage of the member school's tuition. Third, the dependent variables (quantitative data) and the independent variables (qualitative data) were analyzed using various analyses of the independent variables.

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[20] Driscoll et al., "Merging Qualitative and Quantitative Data in Mixed Methods Research: How to and Why Not" 3, no.1 (2007): 20. This particular approach to quantitizing qualitative data involved enumerating whether or not the qualitative data (official curriculum documents) included certain codes (Badley's IFL key terms). Rather than seeking to understand how many times one of Badely's IFL terms was provided or the frequency with which they appeared, this strategy quantitized the presence or absence of each IFL key term within each curriculum document, Driscoll et al., "Merging Qualitative and Quantitative Data in Mixed Methods Research: How to and Why Not," 22.

[21] Driscoll et al., "Merging Qualitative and Quantitative Data in Mixed Methods Research: How To and Why Not," 25.

CHAPTER 4

ANALYSIS OF FINDINGS

The purpose of this research was to determine and describe the relationship between academic rigor and the Christian liberal arts and sciences among all ACCS classical Christian schools offering all secondary grades (9-12). To complete this study and answer the research questions, a content analysis was performed on the official curriculum documents describing each school's academic profile and the core curriculum courses that met the population delimitation criteria. This study constituted a census, as all available published curriculum documents for all schools within the research population were analyzed. The resulting data is analyzed and summarized in this chapter.

Compilation Protocols

Before beginning the study, preliminary research was undertaken to determine if the research population was viable with regard to the availability of official curricula documents via each school's website. Preliminary research began February 2019 and included visiting every website of the 290 members of ACCS to confirm the grade levels offered and the availability of official, curriculum documents on each school's website.[1] Of the 290 member schools listed on the ACCS website, approximately 140 were identified as offering all secondary grades (9-12) as well as providing official curriculum documents on the website. Preliminary research also indicated that the research population was viable as 100 hundred schools offered official curriculum documents on their respective websites. Furthermore, an additional 40 schools indicated on their

[1] Association of Classical Christian Schools, "Find a School," accessed February 27, 2019, https://classicalchristian.org/find-a-school/.

website the presence of some type of official curriculum document within the description of their academic program. The remainder of this chapter details the research protocols and phases that made up this study. Due to the mixed analysis consisting of a convergent data-transformation model, the compilation protocols are listed according to their quantitative and qualitative nature.

Quantitative Data

There were two sets of quantitative data needed to run inferential statistics (ANOVA, ANCOVA): the dependent and covariates (or mediating variables). The dependent variables were median SAT scores, percentage of possible AP courses offered per core subject area, and percentage of top-ranked US colleges and universities to which students have been admitted. The mediating variables were the school's tuition and the percentage of the school's tuition relative to the median family income for the ZIP code in which the school is located as well as bordering ZIP codes.

Phase 1—Population data for quantitative data. An initial listing of all member institutions of ACCS offering all secondary grades (9-12) was compiled from the official website of the Association of Classical and Christian Schools.[2] The list of ACCS secondary schools included in this study is found in appendix 2. From this listing, a Microsoft Excel spreadsheet was designed to allow for the recording of all pertinent compilation data which was gathered. The data included the school's name, website, ZIP code, and all quantitative and qualitative data required to conduct this study. In addition, a Microsoft Word file was created for each school which included the school's name, physical address, website address, and email address of the contact person on file with ACCS. The Word file aided in facilitating the consistent collection of the necessary

[2] Association of Classical Christian Schools, "Find a School," accessed February 27, 2019, https://classicalchristian.org/find-a-school/.

demographic data for each school in order to conduct this research study. Every effort was made to use the most recent available published data from each ACCS secondary school within the research window of May 1, 2019 to July 1, 2019.

Phase 2—Demographic criteria established for quantitative data. This phase began by navigating each school's website to collect the expected tuition and fees for a high school senior at each school. All deposits, book fees, building maintenance fees, recreation fees, participation fees, lab fees, and all other fees were added to the base tuition, if not ordinarily done so at the school, in order to compare schools who itemized their fees to schools that combined their fees. The next phase involved collecting the ZIP code of the main campus of the school (for schools that have multiple campuses, the ZIP code of the high school or Upper School campus was used).

After recording the ZIP code of each school, a ZIP code lookup service was used to determine all the ZIP codes bordering the ZIP code of the school.[3] All relevant bordering ZIP codes, including those across rivers and in adjacent states were recorded on the list, then compiled in a spreadsheet which is reproduced in table A4 in appendix 3.

Once all school ZIP codes and those of the bordering ZIP codes were recorded then the median family income for all collected ZIP codes was recorded. The United States Census website's research tools were used to locate Median Family Income for the last twelve months for 2017 Inflation-Adjusted Dollars 5 Year Estimates (US Census ID B19125).[4] Every collected ZIP code was entered in the Census "Add Geographies tool." Next, the median income for families with own children under age eighteen was entered into the Excel spreadsheet containing the ZIP code.

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[3] "Free USPS Lookup and Boundary Map," accessed August 13, 2019, http://www.usnaviguide.com/.

[4] US Census Bureau, "American FactFinder - Results," accessed August 15, 2019, https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B19125&prodType=table.

Upon collection and compilation of all median family income for every collected ZIP code, the median family income for the ZIP code of the school was recorded and entered into a column labeled MFIZ, see table A2 in appendix 3. Microsoft Excel's spreadsheet functionality was used to determine the median income of the aggregated ZIP codes inclusive of the school's ZIP code, this information was entered into a column labeled MFIA, see table A3 in appendix 3. The second phase of collecting the necessary quantitative data required approximately two hundred hours of work.

Dependent variables. As previously indicated, all ACCS schools included in this study had a website containing the school's physical address and tuition rates, and other information pertinent for this research including AP courses taught, the median SAT or ACT score (whichever was reported), and college and university acceptances. In some instances, the official curricula material available on the school website was limited or unavailable therefore email communication was sent to the faculty or staff listed on the ACCS website as the contact person for the school.[5]

The course listings available on the College Board's website for the core four subjects (English, math, science, social studies) were used in order to establish a total list of AP courses available for students to take within each content.[6] Only courses listed on the College Board's website under the following categories were used as available AP courses for this study: English, math, science (which included computer science), and social studies. Once scores and admittances were collected, academic profiles and school websites were examined for lists of AP courses taught in each ACCS school. Once the number of courses offered by the College Board's AP program was determined this

[5] A copy of the email communication used in this study is included in appendix 4. There were a total of 104 emails sent out to school leaders or administers requesting publicly available, official curriculum documents.

[6] The College Board, "AP Courses – Students—The College Board," accessed April 16, 2018, https://apstudent.collegeboard.org/apcourse.

number was recorded in the research spreadsheet for each of the core four categories, compiling a total percentage of AP courses offered at each ACCS school based on the number of total AP courses available. A list of AP courses used in this study can be found in table A8 in appendix 8. A total of 35 schools—28% of the research population—included AP courses within their academic or graduate profiles or described the availability of such courses within the official curriculum on their school website. Alternatively, 18 schools—14% of the research population—indicated that no AP courses were offered within their Christian liberal arts and sciences curriculum.

Median SAT data or ACT data, whichever the school self-reported was collected for each school with the available data. If the school reported both the ACT scores were converted to SAT scores using the concordance table provided by the Princeton Review.[7] All of the SAT scores included in this study consisted of SAT 1600 scores (CR + M) as opposed to the more dated SAT 2400.[8] All available scores were recorded from every school that reported them. Of the 127 schools in the research study, 46% reported median SAT or ACT scores.

Sixty-six schools within the research population included information on their school website about college admissions, this number represents 52% of the research population. A spreadsheet was created which contained the five most recently available years (2015-2019) of top-fifty colleges and universities from the *US News and World Report* annual college rankings for both liberal arts colleges in the United States and national universities.[9] Given the emphasis on the Christian liberal arts and sciences

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[7] The Princeton Review, "The Truth About ACT to SAT Conversion," accessed August 27, 2019, https://www.princetonreview.com/college-advice/act-to-sat-conversion.

[8] Allie Bidwell, "SAT Will Return to 1600-Point Scale, Drop Essay Requirement," *US News & World Report*, accessed August 27, 2019, https://www.usnews.com/news/articles/2014/03/05/college-board-sat-will-return-to-1600-point-scale-drop-essay-requirement.

[9] US News & World Report, "2019 Best National Universities | US News Rankings," accessed June 29, 2019, https://www.usnews.com/best-colleges/rankings/national-universities; "2019 Best National Liberal Arts Colleges | US News Rankings," accessed June 29, 2019, https://www.usnews.com/best-colleges/rankings/national-liberal-arts-colleges; *US News and World Report* et al., *Best Colleges 2018:*

within this study and the larger classical Christian education movement, including a ranking of the top-fifty liberal arts colleges within the United States along with the rankings of the top-fifty national universities provided a wide range of academically rigorous and geographically diverse options for CCS graduates. A list was compiled of the mode of the one hundred most listed liberal arts colleges and universities in the United States. That list was then condensed into one final representative list for TopCU. The list of top-ranked colleges and universities is found in appendix 6.

Against the list of TopCU, all ACCS school college acceptances were scored with one point for each college acceptance from the composite top-fifty liberal arts colleges and top-fifty universities. Each ACCS school was given a score representing the percentage of recent college acceptances from top-ranked colleges and universities in the United States. The spreadsheet containing the data set for all top-ranked colleges and universities is reproduced in appendix 7. This data formed the basis by which rankings for top liberal arts colleges and top universities in the United States were determined. These rankings were subjected to the inherent weaknesses of the *US News and World Report* ranking system. This data set allowed a systematic measure against which student admissions to top-ranked colleges and universities could be weighted. The first phase of collecting necessary documents for the study from the school's websites took approximately ninety hours of work.

Mediating variables. ACCS tuition data was collected and compiled by visiting the admissions and tuitions sections of each school's website. The highest listed tuition for high school or Upper School students was used, this number included all

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Find the Best Colleges for You!, ed. Anne McGrath, Soft Cover edition (Washington: US News & World Report, 2017); *US News and World Report* et al., *Best Colleges 2017: Find the Best Colleges for You!*, ed. Anne McGrath, Soft Cover edition (Washington: US News & World Report, 2016); *US News and World Report* and Robert J. Morse, *Best Colleges 2016: Find the Best Colleges for You!*, ed. Anne McGrath, Softcover ed. edition (Washington, DC: US News & World Report, 2015); *US News and World Report*, *Best Colleges 2015*, ed. Anne McGrath, 2015 edition (Washington: US News and World Report, 2014).

additional fees to construct the most realistic cost of schooling for a single high school student in his or her final year of secondary schooling. While some schools in the study separated out costs for books, building fees, technology fees, activity or field trip fees, sports fees, and other additional costs, other schools bundled all such fees within one total cost for tuition. In order to monetarily compare these schools to each other, all fees were added to the base tuition to obtain a total cost of schooling at a given classical school.

The school's tuition was first analyzed as a percentage of the median family income for the ZIP code in which the school is geographically located. Median family income data was compiled using the US Census Bureau's American FactFinder tool.[10] The median family income from all the ZIP codes bordering the school's ZIP code was recorded in an Excel spreadsheet. Surrounding ZIP codes bordering each school's ZIP code were identified using a ZIP code look up service from USNaviguide.com.[11]

Qualitative Data

This research study organized the independent variables into six sub-categories: presence of Bible courses, percentage of IFL language present in Bible course descriptions, percentage of IFL language present in English course descriptions, percentage of IFL language present in mathematics course descriptions, percentage of IFL language present in science course descriptions, and percentage of IFL language present in social studies course descriptions.[12]

Independent variables. Academic and curricular data which represented the official curriculum of ACCS secondary schools were collected in a systematic manner. First, each school's website was visited in search for academic or college profiles and 9-

[10] Bureau, "American FactFinder - Results."

[11] Bureau, "American FactFinder - Results."

[12] Some ACCS schools used the category "history courses" to denote social studies courses, as a result any courses labeled "history" were counted as social studies courses.

12 grade course descriptions.[13] Then, all recorded data was collected into PDF documents for ease in uploading such files to NVivo 12 Pro. Once all ACCS school files were uploaded into NVivo 12 Pro query functions were used to perform a text query of the files for IFL language and terminology according to the findings from Kenneth Badley's IFL paradigms. Lastly, IBM's SPSS Standard Grad Pack 26 was used to conduct descriptive and inferential statistics of the ACCS school data. All variable abbreviations used in this analysis were recorded into table 1, which includes all dependent variables, independent variables, and covariates.

Phase 3—Qualitative data, the NVivo 12 phase for independent variables. Beginning July 15, 2019, the official curriculum documents published by the ACCS schools in the research study were analyzed to determine which programs met the delimitation criteria. The official curriculum documents consisted of the following: school course catalogues, school course descriptions, school handbooks, and course descriptions made available through the school's website. All available academic or graduate profiles and course descriptions that were collected were uploaded into the NVivo 12 Pro program.

Once all the ACCS documents were loaded into NVivo 12 a database was compiled of all available ACCS official curriculum documents organized by content and by school. File classifications were created for Badley's paradigms, Bible courses, and the core four disciplines of the Christian liberal arts and sciences (English, mathematics, science, and social studies). Additionally, one case folder was created for each of the ACCS schools included in this content analysis of curricular documents, there were a total of thirty-five school case folders created. Lastly, case classifications and IFL

[13] If the academic or graduate profile as well as the course descriptions were not available on the school's website an email was sent to the head of school, principal, or school contact person listed on the ACCS website. A copy of the email template sent to school officials is included in appendix 4.

attributes were assigned to each case to ensure accurate and precise organization of the IFL qualitative analysis. Once all case classifications were identified, each course description was categorized with the appropriate case classification.

The NVivo 12 program was used to code all the available course descriptions for Bible courses and the core four of English, math, science, and social studies. Each school's grouping of courses was strictly followed to ensure that whenever possible the school's dictated what was coded within each node. Every publicly available school course description was coded into one of the categories, constituting a census of all academic course descriptions. The coding process was more time consuming than had been anticipated as there were countless official curriculum documents that were not readable in the NVivo 12 Pro software. As a result, each of these documents were individually converted using Adobe Acrobat in order to produce a readable PDF file for the NVivo 12 Pro program. No course descriptions or official curricular documents were lost or unreadable after the conversions using the Adobe Acrobat software.

While coding all the available course descriptions for the ACCS secondary schools in the research population it was observed that numerous ACCS secondary school course descriptions included a course titled "humanities," "humanitas," "humane letters," or "omnibus." Each of these courses contained similar descriptions wherein history/social studies was blended with literature, philosophy, and theology. The presence of such courses made answering Research Question 1 more difficult as many of these schools identify history, literature, and theology separately in their scope and sequence documents, yet the course descriptions or course catalogues reflect a blended approach to the three subjects within one content or discipline. Accordingly, trying to include this new subject into the study would disrupt coding counts in Bible, English, and social studies especially given the blended nature of the course. Therefore, any time one of these integrated humanities courses was explicitly described as a course that fit into one subject it was coded as such and only counted for that one particular subject. Furthermore, I

included an additional code titled "integrated humanities" and created a node to support all the coding for this new subject aside from the codes for Bible, English, math, science, and social studies. I then coded any course description as such wherein English, social studies, and Bible/theology were described explicitly as blended within the course. This additional subject of "integrated humanities" was not included in the core four analysis, yet the qualitative data that was gathered regarding this subject and IFL language was analyzed in terms of descriptive statistics using the SPSS software.

Next, three of Badley's articles were uploaded into the NVivo 12 software. Each article contained Badley's own descriptions and explanations of his paradigms of IFL.[14] Text query searches were used in the form of word frequency counts on the sections of Badley's work within each document which describe the paradigms of integration of faith and learning. The word frequency count involved three iterations wherein NVivo compiled lists of stemmed text, synonyms, and wildcards. All three lists were combined to identify overlap and commonalities before a master word frequency list or count was produced. Using the word frequency count from Badley's work, a collection of the most frequently used terms emerged via further text query searches within the NVivo 12 database of ACCS school course descriptions. Those terms most frequently appearing in Badley's paradigms are included in table A5 in appendix 5. Those words were then used systematically to perform various key word counts (stemmed text, synonyms, and wildcards) within all of the coded course descriptions. Each of the three key word count queries were then reviewed and any words that were falsely coded were

[14] Kenneth Rea Badley, "Integration" and 'The Integration of Faith and Learning'" (Dissertation, The University of British Columbia, 1986), 64–77; Badley, "The Faith/Learning Integration Movement in Christian Higher Education," 24–25; Kenneth Rea Badley, "Clarifying 'Faith-Learning Integration' : Essentially Contested Concepts and the Concept-Conception Distinction," *Journal of Education and Christian Belief*, April 1, 2009, 7–17, http://search.ebscohost.com/login.aspx?-direct=true&db=33h&AN=33h-331DAF66-B36DABF6.

uncoded, for example if the word was irrelevant given the purposes of Badley's paradigms.[15]

Finally, all high frequency words were recorded on their own node and once all nodes reflecting Badley's most frequently used words were created the results were reviewed. A comparison diagram was performed in the NVivo 12 program in order to review any and all instances of overlap between each node. This step allowed for the possible merging of nodes within one another. The comparison diagram helped to uncover three IFL-related terms that were prominent in course descriptions among ACCS schools: "Understanding," "Christian," and "World."

The NVivo 12 software allowed for the differentiation of Badley's IFL paradigms within a larger integrative context. Rather than isolating one of Badley's IFL approaches, this study used NVivo 12 to measure any and all of Badley's IFL paradigms within ACCS secondary schools' official curriculum. As a result, Badley's own descriptions of his IFL approaches were used as filters through which to analyze the official curriculum of ACCS schools. Thus, this study was able to both differentiate Badley's approaches to IFL in a way that allowed for a larger measurement of IFL within the official curriculum.

Quantitizing qualitative data. I reviewed all instances of each word in relationship to one another, as well as where they appeared in the course descriptions according to major academic discipline. A manual word count was performed on every instance of those words' appearance within each discipline according to each IFL-related term. If one or more of the IFL-related terms appeared in a course description, then that occurrence counted as one appearance of IFL language in the ACCS school's course

[15]One such example is the word "integration." Badely uses this word frequently yet when this word was coded in any high school upper math course, the term denoted a mathematical function and not a term describing the integration of faith and learning therefore any codes of "integration" in math were uncoded.

descriptions.[16] Next, each of those appearances were coded and collected in a spreadsheet containing all other pertinent research data. The arithmetic mean of all the results of the qualitative research was used to divide the IFL data. The mean was preferred over the median because the mean is a more precise number, resulting in a greater contrast between the data points. Once the mean for each major academic area—Bible, English, math, science, and social studies was recorded Microsoft Excel was used to convert each schools' IFL data into dichotomous variables. Once all variables were recorded into Excel, the ACCS school data was uploaded into SPSS Standard Grad Pack 26. The third phase of the research project involved the collection and coding of all ACCS school official curriculum documentation and took approximately ninety hours of work.

Phase 4—The SPSS phase. Beginning in August 2019, the collected data from the preceding three phases was finalized and uploaded into SPSS. I primarily followed the guidance of Andy Field throughout this phase of the research project.[17] The work of David Garson from Statistical Associates was also used as a secondary source for guidance in performing various tests to determine if the research data met the assumptions necessary to perform inferential statistics.[18] The research model for this study was both ambitious and robust. Ambitious in that one of the research questions sought to determine the relationship between academic rigor using three dependent variables, six independent variables while controlling for income using up to five different covariates. The study was robust because there were 127 ACCS secondary

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[16] See Driscoll et al., "Merging Qualitative and Quantitative Data in Mixed Methods Research: How To and Why Not," 3, no. 1 (2007): 22, 25.

[17] Andy P. Field, *Discovering Statistics Using SPSS*, 3rd ed. (Los Angeles: SAGE Publications, 2009).

[18] David Garson, *GLM Multivariate, MANOVA, & Canonical Correlation: Blue Book Series 11* (Raleigh, NC: Statistical Associates Publishers, 2015), loc. 1, Kindle; General Linear Models: Univariate GLM, ANOVA/ANCOVA, Repeated Measures: Blue Book Series 19 (Raleigh, NC: Statistical Associates Publishers, 2015), loc. 1, Kindle.

schools included in the study. Furthermore, before inferential statistics such as ANOVA, ANCOVA, MANOVA, or MANCOVA could be used to determine the relationship between independent, dependent, and covariates, the research data had to meet certain assumptions. Both Field and Garson were used in determining whether the data met the assumptions necessary to perform any one of these statistical analyses. This process required approximately one hundred hours of work. The following section contains the findings from the research study, table 1 provides the list of abbreviations used in this study for each variable.

Table 1. List of abbreviations for each variable

Variable	*Abbreviation*	*Type of Variable*
Median Family Income (Area) as percentage of Tuition	MFIA	Covariate
Median Family Income (ZIP code) as percentage of Tuition	MFIZ	Covariate
Tuition of the School	Tuition	Covariate
Median SAT score	SAT	Dependent
Percentage of AP courses offered at the School	AP	Dependent
Percentage of students admitted to Top 50 Colleges and Universities	TopCU	Dependent
Bible course	Bible	Independent
BibleIFL	BibleIFL	Independent
English IFL	EngIFL	Independent
Math IFL	MathIFL	Independent
Science IFL	SciIFL	Independent
Social Studies IFL	SSIFL	Independent

Demographic and Sample Data

This section details basic demographic data, specifically median family income and profiles of schools included in the study. ACCS schools are unevenly distributed across the United States with most member schools densely populating the east and west coasts as well as the Northeast, Midwest, and the South.[19] For a geographic

[19] United States and Bureau of the Census, *Statistical Abstract of the United States, 1993.* (Washington: US Dept. of Commerce, Bureau of the Census: For sale by the Supt. of Docs., US G.P.O., 1993). The Census Bureau divides the United States into four separate regions: Midwest, Northeast, West, and South. For a breakdown of each region by state see table A1 in appendix 3.

representation of all ACCS member schools identified by ZIP code throughout the United States see figure 1 below.

Figure 1. All ACCS schools by ZIP code

The delimitations of this research study removed many of the schools represented above from the research population because they did not offer all secondary grades (9- 12). Of the 127 ACCS members schools included in the research population, 71 schools—56% of the research population—were geographically located in the South region of the United States. Twenty-eight schools—22% of the research population—were geographically located in the West region, 19 schools—15% of the research population—were geographically located in the Midwest region, and 9 schools —7% of the research population—were geographically located in the Northeast region. States with the highest total of schools included in this study were: Texas (18), Virginia (12), Florida

(8) and Washington (8). For a full list of the research population for this study by state and by geographic region refer to table A1 in appendix 3.

As explained in chapter 3, this research study constituted a census of the research population—ACCS member schools offering all secondary grades (9-12). As a result, the data collected was comprehensive for all ACCS schools that fit the delimitations of the study. The study exhaustively examined all schools that are either accredited members of ACCS or full members of the organization. The data collected during Phase 1 of the study provided the basis for the dependent variables. The data categories were labeled "AP_{avail}"—for the percentage of AP courses available at a given school; "SAT_{med}"—for the median SAT or ACT score; and "TopCU"—for the percentage of admissions to top-ranked colleges and universities reported by schools.

While 127 schools met the research study delimitations, closer examination of the data revealed a considerable amount of variance surrounding the available data for the research population. For example, only sixty schools reported SAT_{med} scores. In other words, 67 schools in the study did not report any SAT or ACT scores in their academic or graduate profiles, nor on their school websites, nor did they respond to email communication requesting this information. As a result, these 67 schools were delimited from the study with regard to SAT_{med} scores when the SPSS software analyzed that variable for descriptive and inferential statistical analysis.

The mean percentage of AP_{avail} courses offered at ACCS secondary schools was 8% with a median of 0.00%.[20] The percentage of AP courses offered at ACCS secondary schools ranged from a low of 0% to a high of 52% for a range of 52% and a

[20] Of the 127 ACCS secondary schools, ninety-two schools provided data with regard to AP courses offered. Of these ninety-two schools, fifty-eight indicated on the school website or explicitly mentioned in official curriculum documents that zero AP courses were offered. These zeroes were included in the count for ACCS secondary school AP course offerings as opposed to not recording any numbers. The remaining thirty-four schools that indicated at least one AP course was offered, provided anywhere from 1% up to 52% of AP course offerings. The median of 0.00% is a result of such a large number of ACCS secondary schools (fifty-eight) that indicated no AP courses were offered.

standard deviation of 13.07%. The SAT_{med} mean score was 1282 with a median of 1287. ACCS schools had a low SAT_{med} score of 1060 and a high of 1465, for a range of 405 points and a standard deviation of 83. The mean percentage of TopCU to which ACCS secondary students were admitted was 9% with a median of 0.00%. The percentage of TopCU ranged from 0% to 52% for a range of 52% and a standard deviation of 9.76%. Case summaries for the dependent variables appear in table 2.

Table 2. Case summaries for dependent variables

		AP (%)	*SAT*	*TopCU (%)*
Total	N	91	60	66
	Mean	7.62	1281.78	8.91
	Median	0.00	1287	6.00
	Minimum	0.00	1060	0.00
	Maximum	52	1465	52
	Range	52	405	52
	Std. Deviation	13.12	83.21	9.76

Covariate Data

The covariate data were collected along three related variables. School tuition was collected for 120 schools within the research population, 7 schools did not divulge annual tuition rates in the official, published school documents, on the school website, nor was email communication returned. As a result, these 7 schools were not included in the calculations by the SPSS program. The median family income of the ZIP code in which the school is geographically located was used to calculate the covariate MFIZ, using the following formula: (MFIZ % = Tuition / Median Family Income of ZIP Code). The median family income of the ZIP code of the school plus all bordering ZIP codes was calculated from the median of all bordering ZIP codes including the school's ZIP

code and then used to calculate the covariate MFIA, using the formula: (MFIA% = Tuition / Median Family Income of all Bordering ZIP Codes). Each of these variables are summarized in table 3.

Table 3. Case summaries for covariates

		Tuition ($)	*MFIZ (%)*	*MFIA (%)*
Total	N	120	121	127
	Mean	9996.22	13.00	14.00
	Median	9253.00	12.00	12.00
	Minimum	2750.00	3.00	5.00
	Maximum	34755.00	56.00	56.00
	Range	32005.00	53.00	51.00
	Std. Deviation	4464.839	8.00	7.00

The covariate “Tuition,” expressed in dollars reveals a mean of $9,996.22 and a median of $9,253. The minimum was $2,750 and the maximum was $34,755, with a range of $32,005 and a standard deviation of $4,464.84. The covariate “MFIZ,” was expressed in percent and reveals a mean of 13% and a median of 12%. The minimum was 3% and the maximum was 56% for a range of 53% and a standard deviation of 7.6%. The covariate “MFIA” was expressed in percent and reveals a mean of 14% and a median of 12%. The minimum was 5% and the maximum was 56% with a range of 51% and a standard deviation of 6.8%. Case summaries for the covariates appear in table 3.

Available tuition for all ACCS secondary schools falls into four tuition bands ranging from $2,500 to $40,000, see table 4 below. The first tuition band ranges from $2,500 to $5,000 and contains seven schools with an average tuition of $4,043. The second tuition band ranges from $5,001 to $10,000 and contains sixty-two schools with an average tuition of $7,726. The third tuition band ranges from $10,001 to $20,000 and contains forty-seven schools with an average tuition of $12,528. The final tuition band ranges from $20,001 to $40,000 and contains four schools with an average tuition of

$25,858. When the second and third tuition bands are combined, they represent 109 schools (86% of the research population) and their average tuition is $10,127, slightly higher than the mean and median listed above in table 3. The tuition bands reveal that while the maximum tuition of $34,755 does represent an outlier, this figure did not skew the data. Given the tuition mean of $9,996.22 and the tuition median of $9,253, both figures fall within the second and third tuition bands which represent 86% of the research population.

Table 4. Tuition bands for ACCS secondary schools

Tuition Band ($)	*Number of Schools*	*Average Tuition ($)*
2500- 5000	7	4043
5001- 10000	62	7726
10001- 20000	47	12528
20001- 40000	4	25858

Independent Variable Data

Of the 127 ACCS secondary schools in the research population, 76 schools—60% of the research population—indicated through their official, published curriculum documents that at least one Bible course was offered in grades 9-12. This data helped to answer a sub-question of Research Question 1—how are the Christian liberal arts and sciences at ACCS schools expressed as reflected in the presence of Bible courses? In other words, a majority of ACCS secondary schools utilize one or more Bible courses within the Christian liberal arts and sciences curriculum.

The independent variable data was coded as dichotomous, with N = 0 and Y =

1 based on whether or not the school's percentage of IFL language (as determined by occurrences of IFL language detected for each course description according to the protocol listed above) in each academic discipline was above or below the ACCS mean for that subject (Bible, English, math, science, social studies). The case summaries for all independent variables are presented in table 5. The mean was used because it provided a more precise break between the numbers than the median. The recorded mean of Bible course descriptions containing IFL language was 58%. The recorded mean of English course descriptions containing IFL language was 41%. The recorded mean of math course descriptions containing IFL language was 35%. The recorded mean of science course descriptions was 49%. The recorded mean of social studies course descriptions containing IFL language was 47%.

Table 5. Case summaries of the independent variables

		Bible	*BibleIFL*	*EngIFL*	*MathIFL*	*SciIFL*	*SSIFL*
Total	N	92	35	35	35	35	35
	Mean	0.83	0.60	0.51	0.34	0.57	0.54
	Median	1.00	1.00	1.00	0.00	0.00	0.00
	Minimum	0.00	0.00	0.00	0.00	0.00	0.00
	Maximum	1.00	1.00	1.00	1.00	1.00	1.00
	Range	1.00	1.00	1.00	1.00	1.00	1.00
	Std. Deviation	0.381	0.497	0.507	0.482	0.502	0.505

The variable "BibleIFL" represents the Y/N dichotomization of whether the schools' Bible courses were above or below the mean of 58%. The variable "EngIFL" represents the Y/N dichotomization of whether the schools' English courses were above or below the mean of 41%. The variable "MathIFL" represents the Y/N dichotomization of whether the schools' math courses were above or below the mean of 35%. The variable "SciIFL" represents the Y/N dichotomization of whether the schools' science courses

were above or below the mean of 49%. Lastly, the variable "SSIFL" represents the Y/N dichotomization of whether the schools' social studies courses were above or below the mean of 47%. The IFL presence was recorded using data gathered from all the schools within the population with official, published curricular documents available on the school website or through requesting the necessary data via email communication, the total number of schools included in this portion of the research study was 35—28% of the research population.

For the "Bible" variable, the mean of the Y/N responses was 0.60 with a median of 1. The standard deviation was 0.497. For the "EngIFL" variable, the mean of the Y/N response was 0.51, with a median of 1. The standard deviation was 0.507. For the "MathIFL" variable, the mean of the Y/N response was 0.34, with a median of 0. The standard deviation was 0.482. For the "SciIFL" variable, the mean of the Y/N response was 0.57, with a median of 0. The standard deviation was 0.502. Finally, for the "SSIFL" variable, the mean of the Y/N response was 0.54, with a median of 0, the standard deviation was 0.505.

Table 6. Overview of statistical analysis

Research Question	*Statistical Tools*	*Data Set*
Description of Sample	Descriptive statistics	Geographical location, tuition, information form school websites
Research Question 1	Descriptive statistics, means, standard deviations	*Independent variables:* Bible courses, Bible IFL, EngIFL, MathIFL, SciIFL, SSIFL
Research Question 2	Descriptive statistics, means, standard deviations	*Dependent variables:* AP_{avail}, SAT_{med}, TopCU *Covariates:* Tuition, MFIZ, MFIA
Research Question 3	Inferential statistics (ANOVA), tests to meet assumptions for inferential statistics (assumption of normality, homogeneity of variance)	*Independent variables:* Bible courses, Bible IFL, EngIFL, MathIFL, SciIFL, SSIFL *Dependent variables:* AP_{avail}, SAT_{med}, TopCU *Covariates:* Tuition, MFIZ, MFIA

Findings and Displays

This study sought to describe the relationship, if any, between academic rigor and the Christian liberal arts and sciences in ACCS schools with all secondary grades (9-12). The first research question explored how the Christian liberal arts and sciences are expressed at ACCS schools with regard to Bible courses and the presence of integration of faith and learning language. The second research question sought to examine the academic rigor of ACCS secondary schools with regard to their self-reported median SAT or ACT scores, AP course offerings, and top-ranked college and university admissions. The third research question sought to understand the relationship between the presence of the Christian liberal arts and sciences and overall academic rigor at ACCS secondary schools. The overview of all statistical analyses performed during this study is presented in table 6.

Research Question 1

The first research questions asked, "How are the Christian liberal arts and sciences at ACCS secondary schools expressed as reflected in the presence of Bible courses and integration of faith and learning language to core curricula (English/language arts, history/social studies, mathematics, and science)?"

To answer Research Question 1, all the data collected during phases1-3 of the study was analyzed. While collecting the data to answer this research question it was observed that many ACCS schools provided information in the form of official curriculum documents via their school website under an "Academics" tab. When available, this information was either in the form of one large school manual or course catalogue, a combined PDF document of course descriptions, the school handbook or contained in individual descriptions for each course housed in a specific place on the school website. In the event, that no official curricular documents were available on the school website, an email was sent explaining the purpose of the study and requesting official, publicly available documents. The research study template letter is included in

appendix 4. The response rate via email requests for official curriculum documents was 22% with a total of 104 emails sent to ACCS secondary school leaders and administrators.

Once all course descriptions were downloaded, they were immediately converted into a PDF file, and saved into a file with the corresponding ACCS secondary school. All official, publicly available course documents that were collected by school were entered into the NVivo 12 Pro software package for further analysis. A descriptive statistical summary from the SPSS analysis of the findings for the first research question appears in table 6 with explanations following.

Table 7. Descriptive statistics for all independent variables

	N	*Min.*	*Max.*	*Mean*		*Std. Dev.*	*Skewness*		*Kurtosis*	
	Stat.	*Stat.*	*Stat.*	*Stat.*	*Std. Err.*	*Stat.*	*Stat.*	*Std. Err.*	*Stat.*	*Std. Err.*
Bible	92	0.0	1.0	0.83	0.040	0.381	-1.749	0.251	1.083	0.498
BibleIFL	35	0.0	1.0	0.60	0.084	0.497	-0.427	0.398	-1.932	0.778
EngIFL	35	0.0	1.0	0.51	0.086	0.507	-0.060	0.398	-2.121	0.778
MathIFL	35	0.0	1.0	0.34	0.081	0.482	0.692	0.398	-1.617	0.778
SciIFL	35	0.0	1.0	0.57	0.085	0.502	-0.302	0.398	-2.028	0.778
SSIFL	35	0.0	1.0	0.54	0.085	0.505	-0.180	0.398	-2.091	0.778
Valid N (listwise)	35	—	—	—	—	—	—	—	—	—

Note: Data was recorded using rounding, entered as an integer, data below 0.5 was coded 0 in the program and data 0.5 and above was coded 1; Stat. = Statistic.

Once the qualitative analysis database was set up in NVivo 12 Pro and all qualitative data had been entered into the software, various word frequency counts were performed on Badley's three articles searching for the most frequently used words with a minimum word length of five letters. The word frequency counts included a search for

stemmed words, synonyms, and wild cards. The result of the word count content analyses of Badley's works was a list of one hundred key words used in Badely's IFL paradigms. The list of the most frequently occurring terms was then used as a guide for text query searches within the NVivo 12 database of ACCS school course descriptions. Those one hundred terms most frequently appearing in the Badley's paradigms appear in table A5 in appendix 5.

Once the word frequency count was completed, nodes were created for each of the one hundred most frequently used words in Badley's IFL paradigms. After the one hundred words were added as nodes, a key word searches (stemmed text, synonyms, wildcards) were performed within each of the coded course descriptions. When the key word searches were complete, each code was reviewed to ensure that any uses of the words that were irrelevant for the purposes of Badley's paradigms were uncoded in the course descriptions. Once each high frequency word was coded within its own individual node, the results were reviewed and then a comparison diagram was used to identify any overlap between any nodes and the possible merging of nodes within one another. The result of this review revealed IFL-related terms that were prominent in course descriptions among ACCS secondary schools and thus the IFL language found was coded into three parent nodes, "Understanding," "Christian," and "World." After examining each node for improper coding, a comparison diagram was used to analyze any overlap between each node, this resulted in moving some original nodes into child nodes. The parent node "Understanding" included the child nodes "Learning" and "Knowledge." The parent node "Christian" included the child node "Faith." The parent node "World" included the child nodes "Integration," "Theological," and "Worldview."

After recording each school's IFL data, the qualitative data from the content analysis was quantitized by coding the presence of any IFL language in a course description as a "1" and the non-presence of IFL language in a course as a "0." As a result of the coding process, several course descriptions displayed coding in multiple

nodes but were still counted as one single course with IFL language. The total number of courses showing IFL language was then divided by the total number of courses offered in that academic area or subject to achieve a percentage of courses expressing IFL language per subject or discipline. The calculated percentages of IFL were used to determine the overall mean percentage of ACCS secondary schools for each particular discipline or subject. Schools demonstrating a percentage of courses displaying IFL language above the mean were coded as "1" (Y = Yes) and those demonstrating a percentage below the mean were coded as "0" or (N= No). As a result, ACCS secondary school IFL language presence in Bible, English, math, science, social studies, and the added subject of integrated humanities were collected and recorded into comprehensive tables presented below in table 7 through table 12.

Bible. Of the 127 ACCS secondary schools in the research population, 76 schools—60% of the research population—indicated through official, publicly available curriculum documents that at least one Bible course was offered in grades 9-12. Whereas a researcher in an earlier study handled Bible course descriptions differently using a similar research methodology and population, for the purpose of this study ACCS secondary school Bible courses were used as a bellwether of sorts.[21] The reasoning behind this decision was twofold. First, using the most frequent keywords drawn from Badley's IFL paradigms may return relatively high percentages for ACCS secondary school Bible courses, resulting in a higher percentage of Bible courses with IFL language. These percentages could then serve as a standard by which to compare the other IFL percentage scores. Second, including the percentage of courses above the Bible IFL mean alongside of the four other independent variables may help to reveal the relationship, if any, between the Christian liberal arts and sciences and academic rigor.

[21] Jeffrey Michael Horner, "Christian Curricular Emphases and Academic Rigor: A Mixed Methods Study" (EdD thesis, The Southern Baptist Theological Seminary, 2016), 96.

The mean of Bible course descriptions with IFL language was 58% of ACCS secondary schools with all available data. After examining the Bible courses of all ACCS secondary schools with available data, 17% of the research population was above the mean for Bible courses containing IFL language. This data appears in table 7.

Table 8. BibleIFL mean data

Mean number of Bible Courses	2.60
Mean number of Bible Courses w/ IFL Language	0.80
Mean number of Bible Courses w/ IFL Language (%)	58
Number of Bible IFL Cases Above Mean Percentage	21

English. There were a total of 137 English courses included in all the available data collected for this study. All 137 courses were carefully analyzed for IFL language, the mean of English course descriptions containing IFL language was found to be 41%. Upon further examination it was observed that 14% of all ACCS secondary schools were above that mean of English courses containing IFL language. This data appears in table 8.

Table 9. EngIFL mean data

Mean number of Eng Courses	3.91
Mean number of Eng Courses w/ IFL language	0.54
Mean percentage of Eng Courses w/ IFL Language (%)	41
Number of ELA Cases Above Mean Percentage	18

Math. There were a total of 196 mathematics courses included in all the available data collected for this study. All 196 courses were carefully analyzed for IFL

language. Whereas Horner was unable to find any IFL language in the math courses within his study, some ACCS secondary schools included IFL language within the course descriptions for mathematics.[22] Many of these instances included a description of mathematics within a larger view general revelation, “Mathematics is a wonderful God-given tool that models the relationships of nature and science. It is the language spoken by God’s physical creation.” Other instances included the use of IFL language in learning outcomes which were embedded in course descriptions, “This course intends to give students an understanding of the beauty and order inherent in mathematics as God created it and as He continues to reveal new facets of it for humanity’s use.” The mean of math course descriptions containing IFL language was 36%, with 9% of ACCS secondary schools exceeding that mean with math courses containing IFL language. This data appears in table 9.

Table 10. MathIFL mean data

Mean number of Math Courses	5.6
Mean number of Math Courses w/ IFL language	0.36
Mean percentage of Math Courses w/ IFL Language (%)	35
Number of Math Cases Above Mean Percentage	12

Science. There were a total of 181 science courses included in all the available data collected for this study. After thoroughly examining the schools’ science course descriptions for IFL language, the mean for science course descriptions containing IFL language was revealed to be 49%. Furthermore, 15% of ACCS secondary schools were above that mean of science courses containing IFL language. This data appears in table 10.

[22] Horner, “Christian Curricular Emphases and Academic Rigor," 97.

Table 11. SciIFL mean data

Mean number of Science Courses	5.17
Mean number of Science Courses w/ IFL Language	0.508
Mean percentage of Science Courses w/ IFL Language (%)	49
Number of Science Cases Above Mean Percentage	19

Social studies. There were a total of 146 social studies courses included in all the available data collected for this study. After carefully analyzing the schools' social studies course descriptions for IFL language it was determined that the mean of social studies course descriptions containing IFL language was 57%. Of all the available data for 127 ACS secondary schools within this study, 16% of schools were above the mean of social studies courses containing IFL language. This data appears in table 11.

Table 12. SSIFL mean data

Mean number of SS Courses	4.17
Mean number of SS Courses w/ IFL language	0.57
Mean percentage of Social Studies Courses w/ IFL Language	47
Number of SS Cases Above Mean Percentage	20

Integrated Humanities. Of the 127 schools in the research population, seventeen included a course which blends Bible/theology, literature, history/social studies, as well as philosophy and/or Christian worldview and apologetics. These seventeen schools combined to offer a total of 72 integrated humanities courses. The mean percentage of courses expressing IFl language in integrated humanities was 34% with roughly 1% of ACCS secondary schools exceeding that mean. This data appears in table 12.

Table 13. IHIFL mean data

Mean number of IH Courses	2.06
Mean number of IH Courses with IFL Language	0.36
Mean percentage of IH Courses w/ IFL Language	34
Number of IH Cases Above Mean Percentage	6

Research Question 2

Research Question 2 asked, "How academically rigorous are ACCS secondary school curricula as reflected by median SAT scores, AP courses, and acceptances at the top-ranked colleges and universities in the United States?" To answer Research Question 2, the data collected throughout Phases 1 and 2 was examined. The research revealed that of the 127 schools in the research population, only ten schools—8% of the research population—provided all three measures of academic data. Sixty schools—47% of the research population—provided median SAT or ACT data, while 91 schools—72% of the research population—provided AP course data, and finally 66 schools (52%) provided data with regard to college acceptances. Additionally, 7 schools of the 127 in the study did not provide any tuition data on the school website, nor was any data provided through email correspondence. Given the volume of ACCS secondary schools in the United States, the small percentage of available, measurable data is surprising.

In total, the availability of self-reported data and publicly available, official curricular documents for ACCS secondary schools varied. All data gathered from the 127 schools in the research population was entered into the SPSS Standard Grad Pack 26 program. The SPSS software package excludes cases with missing data from a Type III model when conducting inferential statistics. By uploading all data that was collected for ACCS secondary schools into SPSS, descriptive statistics for all the variables in the research study were provided. Table 13 is a descriptive statistical analysis of findings representing the quantitative data which includes the dependent variables and covariates.

Table 14. Descriptive statistics for dependent variables and covariates

	N	*Min.*	*Max.*	*Mean*		*Std. Dev.*	*Skew.*		*Kurt.*	
	Stat.	*Stat.*	*Stat.*	*Stat.*	*Std. Err.*	*Stat.*	*Stat.*	*Std. Err.*	*Stat.*	*Std. Err.*
AP_{avail} (%)	91	0	52	7.62	1.37	13.118	1.89	0.25	3.028	0.500
Median SAT	60	1060	1465	1281.78	10.74	83.209	-0.07	0.31	-0.126	0.608
TopCU (%)	66	0	52	8.91	1.20	9.760	2.18	0.30	10.609	0.582
Tuition ($)	120	2750	34755	9996.22	407.58	4464.84	2.13	0.22	8.151	0.438
MFIZ ($)	120	19922	234567	88247.06	3780.76	41416.13	1.12	0.22	1.624	0.438
MFIA ($)	127	19922	175369	80691.80	2864.80	32284.70	0.76	0.22	-0.034	0.427
Valid N (listwise)	45	—	—	—	—	—	—	—	—	—

Note: Data was recorded using rounding, entered as an integer, data below 0.5 coded 0 in the program and data 0.5 and above is coded 1; "Stat." = Statistic, "Skew." = Skewness, "Kurt." = Kurtosis.

ACCS secondary schools have a mean SAT_{med} of 1282 (Std. Dev. of 83 pts), mean percentage 8% of AP_{avail} courses (Std. Dev. of 13 pts), and admission to 9% of the TopCU (Std. Dev. of 9 pts) in the United States. National statistics do not record two of the academic rigor measures used in this study, only SAT_{med} data is provided as a data point for comparison. Table 14 provides a measure of national SAT scores at comparable levels to those of ACCS secondary schools. National scores are reported means, similar to the scores that ACCS schools self-reported in their published school documents or posted on the school website. This table demonstrates that ACCS schools are above national comparison groups when measured by the SAT means, thus ACCS secondary schools are academically rigorous in this regard.[23]

[23] "Average Private School SAT Scores by State (2018-19)," accessed September 3, 2019, https://www.privateschoolreview.com/average-sat-score-stats/national-data; "2018 SAT Results Released - League of Christian Schools," accessed September 3, 2019, https://www.lcs.education/4198-2/.

Table 15. Comparison of ACCS schools with recent SAT data

Grouping	*Mean SAT (CR + M)*	*Difference from ACCS Schools*
National Mean	1068	-214
Private Schools	1235	-47
Religious Schools	1153	-129
ACCS Schools	1282	—

Note: All data are for 2018 or most recently available and rounded to the nearest whole number

Research Question 3

Research Question 3 asked, "What is the relationship between the presence of the Christian liberal arts and sciences and overall academic rigor at ACCS secondary schools?"

Inferential statistics were performed on the data gathered during in the first two phases of this study to answer Research Question 3. Answers to the research question emerged during Phase 4 and constituted the most sophisticated portion of the study. Before inferential statistics could be performed the data had to meet certain assumptions. Field helps explain the importance of testing for assumptions, "when assumptions are broken we stop being able to draw accurate conclusions about reality. Different statistical models assume different things, and if these models are going to reflect reality accurately then these assumptions need to be true."[24] Once the assumptions for an ANOVA were met, a general linear model (GLM) univariate or two-way ANOVA was selected as the inferential statistical tool to use. A GLM univariate ANOVA was performed whereby all of the independent variables or fixed factors were included in the analysis. Lastly, an

[24] Field, *Discovering Statistics*, 132. Given the importance of meeting assumptions before conducting inferential statistics, appendix 9 contains a detailed description of all the assumptions that were met in order to begin answering Research Question 3.

analysis of covariance (ANCOVA) was used in order to factor in other variables such as MFIA that may influence the outcome variable.[25]

ANOVA Results

A two-way general linear model (GLM) ANOVA was carried out using SAT_{med} as the dependent variable and Bible, BibleIFL, EngIFL, MathIFL, SciIFL, and SSIFL as the independent variables. For any statistical analysis to generalize beyond the sampled population, it must be random and achieve significance at a level of $p < 0.05$. Within the social sciences, significance is the conventional measurement used with examining relationships. However, Garson identifies one exception to social science norms,

> If data are an enumeration (census) of all observations, then significance is moot. All findings, however weak, are 'real' and have a true significance level of p = 0.000, contrary to the computed asymptotic estimate of significance. Sampling is not required if data are an enumeration. Though reporting significance for enumeration data is common, significance estimates confound effect size and sample size. For enumeration data it is better simply to report effect size.[26]

Thus, rather than report out significance estimates this study will report effect size.

With regard to ANOVA Garson writes, "ANOVA focuses on F-tests of significance of differences in group means. If one has an enumeration rather than a sample, then any difference of means is 'real'."[27] Since this study represents a census of all ACCS secondary schools with all grades (9-12) the reporting of this study concentrated on effect size, measured by partial eta squared (η_p^2), rather than statistical significance, as measured by *p* values. The results of the two-way ANOVA are presented in table 17 below with discussion following for the interaction displaying effect sizes in terms of partial eta squared (η_p^2).[28]

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[25] Field, *Discovering Statistics*, 396.

[26] Garson, *GLM, Multivariate, MANOVA, & Canonical Correlation*, locs. 1764-62, Kindle.

[27] Garson, *Univariate GLM, ANOVA, & ANCOVA*, loc. 345, Kindle.

[28] "Computed significance levels are reported in order to follow social science convention.

Table 17 shows that the ACCS secondary schools have a mean SAT_{med} of 1269.9, with a standard error of 14.3%. Table 18 displays a side-by-side comparison of the means of SAT_{med} according to the descriptive statistics, the two-way ANOVA, and the ANCOVA.

Table 16. ANOVA grand mean

SAT_{med}			
Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
1269.972[a]	14.349	1236.041	1303.903

Note: a. Based on modified population marginal mean.

Table 17. Comparison of means from descriptive statistics, two-way ANOVA estimated marginal means, and ANCOVA estimated marginal means.

	SAT_{med}	
	Mean	Std. Error
Descriptive	1281.78	10.742
Two-way ANOVA	1269.97	14.349
ANCOVA	1270.72	15.144

The means in table 18 are based on modified population marginal mean and demonstrate inconsistent trends related to the Christian liberal arts and sciences and SAT_{med} when comparing descriptive statistics, the two-way or univariate ANOVA, and the ANCOVA. Table A11 in appendix 9 shows all interactions between the independent variables with small, medium, and large effect sizes on the dependent variable. Table 19

However, as the data are an enumeration of all cases, the actual significance level for all findings is p = 0.000, not the computed level, which assumes the data are a random sample of the size of the enumeration," Garson, *GLM Multivariate, MANOVA, & Canonical Correlation*, loc. 1772, Kindle.

has been edited from the original SPSS output to display only those interactions between variables that show a large or medium effect, measured by partial eta squared (η_p^2).

The rules of thumb for effect size measured by partial eta squared are η_p^2 = 0.01, small or weak; η_p^2 = 0.06, medium; η_p^2 = 0.14, large or strong.[29] According to the stated rules of thumb, the interactions and isolated content effects (in order of strength) are BibleIFL*MathIFL F(2, 7) = 4.401, η_p^2 = 0.386; BibleIFL F(1,7) = 0.459, η_p^2 = 0.62; EngIFL F(1, 7) = 0.790, η_p^2 = 0.101; SciIFL F(1,7) = 3.497, η_p^2 = 0.333; and SSIFL F(1,7) = 3.840, η_p^2 = 0.354. These findings show that ACCS schools experience strong effects with regard to the presence of IFL language in the Christian liberal arts and sciences (Bible, English, math, science, and social studies) curriculum and SAT_{med} scores.

Table 18. Two-way analysis of variance (ANOVA)

Source	*Type IV Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial Eta Squared*
BibleIFL	1420.455[a]	1	1420.455	0.459	0.520	0.062
EngIFL	2444.643[a]	1	2444.643	0.790	0.404	0.101
SciIFL	10820.455[a]	1	10820.455	3.497	0.104	0.333
SSIFL	11881.000[a]	1	11881.000	3.840	0.091	0.354
BibleIFL * MathIFL	13615.364[a]	1	13615.364	4.401	0.074	0.386
Error	21657.667	7	3093.952	—	—	—
Total	31147228.000	19	—	—	—	—
Corrected Total	89266.737	18	—	—	—	—

Note: a. The Type IV testable hypothesis is not unique.

[29] Daniel Lakens, "Calculating and Reporting Effect Sizes to Facilitate Cumulative Science: A Practical Primer for T-Tests and ANOVAs," *Frontiers in Psychology* 4 (2013).

Table 19. BibleIFL*MathIFL Mean

Dependent Variable	*Bible IFL*	*Math IFL*	*Mean*	*Std. Error*	*95% Confidence Interval*	
					Lower Bound	*Upper Bound*
SAT_{med}	N	N	1287.000	36.946	1208.252	1365.748
		Y	1232.000	52.249	1120.633	1343.367
	Y	N	1270.286	27.928	1210.758	1329.814
		Y	1298.000	30.166	1233.702	1362.298

Estimated marginal means for the model have been produced in table 20 through table 24 along with further discussion about each of the independent variables. The BibleIFL*MathIFL partial eta squared found in table 20 is also displayed in table A13 found in appendix 9 and suggests a strong effect ($\eta_p^2 = 0.386$) for an interaction on the dependent variable SAT_{med}.

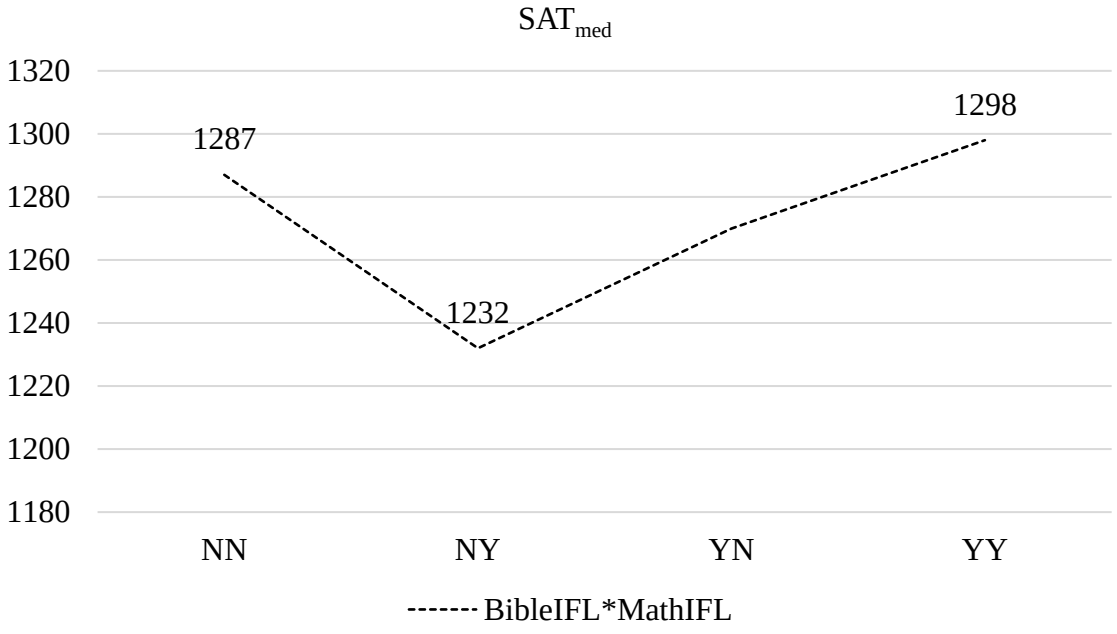

Figure 2. Estimated marginal means of SAT_{med} for BibleIFL*MathIFL

Figure 2 demonstrates that when BibleIFL courses were below the ACCS school's mean (BibleIFL = N) and MathIFL courses were below the ACCS schools' mean (MathIFL = N) the mean SAT_{med} score was 1287. When the BibleIFL courses were above the ACCS schools' mean (BibleIFL = Y) and MathIFL courses were above the ACCS schools' mean (MathIFL = Y), the mean SAT_{med} score was 1298. Both mean scores exceeded the ACCS schools' grand mean score for SAT_{med} (12679.97) by at least 18 points. This interaction also produced scores that drop below or close to the ACCS schools' grand mean for SAT_{med}. When BibleIFL courses were below the ACCS schools' mean (BibleIFL = N) and MathIFL courses were above the ACCS schools' mean (MathIFL = Y), the mean SAT_{med} score was 1232. Likewise, when BibleIFL courses were above the ACCS schools' mean (BibleIFL = Y) and MathIFL courses were below the ACCS schools' mean (MathIFL = N), the mean SAT_{med} score was 1270. Overall, this interaction demonstrated both a strong effect size ($\eta_p^2 > 0.14$) and a positive relationship between SAT_{med} and the presence of IFL language when both Bible and math courses were above the ACCS schools' mean for BibleIFL and MathIFL. The data containing the estimated marginal means for this interaction are presented in table 20 and in table A13 in appendix 9.

The mean for BibleIFL suggested a medium effect on SAT_{med} at $\eta_p^2 = 0.062$. The two-way ANOVA revealed that when BibleIFL courses were below the ACCS schools' mean (BibleIFL = N), the mean for SAT_{med} was 1261.67, below the grand mean of 1269.97. On the other hand, when BibleIFL courses were above the ACCS schools' mean (BibleIFL = Y), the mean for SAT_{med} was 1274.13, higher than the grand mean for SAT_{med}. This finding demonstrated a medium effect size for the relationship between BibleIFL courses above the ACCS schools' mean (BibleIFL = Y) and SAT_{med}. Table 21 contains the estimated marginal means for BibleIFL courses.

Table 20. BibleIFL estimated marginal means for SAT_{med}

BibleIFL	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1261.667[a]	25.388	1201.633	1321.701
Y	1274.125[a]	17.382	1233.022	1315.228

Note: a. Based on modified population marginal mean.

The mean for EngIFL also suggested a medium effect size on SAT_{med} at η_p^2 = 0.101. The two-way ANOVA revealed that when English courses were above the ACCS school's IFL English mean (EngIFL = Y) the mean for SAT_{med} was 1245.857, nearly twenty-four points below the grand mean for SAT_{med}. When English courses were below the ACCS schools' IFL English mean (EngIFL = N) the mean for SAT_{med} jumped to 1303.733, roughly thirty-four points above the grand mean for SAT_{med} and nearly fifty-eight points above the EngIFL = Y mean for SAT_{med}. This finding demonstrated a medium effect size for English courses below the ACCS schools' mean (EngIFL = N) and SAT_{med}. Table 22 contains the estimated marginal means for EngIFL courses.

Table 21. EngIFL estimated marginal means for SAT_{med}

EngIFL	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1303.733[a]	23.158	1248.974	1358.493
Y	1245.857[a]	18.207	1202.804	1288.910

Note: a. Based on modified population marginal mean.

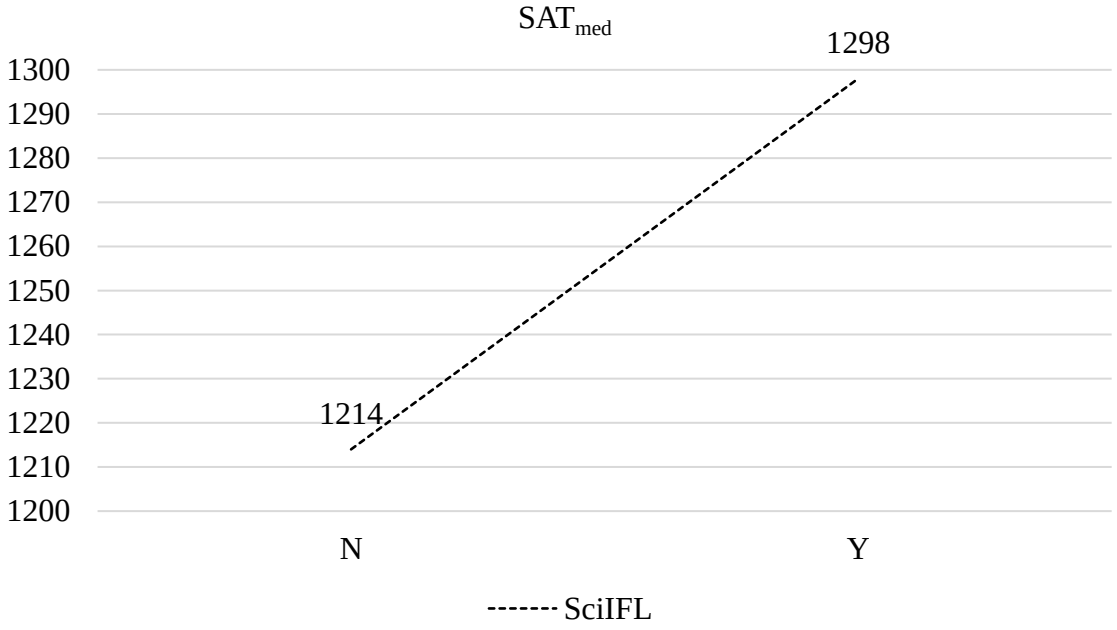

Figure 3. Estimated marginal means of SAT_{med} for SciIFL

Unlike EngIFL, the mean for SciIFL suggested a strong effect size on SAT_{med} at $\eta_p^2 = 0.333$. As figure 3 above demonstrates, the two-way ANOVA revealed that when science courses were below the ACCS schools' IFL science mean (SciIFL = N) the mean for SAT_{med} was 1214.42, much lower than the grand mean for SAT_{med}. Yet when science courses were above the ACCS schools' IFL mean for science (SciIFL = Y) the mean for SAT_{med} was 1297.75, eighteen points higher than the grand mean for SAT_{med}. With regard to SciIFL, there is a strong effect size related to science courses above the ACCS schools' mean (SciIFL = Y) and SAT_{med}. Table 23 contains the estimated marginal means for SciIFL courses.

Table 22. SciIFL estimated marginal means for SAT_{med}

SciIFL	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1214.417[a]	25.388	1154.383	1274.451
Y	1297.750[a]	17.382	1256.647	1338.853

Note: a. Based on modified population marginal mean.

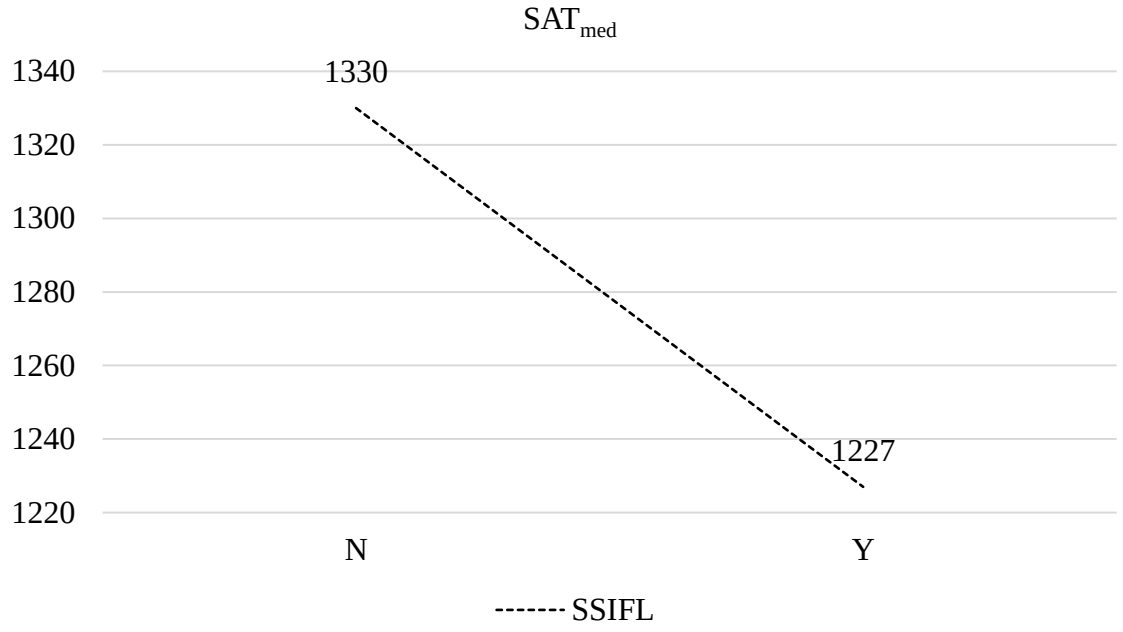

Figure 4. Estimated marginal means of SAT_{med} for SSIFL

The SSIFL mean also suggested a strong effect size on SAT_{med} at $\eta_p^2 = 0.354$. As demonstrated above in figure 4, the two-way ANOVA revealed that when social studies courses were below ACCS schools' mean for IFL in social studies (SSIFL = N) the mean for SAT_{med} was 1330.43, the highest SAT_{med} mean in the ANOVA for any of the independent variables. When social studies courses were above the ACCS schools' IFL mean (SSIFL = Y) the mean for SAT_{med} dropped one hundred points to 1229.79, well

below the grand mean for SAT_{med} (1269.97). Overall, SSIFL courses below the ACCS schools' mean for IFL in social studies (SSIFL = N) show a strong effect size on SAT_{med}. Table 24 contains the estimated marginal means for SSIFL courses.

Table 23. SSIFL estimated marginal means for SAT_{med}

SSIFL	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1330.433[a]	21.781	1278.930	1381.937
Y	1226.786[a]	19.054	1181.729	1271.842

Note: a. Based on modified population marginal mean.

ANCOVA Results

The findings from the two-way ANOVA established the baseline for inferential statistical analysis for this study. The next step in Phase 4 was to add covariates to the model. Before any covariates could be added to the model, assumptions were tested to ensure that the variables and covariates did not violate the testing assumptions.[30]

The independent variables and interactions identified earlier in the ANOVA are compared with those from the ANCOVA and presented in table 25. After the findings have been presented below, comments follow on the overall effect of the independent variables, the interactions, and the effect sizes on the dependent variable.

[30] For a description of all the assumptions met before beginning the ANOCOVA see appendix 10.

Table 24. Partial eta squared of ANOVA compared with partial eta squared of ANCOVA

Independent Variables and Interactions	*ANOVA* η_p^2	*ANCOVA* η_p^2
Bible	—	—
BibleIFL	0.062	0.038
EngIFL	0.101	0.093
MathIFL	0.000	0.000
SciIFL	0.333	0.262
SSIFL	0.354	0.229
BibleIFL*MathIFL	0.386	0.351
MathIFL*SciIFL	0.000	0.000

Each of the independent variables from the ANOVA were unaffected or weakened when the covariate (MFIA) was included in the analysis. Furthermore, BibleIFL*MathIFL and MathIFL*SciIFL the two strongest interactions to emerge in the ANOVA were weakened or unaffected by the inclusion of the covariate. Table 28 shows the results of the ANCOVA in terms of the effect size for each of the independent variables and the interactions between certain variables.

Table 25. Analysis of covariance (ANCOVA)

Source	*Type IV Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial Eta Squared*
Corrected Model	68741.462[a]	12	5728.455	1.675	0.272	0.770
Intercept	1891401.258	1	1891401.258	552.899	0.000	0.989
MFIA	1132.392	1	1132.392	0.331	0.586	0.052
BibleIFL	802.805[b]	1	802.805	0.235	0.645	0.038
EngIFL	2096.152[b]	1	2096.152	0.613	0.464	0.093
MathIFL	2.056[b]	1	2.056	0.001	0.981	0.000
SciIFL	7293.444[b]	1	7293.444	2.132	0.195	0.262
SSIFL	6109.277[b]	1	6109.277	1.786	0.230	0.229
BibleIFL * MathIFL	11122.784[b]	1	11122.784	3.251	0.121	0.351
MathIFL * SciIFL	5.787[b]	1	5.787	0.002	0.969	0.000
Error	20525.275	6	3420.879	—	—	—
Total	31147228.000	19	—	—	—	—
Corrected Total	89266.737	18	—	—	—	—

Note: a. R Squared = .770 (Adjusted R Squared = .310), b. The Type IV testable hypothesis is not unique.

While the grand mean for the ANCOVA (1270.717) was slightly higher than the grand mean for the ANOVA (1269.97), controlling for MFIA as a covariate did not increase the effect size of any of the independent variables on the dependent variable nor on any of the independent variable interactions on the dependent variable.

Comparison of Estimated Marginal Means

The ANCOVA revealed that the addition of the covariate (MFIA) led to a larger standard error for the dependent variable SAT_{med} but resulted in a slightly larger marginal mean as compared to the ANOVA. Furthermore, the addition of the covariate (MFIA) resulted in a slightly higher mean of SAT_{med} (1269.972 in ANOVA < 1270.72 in ANCOVA) reported by ACCS schools though in controlling for the covariate there was less of an effect size on the dependent variable (SAT_{med}) due to the various interactions among the independent variables as well as from each of the independent variables. Figure 5 below shows the dip in SAT_{med} scores when comparing the mean score from the descriptive statistics (1282) to the mean score from the ANOVA (1270). Furthermore, the mean score from the ANOVA (1270) slightly increased to 1271when MFIA was added as a covariate in the ANCOVA. In other words, the integration of faith and learning and median family income both have an effect on the median SAT scores of secondary students who attend classical Christian schools.

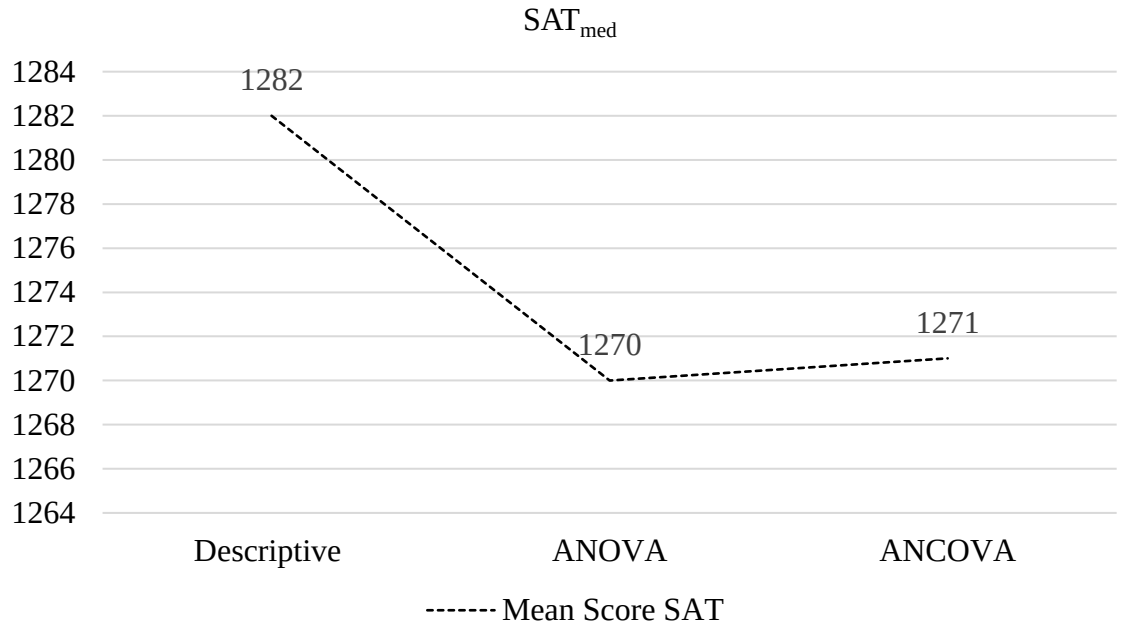

Figure 5. Estimated marginal mean scores on SAT_{med}

Evaluation of the Research Design

This section presents an evaluation of the strengths and weaknesses of the research design for this study. Overall, I was pleased with the design of the research project, the general process of gathering the data, and the analyses of the data.

Strengths of the Research Design

The greatest strengths of this research design can be seen in the data, sources, and tools used within this study. Specifically, the type of data collected, the readily accessible sources used to access the data, and the powerful tools used to analyze the data. The use and relative ease in acquiring publicly accessible data through internet resources such as school websites or email addresses was one of the biggest strengths of this research design. Numerous sources such as ACCS schools had published academic or graduate profiles, curriculum guides, scope and sequence documents, course catalogues

or course descriptions, as well as tuition and fees schedules all of which were made available on their school websites or through email communication. Furthermore, documents and data from other sources such as the US Census Bureau and US ZIP code search engines were also easily accessible and resulted in the swift collection of a multitude of divergent variables for this study. Finally, the use of widely used software programs such as Microsoft Excel, QSR International's NVivo 12 Pro, and IBM's SPSS all of which enabled me to streamline the collection, organization, collation, and analysis of the research data, allowing me to build meaningful data tables.

The type of data, the availability of the sources, and the sophistication of the analytical tools used in this project resulted in a successful exploratory analysis of previously unexamined data from ACCS secondary schools. An additional benefit of this research design was in the use of all 127 ACCS secondary schools as a census population thereby eliminating the need to be concerned about statistical significance for data within a sample size. One final strength of this research design was the use of complex inferential statistics (ANOVA, ANCOVA) to prevent Type I statistical errors when examining the relationships, resulting in a more detailed set of conclusions about the independent variables and the dependent variable.

Weaknesses of the Research Design

The greatest weakness in the research design came from two areas: the variance in the research population and the difficulty of learning how to manipulate and interpret complex statistical analyses. In terms of the research population, as of February 2019 there were 127 ACCS secondary schools with grades 9-12 yet only 49% provided top college and university admittances, only 46% had SAT data available, just 28% offered publicly available curriculum documents, and only 27% provided AP course data.

The problem of variance within the research population resulted in a relatively small number of available curriculum documents to analyze. As a result, the lack of

available official curriculum documents limited the scope of the study. On the other hand, the small number of available curriculum documents highlighted a disadvantage of merging qualitative and quantitative data as described by Driscoll et al as "the sample size problem."[31] The sample size problem arises when researchers measuring qualitative data reduce the sample size and thus curtail the kinds of statistical procedures that might reasonably be used, particularly the more rigorous parametric measures of association, such as analyses of variance. Driscoll et al describe the sample size problem as a serious challenge for mixed methods studies involving quantitization. These researchers observed, "Prospective mixed methods researchers should be aware of the sample size required to provide sufficient statistical power for the study question, and whether the study parameters will allow for the inclusion of quantitized qualitative data."[32] One way the present study sought to overcome the sample size problem identified by Driscoll et al, was to perform a census of all ACCS secondary schools. Unfortunately, the census resulted in a small number of available curriculum documents which mimicked the sample size problem. Future research in the area of ACCS secondary school curriculum via official curriculum documents should take note of the lack of availability of such documents and the limitations within this mixed methods approach of quantitzing such limited qualitative data.

Given the passion, growth, and academic focus behind the classical Christian school movement, it was startling to discover a dearth of publicly available curriculum documents and self-reported academic rigor data. While there are hundreds of ACCS schools across the United States (290 as of February 2019), the degrees of variance within this field make further empirical research needed and yet challenging. While

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[31] Driscoll et al., "Merging Qualitative and Quantitative Data in Mixed Methods Research: How to and Why Not," 25.

[32] Driscoll et al., "Merging Qualitative and Quantitative Data in Mixed Methods Research: How to and Why Not," 25.

ACCS maintains high standards for both member schools and accredited member schools, perhaps a focus on greater uniformity with regard to high academic standards and accountability within the ACCS organization may help to close the gap between the disparity between member schools and accredited member schools.

With regard to the research design and the phases of the study, any and all errors in data compilation were a result of those errors possessed within the publicly available databases used for data collection. One final weakness in this research design was the complexity of the statistical analysis involved in the study. There were hours of unplanned reading and troubleshooting involved with utilizing NVivo 12 and SPSS, resulting in more time engaged in running analyses to ensure precise measures for the meaningful and accurate communication of complex ideas.

Summary of Analysis

With respect to Research Question 1, the research revealed that of 127 ACCS secondary schools, 60% of the research population had at least one Bible course in the 9-12 curriculum with an average of 58% of Bible courses with IFL language. ACCS secondary school English course descriptions showed an average of 41% of their courses with IFL language, while math course descriptions showed an average of 35% of their courses with IFL language, science course descriptions showed an average of 49% of their courses with IFL language, and social studies course descriptions showed an average of 57% of their courses with IFL language.

With respect to Research Question 2, the research demonstrated that ACCS secondary schools were academically rigorous with a mean SAT score of 1282 and admission to an average of 9% of the top colleges and universities in the United States. While 72% of ACCS secondary schools offered at least one AP course, an average of 8% of all AP core courses offered within ACCS secondary schools does not demonstrate academically rigorous curricula. The research also revealed that ACCS schools offering

all secondary grades (9-12) had a mean tuition rate of $ 9,996.22, representing 13% of the median family income for their ZIP code, and 14% of the median family income for the ZIP code of their area.

With respect to Research Question 3, the research showed that several independent variables had strong or medium effect sizes on the dependent variable, SAT_{med}. The strongest effect size in the ANOVA was produced by the interaction between BibleIFL and MathIFL. The strongest effect size for any of the independent variables in the ANOVA was produced by SSIFL. Controlling for the effect of MFIA did not enhance the overall strength of ACCS schools' academic rigor as defined by SAT_{med} scores. ACCS schools' marginal mean for SAT_{med} decreased from 1282 in the simple descriptive statistics to 1270 in the ANOVA and then slightly increased to 1271 when the covariate was added in the ANCOVA. While the inclusion of the covariate to control for the effects of income resulted in a slight increase in the mean score for SAT_{med} there was no increase in the strength of any of the interactions or of the independent variables on the dependent variable.

Overall, the ANOVA helped to enhance the findings of the descriptive statistics for academic rigor, the presence of the integration of faith and learning language, and the relationship between the Christian liberal arts and sciences and academic rigor within ACCS schools with all secondary grades (9-12) in 2019. These findings reveal that academic rigor in terms of SAT_{med} demonstrates a multi-faceted relationship with IFL language within ACCS secondary schools.

In total, generalizations that result from this study should carry the caveat that findings from the smaller ACCS populations with publicly available curriculum documents and academic rigor data, may not generalize to the larger population within ACCS secondary schools. Secondly, with hundreds of ACCS secondary schools within the United States the degree of variance within this population make further empirical

research needed and yet challenging as schools within the same geographic region or ZIP code may differ significantly.

CHAPTER 5

CONCLUSIONS

This research study was designed to explore and describe the relationship between the Christian liberal arts and sciences and academic rigor in the classical Christian school movement. It constituted a convergent data-transformation design that filled a void in the research base with regard to the descriptive analysis of the Christian liberal arts and sciences curriculum, the descriptive analysis of academic rigor and the presence of IFL language among ACCS schools with all secondary grades (9-12). This study has provided a foundational basis for future research in the area of classical Christian schools.

Research Purpose

Classical Christian schools (CCS) emerged onto the American landscape in the late 1970s and early 1980s. Over a thirty-year period, the number of CCS schools in the United States has increased exponentially. To date, the Association of Classical Christian Schools (ACCS) as an organization leads the CCS movement. With the growing national attention that the CCE movement has received along with the emergence of more ACCS schools across the United States, the present study is both timely and necessary as an analysis of the classical curriculum had yet to be conducted.

This research intended to explore the correlation of educating along an explicitly classical Christian framework and academic rigor. The purpose of this mixed methods study was to determine and describe the relationship between academic rigor and the Christian liberal arts and sciences within the secondary school curricula of all ACCS schools in the United States.

Research Questions

This research study sought to explore the Christian liberal arts and sciences curriculum and academic rigor. The research purpose was guided by the following three questions:

1. How are the Christian liberal arts and sciences at ACCS secondary schools expressed as reflected in the presence of Bible courses and integration of faith and learning language to core curricula (English/language arts, history/social studies, mathematics, and science)?

2. How academically rigorous are ACCS secondary school curricula as reflected by median SAT scores, AP courses, and acceptances at top-ranked colleges and universities in the United States?

3. What is the relationship between the presence of the Christian liberal arts and sciences and overall academic rigor at ACCS secondary schools?

Research Implications

This section lists the implications from the findings of this research study followed by explanations of each and grouping the implications according to the research questions.

1. ACCS secondary schools vary widely from one another, especially with regard to the availability of publicly accessible curriculum documents.

2. A small percentage of ACCS secondary schools have publicly available, official curriculum documents which embed the core four subjects within a larger approach to the Christian liberal arts and sciences.

3. A very small percentage of ACCS secondary schools consistently demonstrate some form of IFL language throughout the Christian liberal arts and sciences curriculum.

4. A majority of ACCS secondary schools include one or more Bible courses as part of the Christian liberal arts and sciences curriculum.

5. Many ACCS secondary schools are academically rigorous when comparing their mean SAT scores to all other comparable groups.

6. ACCS secondary schools' academic rigor in terms of percentage of AP courses offered and admission to top colleges and universities is not comparable to other groups of schools due to the lack of records being kept on those measurements of academic rigor.

7. The relationship between the Christian liberal arts and sciences, the form of IFL, and academic rigor determined by mean SAT scores is multifaceted. Both positive and negative relationships exist depending on the impact of the interaction between certain independent variables.

8. The presence of BibleIFL courses above the ACCS mean correlate positively with higher SAT measurements when interacting with MathIFL course above the ACCS mean with a strong effect size.

9. The presence of SSIFL courses below the ACCS mean correlate positively with higher SAT measurements with a strong effect size.

10. The presence of SciIFL courses above the ACCS mean correlate positively with higher SAT measurements with a strong effect size.

11. The presence of EngIFL courses below the ACCS mean correlate positively with higher SAT measurements with a medium effect size.

12. The presence of BibleIFL courses above the ACCS mean correlate positively with higher SAT measurements with a medium effect size.

The Christian Liberal Arts and Sciences in ACCS Schools

Research Implication 1: ACCS secondary schools vary widely from one another, especially with regard to the availability of publicly accessible curriculum documents. All the research implications under Research Question 1 are tied to this overarching implication, in other words the degree of variance within ACCS secondary schools is massive. While this study used a census of the research population, the available data for ACCS secondary schools was considerably small. Of the 127 ACCS secondary schools within the research population only thirty-five schools—27% of the research population—provided publicly available, official curriculum documents either through the school websites or via email communication. With the rapid growth of the classical Christian school movement and the emergence of ACCS as the leading classical Christian school organization in the United States the degree of variance found within ACCS secondary schools with regard to the availability of official curriculum documents was surprising. One-fourth of ACCS secondary schools provided publicly available

curriculum documents while three-fourths of the research population did not provide, nor offer such information to the public. Therefore, generalizations that result from this study should carry the caveat that findings from the smaller population may not generalize to the larger population within ACCS secondary schools.

Research Implication 2: A small percentage of ACCS secondary schools have publicly available, official curriculum documents which embed the core four subjects within a larger approach to the Christian liberal arts and sciences. While it might be assumed that the core four are present within the curricula of those 92 secondary schools not included in the content analysis for this study, there is no way to verify such an assumption. Of the ACCS research population, 27% demonstrated how the core four of English, mathematics, science, and social studies along with Bible were integrated into a curriculum representative of the Christian liberal arts and sciences via publicly available official curriculum documents.

Research Implication 3: A very small percentage of ACCS secondary schools consistently demonstrate IFL language throughout the Christian liberal arts and sciences curriculum. Of 127 secondary ACCS schools, 11% demonstrated consistent IFL language throughout the Christian liberal arts and sciences curriculum with the presence of IFL language above the ACCS mean in three or more subjects. Furthermore, of the 35 schools with publicly available curriculum documents, the average amount of course descriptions containing IFL language was 46% with Bible courses and social studies courses having the highest number of cases above the IFL mean percentage.

Research Implication 4: A majority of ACCS secondary schools include one or more Bible courses as part of the Christian liberal arts and sciences curriculum. The presence or non-presence of Bible courses represented one area where there was more information available than usual for ACCS secondary schools. Of the 127 secondary schools in the study, 72% provided publicly available information about the presence or non-presence of Bible courses within their curriculum. A majority of ACCS secondary

schools (60%) reported the presence of one or more Bible courses within the Christian liberal arts and sciences curriculum. The ACCS mission statement explicitly states that the organization is committed to a classical approach to education in light of a Christian worldview grounded in the Old and New Testament Scriptures, a majority of ACCS schools demonstrate this commitment within the Christian liberal arts and sciences curriculum.

Academic Rigor among ACCS Schools

Research Implication 5: Many ACCS secondary schools are academically rigorous when comparing their mean SAT scores to all other comparable groups. ACCS secondary schools demonstrated high SAT_{med} scores (1282) compared to national averages of private schools (1235), religious schools (1153), and the national mean (1068). The highest mean score for ACCS secondary schools in this study came from the mean of the descriptive statistics, whereas the mean from the ANOVA was lower (1269) and the mean from the ANCOVA (1270) was slighter higher than the ANOVA mean but lower than the descriptive mean. All three of the SAT_{med} means for ACCS secondary schools were higher than any of the other comparable groups thus the mean SAT scores for ACCS secondary schools suggest that these schools are academically rigorous.

Research Implication 6: ACCS secondary schools' academic rigor in terms of percentage of AP courses offered and admission to top colleges and universities is not comparable to other groups of schools due to the lack of records being kept on those measurements of academic rigor. ACCS secondary schools demonstrated a small percentage of AP course offerings when looking at the descriptive statistics, with a mean of 8% of possible AP courses offered. A total of ninety-one schools—72% of the research population—provided information with regard to AP courses offered within the Christian liberal arts and sciences curriculum. When AP_{avail} is calculated using only the ACCS secondary schools that offer AP courses, the percentage increases from 8% to 20% of

possible courses offered. In other words, when schools that do not offer AP courses are included in the calculation for AP course percentage, the number for ACCS secondary schools is 8% as opposed to 20% when such schools are removed from the average. Given the low percentage of AP courses offered within the research population, it is concluded that a majority of ACCS secondary schools do not offer academically rigorous courses with regard to AP_{avail}.

Whether or not AP_{avail} is a valid measure for classical Christian schools with regard to academic rigor remains to be seen. While the justification for AP_{avail} as one measure of academic rigor is supported by earlier chapters within this study, as well as the large percentage of ACCS secondary schools which self-report the availability of AP courses offered (72%). For the purposes of this research study, the usefulness of AP_{avail} as an indicator of academic rigor was low. Numerous ACCS secondary schools included a statement on their official curriculum documents or their school website explaining why their institution does not offer AP courses. These reasons ranged from a confidence in the high level of academic rigor of the school's curriculum to philosophical, ideological, or theological differences with the College Board. Further research may investigate the legitimacy of AP courses offered as a measure of academic rigor for classical Christian schools.

Additionally, 66 schools—52% of the research population—demonstrated a small percentage of TopCU admissions when looking at the descriptive statistics, with a mean of 9% of top colleges and universities admitting ACCS schools' students. As with AP_{avail} when TopCU is calculated only using those ACCS secondary schools that reported at least one admittance to TopCU then the percentage increases slightly from 9% to 10%. In other words, whereas AP_{avail} increases considerably when schools that report zero are removed from the field, there is less of an effect on TopCU when schools that reported zero top admittances are removed. Based on the percentage of TopCU admittances for the research population, it is concluded that ACCS schools are academically rigorous in this

regard. There are two reasons supporting the conclusion that ACCS schools are academically rigorous with regard to TopCU admittances. First, gaining admittance into a competitive, highly-ranked college or university does show a level of academic rigor for the student accepted thus the institution that helped in forming the student can by extension be assumed to be academically rigorous. Furthermore, if an institution can continue to produce similar graduates who can and do gain admittance into high-ranking colleges and universities then such a trend can be understood to show a level of academic rigor over time.

Lastly, the category of top colleges and universities did not include well-regarded Christian colleges and universities, many did not appear in the top rankings form *US News & World Report* from 2015-2019. The inclusion of such schools may change the percentages of admittances from several ACCS schools. Finally, many ACCS secondary schools may produce graduates who decide not to apply to top colleges or universities for a variety of reasons.

The Relationship between the Christian Liberal Arts and Sciences and Academic Rigor

Research Implication 7: The relationship between the Christian liberal arts and sciences, the form of IFL, and academic rigor determined by mean SAT scores is multifaceted. Both positive and negative relationships exist depending on the impact of the interaction between certain independent variables. The research population within this study represented a census thus I was able to concentrate on effect size rather than statistical significance. Whereas certain combinations of IFL language and course descriptions returned higher SAT_{med} scores than the ACCS mean, other combinations resulted in lower SAT_{med} scores than the ACCS secondary school mean. The ANOVA analysis revealed one interaction between independent variables as well as various dependent variables which yielded different measures of academic rigor as seen in

SAT_{med} scores. Each of the independent variables and one interaction between two independent variables returned medium to strong effect sizes, all of which were weakened in the presence of an additional variable (MFIA) when an ANCOVA was performed. Of the six independent variables in the study, five yielded effect sizes on the dependent variable SAT_{med}. Furthermore, the mean SAT_{med} varied according to whether the independent variable was above the ACCS IFL mean or below the ACCS IFL mean. Therefore, the ANOVA and ANCOVA findings support a multifaceted relationship between the two main foci of the study: the Christian liberal arts and sciences and academic rigor.

Research Implication 8: The presence of BibleIFL courses above the ACCS mean correlate positively with higher SAT measurements when interacting with MathIFL courses above the ACCS mean with a strong effect size. The interaction of BibleIFL*MathIFL suggests a strong effect ($\eta_p^2 = 0.386$) for an interaction on the dependent variable SAT_{med}. When BibleIFL courses were below the ACCS school's mean (BibleIFL = N) and MathIFL courses were below the ACCS schools' mean (MathIFL = N) the mean SAT_{med} score was 1287. When the BibleIFL courses were above the ACCS schools' mean (BibleIFL = Y) and MathIFL courses were above the ACCS schools' mean (MathIFL = Y), the mean SAT_{med} score was 1298. When BibleIFL courses were below the ACCS schools' mean (BibleIFL = N) and MathIFL courses were above the ACCS schools' mean (MathIFL = Y), the mean SAT_{med} score was 1232. Likewise, when BibleIFL courses were above the ACCS schools' mean (BibleIFL = Y) and MathIFL courses were below the ACCS schools' mean (MathIFL = N), the mean SAT_{med} score was 1270. Overall, this interaction demonstrated both a strong effect size ($\eta_p^2 > 0.14$) and a positive relationship between SAT_{med} and the presence of IFL language when both Bible and math courses were above the ACCS schools' mean for BibleIFL and MathIFL.

One implication of this finding was that ACCS schools that were careful to include integration of faith and learning language in Bible and math courses saw above

average means on SAT_{med} scores (1298), thus above average BibleIFL and MathIFL courses are academically rigorous. Another implication though is that when BibleIFL and MathIFL are below average the result is still above average SAT_{med} mean scores (1287). Given the strength of the BibleIFL and MathIFL interaction when both courses are above the IFL mean and when both are below the IFL mean, therefore determining the impact of the Christian liberal arts and sciences curriculum on academic rigor is difficult when considering only one dependent variable.

Research Implication 9: The presence of SSIFL courses below the ACCS mean correlate positively with higher SAT measurements with a strong effect size. The SSIFL mean suggested a strong effect size on SAT_{med} at $\eta_p^2 = 0.354$. The two-way ANOVA revealed that when social studies courses were below ACCS schools' mean for IFL in social studies (SSIFL = N) the mean for SAT_{med} was 1330.43, the highest SAT_{med} mean in the ANOVA for any of the independent variables. When social studies courses were above the ACCS schools' IFL mean (SSIFL = Y) the mean for SAT_{med} dropped one hundred points to 1229.79. Overall, SSIFL courses below the ACCS schools' mean for IFL in social studies (SSIFL = N) show a strong effect size on SAT_{med}.

One implication of this finding was that when ACCS schools explicitly included integration of faith and learning language within the social studies curriculum there was a correlation with a decrease in SAT_{med} scores. Furthermore, the SAT_{med} score for SSIFL courses below the ACCS average was the highest of any of the independent variables (1330). Overall, determining the impact of the Christian liberal arts and sciences curriculum on academic rigor is difficult when considering only one measure of academic rigor.

Research Implication 10: The presence of SciIFL courses above the ACCS mean correlate positively with higher SAT measurements with a strong effect size. The mean for SciIFL suggested a strong effect size on SAT_{med} at $\eta_p^2 = 0.333$. The two-way ANOVA revealed that when science courses were below the ACCS schools' IFL science

mean (SciIFL = N) the mean for SAT_{med} was 1214.42. When science courses were above the ACCS schools' IFL mean for science (SciIFL = Y), the mean for SAT_{med} was 1297.75. With regard to SciIFL, there is a strong effect size related to science courses above the ACCS schools' mean (SciIFL = Y) and SAT_{med}.

One implication of this finding was that when ACCS schools have above average IFL in science courses then those school were more likely to yield above average scores on the SAT (1297), thus determining the impact of the Christian liberal arts and sciences curriculum on academic rigor is difficult when considering only one dependent variable.

Research Implication 11: The presence of EngIFL courses below the ACCS mean correlate positively with higher SAT measurements with a medium effect size. The mean for EngIFL also suggested a medium effect size on SAT_{med} at $\eta_p^2 = 0.101$. The two-way ANOVA revealed that when English courses were above the ACCS school's IFL English mean (EngIFL = Y) the mean for SAT_{med} was 1245.857. When English courses were below the ACCS schools' IFL English mean (EngIFL = N) the mean for SAT_{med} jumped to 1303.733, nearly 58 points above the EngIFL = Y mean for SAT_{med}. This finding demonstrated a medium effect size for English courses below the ACCS schools' mean (EngIFL = N) and SAT_{med}.

One implication of this finding is that when English courses are below the ACCS average for IFL language then the result in SAT_{med} scores is an increase to 1304, thus determining the impact of the Christian liberal arts and sciences curriculum on academic rigor is difficult when considering only one dependent variable.

Research Implication 12: The presence of BibleIFL courses above the ACCS mean correlate positively with higher SAT measurements with a medium effect size. The mean for BibleIFL suggested a medium effect on SAT_{med} at $\eta_p^2 = 0.062$. The two-way ANOVA revealed that when BibleIFL courses were below the ACCS schools' mean (BibleIFL = N), the mean for SAT_{med} was 1261.67. On the other hand, when BibleIFL

courses were above the ACCS schools' mean (BibleIFL = Y), the mean for SAT_{med} was 1274.13. This finding demonstrated a medium effect size for the relationship between BibleIFL courses above the ACCS schools' mean (BibleIFL = Y) and SAT_{med}.

One implication of this finding was that Bible courses with IFL above the ACCS mean tend to return high SAT_{med} test scores (1274) although this number is below the ACCS SAT_{med} mean of 1282, furthermore determining the impact of the Christian liberal arts and sciences curriculum on academic rigor is difficult when considering only one dependent variable.

Summative Conclusion to the Research Study

This study has demonstrated that, ACCS secondary schools are academically rigorous with regard to median SAT scores and admittances to top-ranked colleges and universities in the United States. Secondly, this study has shown that a majority of ACCS secondary schools demonstrate a commitment to the Christian faith through the presence of Bible courses within the classical curriculum.

Thirdly, this study has revealed that ACCS secondary schools differ significantly. These differences range from accredited member schools to member schools, the availability of publicly accessible official curriculum documents, the presence of Bible courses, the integration of faith and learning, and self-reported academic rigor data. In short, ACCS secondary schools vary widely from one another.

Furthermore, this study has shown that overall academic data for ACCS secondary schools was limited and considerably small. As the flagship organization of the classical Christian school movement, ACCS should consider the data contained within this study. These findings are evidence of the hard work and growth that has taken place within the CCS movement over the last forty years. Yet the data contained in this study indicate the work yet to be completed within ACCS as an organization with regard to a

greater uniformity for all ACCS schools, as well as a call for higher academic standards for all member schools.

Lastly, this study demonstrated that only 27% of ACCS secondary schools provided publicly available, official curriculum documents. This limited availability negatively impacts those families these very schools are serving. Private schools rely on families buying into the education being provided. This can be seen in the fact that those families are already paying taxes to support public schools yet are still choosing to use private schools for the education of their children. Thus, any and all publicly available information that schools can make accessible will help to inform the public about the strengths and weaknesses of that school.

Research Applications

The purpose of this study was to examine the Christian liberal arts and sciences curriculum, academic rigor, and their relationship among ACCS secondary schools. The research design enabled me to collect and analyze all available data for ACCS secondary schools and to describe the trends and themes that emerged from the data. This section describes four applications from the findings in this study.

First, ACCS secondary schools will be able to use this study as a reflection of the ACCS organization as a whole with regard to secondary schools. ACCS secondary schools can be grouped into three distinct categories: those that are academically rigorous as seen above in average SAT_{med} scores and admittance to TopCU, those that are not academically rigorous given the academic rigor measures mentioned above, and those that do not provide any publicly available data to determine one way or the other. The current reality for ACCS is that the first and second groups represent a small minority, roughly one-third, of the research population. Furthermore, the third group represents a super-majority of secondary schools within ACCS. As stated earlier in this chapter, given these circumstances it is difficult to determine the state-of-affairs within two-thirds of the

secondary schools in ACCS. Thus, more research should be undertaken to better understand the classical Christian school movement and ACCS secondary schools.

I communicated with dozens of administrators when collecting this data and over half that I contacted were interested in the results of this study once they had been determined. Those administrators of schools in the one-third group will have several measurements to examine when seeking to improve their approach to the Christian liberal arts and sciences in classical Christian schools.

Second, classical Christian school administrators, leaders, educators, teachers, and parents outside of ACCS can use this study as a type of analysis of the classical Christian school movement. While ACCS is the largest CCS organization, there are countless other CCS schools that exist outside of ACCS. This study may offer a glimpse of what academic rigor measures are within ACCS secondary schools and further allow other classical Christian educators to better shape and form their approach to the Christian liberal arts and sciences.

Third, Christian school administrators, educators, teachers, and parents whose schools are not classical Christian schools but who are seeking academically rigorous Christian education may find that examining the findings of this study could impact the academic measurements for their own institutions.

Fourth, researchers analyzing the relationship between academic rigor and other academic variables may find aspects of this study scalable to their specific research interests. The mixed method approach within this study allows for flexibility in the research design as well as integrating an in-depth qualitative analysis as well as a penetrating quantitative analysis. The expense of the two software programs used in this study is not economically burdensome and they are both well-supported by official company guides, trainings, as well as a larger research community. Furthermore, the dependent variables and many of the covariates should serve as helpful measurements of academic rigor, regardless of the independent variables.

Research Limitations

In addition to the limitations included in chapter 3, this study contains the following limitations. First, the emphasis on effect size rather than statistical significance came from the fact that this study was a census of all ACCS secondary schools. As a result, there is a highly limited generalization to non-ACCS secondary schools. However, additional research on similar groupings of secondary schools may show similar correlations for classical Christian schools across the United States and other countries, such research may bear further results.

Second, due to the emphasis on IFL language in the course descriptions (the official curriculum), this research does not seek to make statements about what actually occurs in ACCS secondary school classrooms on a daily basis (the operational curriculum). Third, this study did not explore any aspects of the Christian liberal arts and sciences curriculum which fall within the hidden or extra curriculum at ACCS secondary schools. There was no consideration to the prevalence or lack of school functions, events, gatherings, mission trips, the nature and frequency of chapel programs, and student Bible studies or discipleship programs as measures of the integration of faith and learning. Furthermore, the presence of IFL language for non-core academic curriculum such as electives, drama or theatre, foreign language classes, art classes, or additional leadership or other programs offered at the school was not collected or analyzed. As a result, the findings of this study are restricted to Bible, English, math, science, and social studies courses at ACCS secondary schools, and should not be generalized beyond those areas.

Fourth, the findings of this study are predicated on a dichotomization of the presence of IFL language based on the mean of the reported IFL language in the course descriptions. Had the research design allowed for more levels of IFL language through quantitative coding, the analysis could have produced a more detailed and nuanced discussion of the interaction between the variables. As a result, generalizations of this

study are limited by the dichotomous nature of the independent variables which provide very little nuance.

Fifth, the *US News and World Report* rankings for liberal arts colleges and universities included very few, if any, evangelical colleges and universities in the top-fifty rankings used within this study. Rather than a lack of TopCU admittances signaling an absence of academic rigor, it is entirely plausible that ACCS graduates choose not to apply to top-ranked schools. Given that ACCS students have been trained in a particular academic methodology, perhaps they willingly choose to further their educational experience in a similar setting rather than one that is entirely different from their secondary school experience. This insight provides a counterbalance of shorts to the idea that a small percentage (10%) of ACCS secondary schools are admitting students to top-ranked colleges and universities and thus only a small number of ACCS graduates are getting into these colleges and universities. Future studies may want to include evangelical liberal arts Christian colleges (Boyce College, Grove City, College, Moody Bible Institute, Wheaton College, etc.) and universities (Bob Jones University, Biola University, Liberty University, Oral Robert University, Union University, etc.) within similar rankings in order to try and capture this alternative hypothesis.

Lastly, the available data for ACCS secondary schools was considerably small. Of the 127 ACCS secondary schools within the research population only 27% provided official curriculum documents. One-fourth of ACCS secondary schools provided publicly available curriculum documents while three-fourths of the research population did not provide nor offer such information to the public. Therefore, generalizations that result from this study should carry the caveat that findings from the smaller population may not generalize to the larger population within ACCS secondary schools.

Contributions of Research to the Precedent Literature

This research filled a void in the existing literature by examining three well-studied topics: curriculum, IFL, and measurements of academic rigor. Prior to this study, no available or discovered empirical studies had assessed the correlation between academic rigor and the presence of IFL language in the Christian liberal arts and sciences curriculum within classical Christian schools. Whereas in previous studies researchers compared ACCS schools over-and-against their non-classical Christian counterparts, extensive research on ACCS schools had not yet been conducted. Therefore, this study constituted an exploratory descriptive analysis of classical Christian schools and the relationship of the Christian liberal arts and sciences to commonly recognized measures of academic rigor.

Recommendations for Practice

Classical Christian schools with secondary school programs who are interested in an academically rigorous program that also expresses integration of faith and learning should review their course descriptions for IFL language. This research indicates that including a more explicit expression of IFL in the Christian liberal arts and sciences may result in higher academic rigor measurements.

Further Research

This section contains recommendations for other research that could be done in the field of the Christian liberal arts and sciences and academic rigor in classical Christian schools. The following list identified possible research opportunities that would further the present study or shed new light on the integration of faith and learning in the classical Christian school movement:

1. A quantitative study where ACCS or classical Christian school administrators are surveyed, interviewed, or a combination of the two in order to better understand how these educators approach the Christian liberal arts and sciences curriculum. Such a study would allow for a certain level of analysis of the official, hidden, and null curricula. If classical Christian educators were included in such a study,

then there would also be an opportunity to examine the operational curriculum. Furthermore, if classical Christian school students were included in such a study then the differences between the official and operational curricula might be exposed.

2. A mixed methods study of the Christian liberal arts and sciences curriculum within the Christian liberal arts colleges setting in order to examine the integration of faith and learning within the Christian liberal arts and sciences. Such a study would allow for comparison of the Christian liberal arts and sciences curriculum among both classical Christian schools and Christian liberal arts colleges.

3. A phenomenological study describing the lived experiences of several individuals within a senior class in an ACCS secondary school or a classical Christian secondary school. Such a study would provide information regarding the integration of faith and learning, faith formation, the Christian liberal arts and sciences curricula and the academic rigor of the school all while these students complete their secondary education.

4. A grounded theory study wherein a theory for the integration of faith and learning within the Christian liberal arts and sciences is put forward following multiple stages of data collection drawn from ACCS secondary schools or classical Christian secondary schools.

5. An ethnography to study the shared patterns of behavior and action within a senior class in a classical Christian school. Such a study would provide information regarding the integration of faith and learning, faith formation, academic rigor, and the Christian liberal arts and sciences official, operational, hidden, null, and extra curricula within an ACCS secondary school or a classical Christian secondary school.

6. A case study of a senior class within an ACCS secondary school or a classical Christian school with all secondary grades wherein the Christian liberal arts and sciences curriculum, the integration of faith and learning, and academic rigor are observed. Such a study would allow for the analysis of the official, operational, hidden, null, and even extra curricula to be analyzed within classical Christian schools.

7. A longitudinal study of ACCS secondary school students wherein selected students are interviewed from their first year of secondary education at a classical Christian school all the way up until the beginning of their second year of college. Such a study would help to document the official and operational curricula within the Christian liberal arts and sciences as well as to document the null, hidden, and extra curricula while analyzing the integration of faith and learning and measuring for academic rigor.

APPENDIX 1

ALL ACCS SCHOOLS IN THE UNITED STATES

1. Abiding Savior Academy (SD)
2. Acacia Academy (IN)
3. Ad Fontes Academy (VA)
4. Agape Christi Academy (MN)
5. Agape Classical School Village Carlsbad (CA)
6. Agape Montessori Christian Academy (MS)
7. Agathos Classical School (TN)
8. Aletheia Christian School of Peoria (IL)
9. Alpha Omega Academy (TX)
10. Ambassador Christian Academy (NJ)
11. American Christian School (NJ)
12. Annapolis Christian Academy (TX)
13. Appomattox Christian Academy (VA)
14. Arma Dei Academy (CO)
15. Arrow Preparatory Academy (WA)
16. Ascension Classical School (LA)
17. Augustine Christian Academy (OK)
18. Augustine Classical Academy (CO)

19. Augustine Classical Academy (NY)
20. Augustine School (TN)
21. Baldwin Christian School (WI)
22. Bayshore Christian School (AL)
23. Beacon Hill Classical Academy (CA)
24. Berean Baptist Academy (UT)
25. Bethlehem Christian Academy (MO)
26. Bloomfield Christian School (MI)
27. Bluegrass Christian Academy (KY)
28. Bradford Academy (NC)
29. Brookstone Schools (NC)
30. Brown County Christian Academy (OH)
31. Buffalo Creek Boys School (VA)
32. Cair Paravel Latin School, Inc. (KS)
33. Caldwell Academy (NC)
34. Calvary Christian Academy (CA)
35. Calvary Christian Academy (NM)
36. Calvary Classical Academy (MN)
37. Calvary Classical School (VA)
38. Candies Creek Academy (TN)
39. Caritas Academy (AZ)
40. Cary Christian School (NC)
41. Cedar Tree Classical Christian School (WA)

42. Charis Classical Academy (WI)
43. Christ Church Academy (LA)
44. Christ Classical School (CA)
45. Christ Presbyterian School (LA)
46. Christian Heritage Classical School (TX)
47. Christ's Legacy Academy (TN)
48. Citadel Christian School (TX)
49. Clapham School (IL)
50. Classical Christian Academy (ID)
51. Classical School of Dallas (TX)
52. Classical School of Wichita (KS)
53. Clear Lake Classical (IA)
54. Coeur D Alene Classical Christian School Start-Up (ID)
55. Colquitt Christian Academy (GA)
56. Coram Deo Academy (IN)
57. Coram Deo Academy (TX)
58. Coram Deo Academy (WA)
59. Cornerstone Academy (TN)
60. Cornerstone Academy (WA)
61. Cornerstone Christian Academy (NM)
62. Cornerstone Christian Academy (VA)
63. Cornerstone Classical Christian Academy (AL)
64. Cornerstone Classical School (CO)

65. Cornerstone Classical School (KS)
66. Covenant Academy (GA)
67. Covenant Academy (TX)
68. Covenant Christian Academy (MA)
69. Covenant Christian Academy (PA)
70. Covenant Christian Academy (TX)
71. Covenant Christian School (FL)
72. Covenant Christian School (GA)
73. Covenant Classical Academy (KY)
74. Covenant Classical School (IL)
75. Covenant Classical School (NC)
76. Covenant Classical School (TX)
77. Covenant School (WV)
78. Coventry Christian School (PA)
79. Crown Academy (Idaho)
80. Dominion Christian School (VA)
81. Donum Dei Classical Academy (CA)
82. Eastwood Christian School (AL)
83. Educating Children for Christ Christian School (TX)
84. El Paso Christian School (TX)
85. Eukarya Christian Academy (VA)
86. Evangel Classical Christian School (AL)
87. Evangel Classical School (WA)

88. Evangelical Christian Academy (CO)
89. Faith Academy of Wichita (KS)
90. Faith Christian Academy (MO)
91. Faith Christian School (FL)
92. Faith Christian School (VA)
93. Flatirons Academy (CO)
94. Franklin Classical School (TN)
95. Genesis Classical Academy (MN)
96. Geneva Academy (LA)
97. Geneva Academy (OR)
98. Geneva Classical Academy (FL)
99. Geneva School of Boerne (TX)
100. Gloria Deo Academy (TX)
101. Good Shepherd Reformed Episcopal School (TX)
102. Grace Academy (MA)
103. Grace Academy of Georgetown (TX)
104. Grace Christian Academy (NY)
105. Grace Classical Academy (MO)
106. Grace Classical Christian Academy (TX)
107. Grace Classical School (NC)
108. Grace Community Classical School Tyler (TX)
109. Greenville Classical Academy (SC)
110. Grove City Christian Academy (PA)

111. Harvest Christian School (CA)
112. Haw River Christian Academy (NC)
113. Heritage Christian Academy of North Idaho (ID)
114. Heritage Christian Academy (SC)
115. Heritage Classical Academy - Bainbridge Campus (Ohio)
116. Heritage Classical Academy (OH)
117. Heritage Classical Christian School (MO)
118. Heritage Oak School (CA)
119. Heritage School (TX)
120. Hickory Christian Academy (NC)
121. Highland Rim Academy (TN)
122. Hope Classical Christian Academy (TX)
123. Horizon Prep (CA)
124. Hunter Classical Christian School (VA)
125. Imago Dei Academy (NM)
126. Imago Dei Classical Academy (NC)
127. Immanuel Lutheran School (VA)
128. In the Presence of God: Coram Deo Classical Academy (TX)
129. Innovate Academy (PA)
130. Island Christian Academy (WA)
131. Jonathan Edwards Classical Academy (TN)
132. King's Classical Academy (CA)
133. Knight's Christian Academy (FL)

134. Knox Classical Academy (OR)
135. Koinonia Classical Christian School (TX)
136. Legacy Academy (AR)
137. Legacy Classical Christian Academy (TX)
138. Libertas Christian School (MI)
139. Liberty Classical Academy (MN)
140. Lighthouse Christian Academy (MD)
141. Logos Christian Academy (AZ)
142. Logos Christian Academy (NV)
143. Logos School (ID)
144. Maranatha Academy (WI)
145. Mars Hill Academy (OH)
146. Martin Luther Grammar School (WY)
147. Mayflower Project (VA)
148. Mesquite Christian Academy (NV)
149. Messiah Lutheran Classical Academy (TX)
150. Mineral Christian School (VA)
151. Mirus Academy (ME)
152. Morning Star Academy (IA)
153. Naperville Christian Academy (IL)
154. New Covenant Christian Academy (KY)
155. New Covenant Christian Academy (MI)
156. New Covenant School (SC)

157. New Covenant Schools (VA)

158. New Life Christian School (WA)

159. Nobis Pacem (TX)

160. Oak Hill Christian School (VA)

161. Oak Hill Classical School (GA)

162. Oakdale Academy (MI)

163. Oaks Classical Christian Academy (North Carolina)

164. Ozarks Christian Academy (MO)

165. Paideia Academy (TN)

166. Paideia Classical Academy (FL)

167. Paideia Classical Christian School (OR)

168. Paideia Classical School (WA)

169. Paratus Classical Academy (TX)

170. Penobscot Christian School (ME)

171. Perceptus Academy (VA)

172. Petra Academy (MT)

173. Petra Christian Academy (ID)

174. Philadelphia Classical School (PA)

175. Pinnacle Classical Academy (AR)

176. Providence Academy (OH)

177. Providence Academy (TN)

178. Providence Academy (WI)

179. Providence Christian Academy (IN)

180. Providence Christian School (AL)
181. Providence Classical Christian Academy (MO)
182. Providence Classical Christian School (GA)
183. Providence Classical Christian School (WA)
184. Providence Classical School (AL)
185. Providence Classical School (TX)
186. Providence Classical School (VA)
187. Providence Preparatory School (TX)
188. Redeemer Christian School (AZ)
189. Redeemer Classical Academy (TN)
190. Redeemer Classical Christian School (MD)
191. Redeemer Classical School (VA)
192. Regent Preparatory School of OK (OK)
193. Regents Academy (TX)
194. Regents School of Austin (TX)
195. Regents School of Charlottesville (VA)
196. Regents School of Oxford (MS)
197. Renaissance Classical Christian Academy (NC)
198. River Hills Christian Academy (TX)
199. Riverbend Academy (FL)
200. Riverwood Classical School (AL)
201. Rochester Classical Academy (NY)
202. Rockbridge Academy (MD)

203. Runnels Academy (TX)

204. Samuel Fuller School (MA)

205. Sanctuary Christian Academy Agnus Dei (TX)

206. Sandhills Classical Christian School, Inc. (NC)

207. Schaeffer Academy (MN)

208. School of the Ozarks (MO)

209. Seattle Classical Christian School (WA)

210. Sheridan Hills Christian School (FL)

211. Smith Preparatory Academy (FL)

212. Spokane Classical Christian School (WA)

213. St. Abraham's Classical Christian Academy (CA)

214. St. Stephen's Academy (OR)

215. St. Stephen's Classical Christian Academy (MD)

216. Summit Christian Academy (MT)

217. Summit Christian Academy (VA)

218. Summit Classical Christian School (WA)

219. Tall Oaks Classical School (DE)

220. The Academy of Classical Christian Studies (OK)

221. The Ambrose School (ID)

222. The Anglican Parish of Pembroke (PA)

223. The Bear Creek School (WA)

224. The Cambridge School (CA)

225. The Cambridge School of Dallas (TX)

226. The Classical Academy (IN)

227. The Classical Academy of Franklin (TN)

228. The Classical Christian Conservatory of Alexandria (VA)

229. The Cor Deo School (WA)

230. The Covenant School (TX)

231. The Geneva School (CA)

232. The Geneva School (FL)

233. The Geneva School of Manhattan (NY)

234. The IMAGO School (MA)

235. The Oaks: A Classical Christian Academy (WA)

236. The Paideia School of Tampa Bay (FL)

237. The River Academy (WA)

238. The Saint Constantine School (TX)

239. The Saint Timothy School (TX)

240. The Stonehaven School (GA)

241. The Wilberforce School (NJ)

242. The Wycliffe School (VA)

243. Three Oaks Christian School (IN)

244. Tidewater Classical Academy (VA)

245. Toledo Christian Schools (OH)

246. Trinitas Christian School (FL)

247. Trinitas Classical School (MI)

248. Trinity Christian School (AL)

249. Trinity Christian School (HI)

250. Trinity Christian School (NJ)

251. Trinity Christian School (PA)

252. Trinity Classical Academy (CA)

253. Trinity Classical Academy (NE)

254. Trinity Classical School of Houston (TX)

255. Trinity Classical School (WA)

256. Trinity Preparatory School (NJ)

257. Trivium Academy of New Jersey (NJ)

258. Two Rivers Classical Academy (IA)

259. Uvalde Classical Academy (TX)

260. Valley Classical School (VA)

261. Veritas Academy, (AR)

262. Veritas Academy (GA)

263. Veritas Academy (MA)

264. Veritas Academy (MN)

265. Veritas Academy of Tucson (AZ)

266. Veritas Academy (OH)

267. Veritas Academy (PA)

268. Veritas Academy (WY)

269. Veritas Christian Academy Fletcher (NC)

270. Veritas Christian Community School (AZ)

271. Veritas Christian School (KS)

272. Veritas Classical Academy (CA)

273. Veritas Classical Academy (KY)

274. Veritas Classical Academy (TX)

275. Veritas Classical Christian School Eugene (OR)

276. Veritas Classical Christian School Lake Tapps (WA)

277. Veritas Classical School of Omaha (NE)

278. Veritas Classical School St. Augustine (FL)

279. Veritas Collegiate Academy (Fairfax, VA)

280. Veritas Collegiate Academy (Chesapeake, VA)

281. Veritas School Newberg (OR)

282. Veritas School (VA)

283. Victory Academy Ocala (FL)

284. Westminster Academy (FL)

285. Westminster Academy (TN)

286. Westminster School at Oak Mountain (AL)

287. Westside Christian Academy (OH)

288. Whitefield Academy (MO)

289. Wilson Hill Academy (TX)

290. Winter Park Christian School (CO)

APPENDIX 2

ALL ACCS SECONDARY SCHOOLS IN THE STUDY

1. Ad Fontes Academy (VA)
2. Agathos Classical School (TN)
3. Alpha Omega Academy (TX)
4. American Christian School (NJ)
5. Annapolis Christian Academy (TX)
6. Appomattox Christian Academy (VA)
7. Augustine Christian Academy (OK)
8. Augustine Classical Academy (CO)
9. Augustine Classical Academy (NY)
10. Baldwin Christian School (WI)
11. Bayshore Christian School (AL)
12. Beacon Hill Classical Academy (CA)
13. Bloomfield Christian School (MI)
14. Caldwell Academy (NC)
15. Calvary Christian Academy (CA)
16. Calvary Christian Academy (NM)
17. Candies Creek Academy (TN)
18. Cary Christian School (NC)

19. Cedar Tree Classical Christian School (WA)
20. Christian Heritage Classical School (TX)
21. Clapham School (IL)
22. Classical Christian Academy (ID)
23. Classical School of Wichita (KS)
24. Colquitt Christian Academy (GA)
25. Coram Deo Academy (TX)
26. Cornerstone Academy (WA)
27. Cornerstone Christian Academy (VA)
28. Covenant Academy (GA)
29. Covenant Academy (TX)
30. Covenant Christian Academy (MA)
31. Covenant Christian Academy (PA)
32. Covenant Christian Academy (TX)
33. Covenant Christian School (FL)
34. Covenant Classical School (NC)
35. Covenant Classical School (TX)
36. Coventry Christian School (PA)
37. Dominion Christian School (VA)
38. Eastwood Christian School (AL)
39. Eukarya Christian Academy (VA)
40. Evangel Classical Christian School (AL)
41. Evangelical Christian Academy (CO)

42. Faith Christian Academy (MO)
43. Franklin Classical School (TN)
44. Geneva Academy (OR)
45. Geneva Classical Academy (FL)
46. Geneva School of Boerne (TX)
47. Good Shepherd Reformed Episcopal School (TX)
48. Grace Academy of Georgetown (TX)
49. Grace Classical Academy (MO)
50. Grace Community Classical School Tyler (TX)
51. Greenville Classical Academy (SC)
52. Grove City Christian Academy (PA)
53. Heritage Classical Christian School (MO)
54. Heritage Oak School (CA)
55. Hickory Christian Academy (NC)
56. Horizon Prep (CA)
57. Island Christian Academy (WA)
58. Jonathan Edwards Classical Academy (TN)
59. Legacy Classical Christian Academy (TX)
60. Libertas Christian School (MI)
61. Liberty Classical Academy (MN)
62. Logos School (ID)
63. Mars Hill Academy (OH)
64. Naperville Christian Academy (IL)

65. New Covenant School (SC)
66. New Covenant Schools (VA)
67. Oak Hill Christian School (VA)
68. Oak Hill Classical School (GA)
69. Oakdale Academy (MI)
70. Ozarks Christian Academy (MO)
71. Paideia Academy (TN)
72. Paideia Classical Academy (FL)
73. Petra Academy (MT)
74. Pinnacle Classical Academy (AR)
75. Providence Academy (TN)
76. Providence Academy (WI)
77. Providence Christian School (AL)
78. Providence Classical Christian Academy (MO)
79. Providence Classical Christian School (WA)
80. Providence Classical School (AL)
81. Providence Classical School (TX)
82. Providence Classical School (VA)
83. Providence Preparatory School (TX)
84. Redeemer Christian School (AZ)
85. Redeemer Classical Christian School (MD)
86. Regent Preparatory School of OK (OK)
87. Regents Academy (TX)

88. Regents School of Austin (TX)
89. Regents School of Charlottesville (VA)
90. Regents School of Oxford (MS)
91. Rockbridge Academy (MD)
92. Sandhills Classical Christian School, Inc. (NC)
93. Schaeffer Academy (MN)
94. School of the Ozarks (MO)
95. Sheridan Hills Christian School (FL)
96. Smith Preparatory Academy (FL)
97. Spokane Classical Christian School (WA)
98. St. Abraham's Classical Christian Academy (CA)
99. St. Stephen's Academy (OR)
100. Summit Christian Academy (VA)
101. Summit Classical Christian School (WA)
102. The Academy of Classical Christian Studies (OK)
103. The Ambrose School (ID)
104. The Bear Creek School (WA)
105. The Covenant School (TX)
106. The Geneva School (FL)
107. The Paideia School of Tampa Bay (FL)
108. The River Academy (WA)
109. The Saint Constantine School (TX)
110. The Wilberforce School (NJ)

111. Trinitas Christian School (FL)
112. Trinity Christian School (AL)
113. Trinity Christian School (HI)
114. Trinity Christian School (NJ)
115. Trinity Classical Academy (CA)
116. Veritas Academy (GA)
117. Veritas Academy (PA)
118. Veritas Christian Academy Fletcher (NC)
119. Veritas Christian Community School (AZ)
120. Veritas Christian School (KS)
121. Veritas Collegiate Academy (VA)
122. Veritas School Newberg (OR)
123. Veritas School (VA)
124. Westminster Academy (TN)
125. Westminster School at Oak Mountain (AL)
126. Westside Christian Academy (OH)
127. Winter Park Christian School (CO)

APPENDIX 3

ACCS SECONDARY SCHOOL DATA

Table A1. Geographic regions and states with ACCS secondary schools

Geographic Regions and States							
Northeast	N	**Midwest**	N	**West**	N	**South**	N
Connecticut	0	Illinois	2	Alaska	0	Alabama	7
Maine	0	Indiana	0	Arizona	2	Arkansas	1
Massachusetts	1	Iowa	0	California	6	Delaware	0
New Hampshire	0	Kansas	2	Colorado	3	Florida	8
New Jersey	3	Michigan	3	Hawaii	1	Georgia	4
New York	1	Minnesota	2	Idaho	3	Kentucky	0
Pennsylvania	4	Missouri	6	Montana	1	Louisiana	0
Rhode Island	0	Nebraska	0	Nevada	0	Maryland	2
Vermont	0	North Dakota	0	New Mexico	1	Mississippi	1
—	—	Ohio	2	Oregon	3	North Carolina	6
—	—	South Dakota	0	Utah	0	Oklahoma	3
—	—	Wisconsin	2	Washington	8	South Carolina	2
—	—	—	—	Wyoming	0	Tennessee	7
—	—	—	—	—	—	Texas	18
—	—	—	—	—	—	Virginia	12
—	—	—	—	—	—	West Virginia	0
Totals	9	Totals	19	Totals	28	Totals	71

Table A2. ACCS secondary school tuition as percentage of median family income of school ZIP code

ACCS Secondary Schools	*ZIP Code*	*Tuition*	*Median Family Income of School ZIP ($)*	*Tuition as % of MFIZ*
Ad Fontes Academy (VA)	20120	12,370.00	124,408.00	10
Agathos Classical School (TN)	38401	8,005.00	55,842.00	14
Alpha Omega Academy (TX)	77340	6,675.00	43,015.00	16
American Christian School (NJ)	07885	—	—	—
Annapolis Christian Academy (TX)	78411	10,284.00	59,706.00	17
Appomattox Christian Academy (VA)	24522	4,900.00	71,284.00	9
Augustine Christian Academy (OK)	74114	8,275.00	74,783.00	11
Augustine Classical Academy (CO)	80226	8,300.00	60,934.00	14
Augustine Classical Academy (NY)	12118	8,358.00	101,328.00	8
Baldwin Christian School (WI)	54002	5,250.00	68,393.00	8
Bayshore Christian School (AL)	36532	7,300.00	87,256.00	11
Beacon Hill Classical Academy (CA)	93010	8,728.00	97,524.00	9
Bloomfield Christian School (MI)	48302	11,380.00	161,915.00	7
Caldwell Academy (NC)	27410	12,161.00	77,274.00	16
Calvary Christian Academy (CA)	95118	10,050.00	147,346.00	7
Calvary Christian Academy (NM)	88062	3,225.00	40,761.00	8
Candies Creek Academy (TN)	37310	5,725.00	85,333.00	7
Cary Christian School (NC)	27513	9,286.00	111,661.00	8
Cedar Tree Classical Christian School (WA)	98642	6,960.00	96,055.00	7
Christian Heritage Classical School (TX)	75605	8,300.00	84,783.00	10
Clapham School (IL)	60187	13,114.00	130,381.00	10
Classical Christian Academy (ID)	83854	6,150.00	55,872.00	11
Classical School of Wichita (KS)	67218	7,275.00	33,511.00	22
Colquitt Christian Academy (GA)	31768	5,375.00	29,919.00	14
Coram Deo Academy (TX)	75025	12,610.00	137,824.00	9
Cornerstone Academy (WA)	98290	7,978.00	102,732.00	8
Cornerstone Christian Academy (VA)	24210	7,500.00	51,635.00	15
Covenant Academy (GA)	31210	11,097.00	80,301.00	22
Covenant Academy (TX)	77429	13,070.00	107,417.00	12
Covenant Christian Academy (MA)	01960	16,475.00	82,055.00	15
Covenant Christian Academy (PA)	17109	9,605.00	44,250.00	14
Covenant Christian Academy (TX)	76034	17,023.00	206,504.00	8
Covenant Christian School (FL)	32907	8,629.00	47,258.00	16

Table A2 continued

ACCS Secondary Schools	*ZIP Code*	*Tuition*	*Median Family Income of School ZIP ($)*	*Tuition as % of MFIZ*
Covenant Classical School (NC)	28027	8,691.00	88,386.00	11
Covenant Classical School (TX)	76108	16,425.00	66,236.00	25
Coventry Christian School (PA)	19464	9,800.00	67,236.00	9
Dominion Christian School (VA)	20190	16,388.00	120,588.00	14
Eastwood Christian School (AL)	36106	7,213.00	68,971.00	16
Eukarya Christian Academy (VA)	22655	8,050.00	93,388.00	9
Evangel Classical Christian School (AL)	35007	7,605.00	72,031.00	9
Evangelical Christian Academy (CO)	80917	9,220.00	60,071.00	15
Faith Christian Academy (MO)	64164	4,545.00	105,625.00	4
Franklin Classical School (TN)	37064	7,797.00	116,300.00	7
Geneva Academy (OR)	97470	6,250.00	45,368.00	14
Geneva Classical Academy (FL)	33813	10,050.00	85,053.00	18
Geneva School of Boerne (TX)	78015	13,203.00	135,179.00	10
Good Shepherd Reformed Episcopal School (TX)	75701	8,775.00	54,779.00	16
Grace Academy of Georgetown (TX)	78633	10,040.00	134,769.00	7
Grace Classical Academy (MO)	65802	5,753.00	37,546.00	15
Grace Community Classical School Tyler (TX)	75701	12,764.00	54,779.00	23
Greenville Classical Academy (SC)	29681	5,075.00	101,846.00	7
Grove City Christian Academy (PA)	16127	6,000.00	75,469.00	8
Heritage Classical Christian School (MO)	63026	10,444.00	95,598.00	11
Heritage Oak School (CA)	93561	7,225.00	69,954.00	10
Hickory Christian Academy (NC)	28601	7,869.00	65,304.00	14
Horizon Prep (CA)	92067	19,225.00	187,202.00	10
Island Christian Academy (WA)	98260	6,575.00	88,750.00	7
Jonathan Edwards Classical Academy (TN)	37189	9,415.00	67,500.00	14
Legacy Classical Christian Academy (TX)	76052	5,205.00	108,137.00	5
Libertas Christian School (MI)	49426	8,495.00	87,276.00	10
Liberty Classical Academy (MN)	55110	11,990.00	102,733.00	12
Logos School (ID)	83843	4,880.00	64,638.00	8
Mars Hill Academy (OH)	45040	13,250.00	139,889.00	9
Naperville Christian Academy (IL)	60563	10,800.00	119,167.00	9
New Covenant School (SC)	29621	6,640.00	76,968.00	15
New Covenant Schools (VA)	24501	10,380.00	30,151.00	17
Oak Hill Christian School (VA)	20171	12,150.00	165,374.00	10

Table A2 continued

ACCS Secondary Schools	*ZIP Code*	*Tuition*	*Median Family Income of School ZIP ($)*	*Tuition as % of MFIZ*
Oak Hill Classical School (GA)	30019	10,825.00	97,296.00	14
Oakdale Academy (MI)	48329	9,701.00	87,214.00	11
Ozarks Christian Academy (MO)	65775	—	—	—
Paideia Academy (TN)	37932	9,540.00	90,089.00	11
Paideia Classical Academy (FL)	33063	10,635.00	60,333.00	16
Petra Academy (MT)	59718	8,395.00	79,588.00	11
Pinnacle Classical Academy (AR)	72211	7,080.00	76,082.00	9
Providence Academy (TN)	37615	8,815.00	73,266.00	12
Providence Academy (WI)	54303	7,910.00	38,048.00	21
Providence Christian School (AL)	36303	8,175.00	42,759.00	19
Providence Classical Christian Academy (MO)	63126	10,450.00	87,946.00	12
Providence Classical Christian School (WA)	98011	12,540.00	119,386.00	11
Providence Classical School (AL)	35801	5,505.00	101,464.00	8
Providence Classical School (TX)	77379	14,648.00	116,290.00	13
Providence Classical School (VA)	23188	10,581.00	83,462.00	13
Providence Preparatory School (TX)	76513	5,684.00	75,563.00	8
Redeemer Christian School (AZ)	85203	10,124.00	49,453.00	20
Redeemer Classical Christian School (MD)	21087	11,075.00	143,750.00	8
Regent Preparatory School of OK (OK)	74133	10,900.00	73,013.00	15
Regents Academy (TX)	75961	6,425.00	42,031.00	15
Regents School of Austin (TX)	78735	21,043.00	136,528.00	15
Regents School of Charlottesville (VA)	22903	—	—	—
Regents School of Oxford (MS)	38655	8,970.00	71,528.00	13
Rockbridge Academy (MD)	21108	15,165.00	146,694.00	11
Sandhills Classical Christian School, Inc. (NC)	28327	10,030.00	68,831.00	15
Schaeffer Academy (MN)	55906	8,805.00	128,125.00	7
School of the Ozarks (MO)	65672	2,750.00	51,477.00	5
Sheridan Hills Christian School (FL)	33021	—	—	—
Smith Preparatory Academy (FL)	32714	5,150.00	51,471.00	9
Spokane Classical Christian School (WA)	99214	4,000.00	117,375.00	3
St. Abraham's Classical Christian Academy (CA)	95003	9,400.00	104,785.00	9
St. Stephen's Academy (OR)	97035	9,960.00	120,684.00	8
Summit Christian Academy (VA)	23601	10,490.00	55,921.00	21
Summit Classical Christian School (WA)	98024	9,350.00	164,750.00	6

Table A2 continued

ACCS Secondary Schools	*ZIP Code*	*Tuition*	*Median Family Income of School ZIP ($)*	*Tuition as % of MFIZ*
The Academy of Classical Christian Studies (OK)	73131	8,890.00	105,250.00	8
The Ambrose School (ID)	83646	10,048.00	87,298.00	12
The Bear Creek School (WA)	98053	34,755.00	187,153.00	19
The Covenant School (TX)	75240	22,700.00	31,352.00	56
The Geneva School (FL)	32792	16,625.00	61,698.00	20
The Paideia School of Tampa Bay (FL)	33617	9,107.00	31,376.00	29
The River Academy (WA)	98801	7,936.00	60,315.00	13
The Saint Constantine School (TX)	77036	13,100.00	24,914.00	53
The Wilberforce School (NJ)	08550	24,935.00	234,567.00	20
Trinitas Christian School (FL)	32514	7,275.00	52,557.00	12
Trinity Christian School (AL)	36801	6,840.00	50,714.00	13
Trinity Christian School (HI)	96734	15,505.00	109,755.00	14
Trinity Christian School (NJ)	07045	11,245.00	227,959.00	8
Trinity Classical Academy (CA)	91355	—	—	—
Veritas Academy (GA)	31412	7,720.00	19,922.00	39
Veritas Academy (PA)	17540	10,475.00	70,982.00	14
Veritas Christian Academy Fletcher (NC)	28732	13,525.00	74,074.00	19
Veritas Christian Community School (AZ)	85635	—	—	—
Veritas Christian School (KS)	66044	7,983.00	59,875.00	13
Veritas Collegiate Academy (VA)	22031	17,080.00	133,147.00	12
Veritas School Newberg (OR)	97132	10,076.00	60,582.00	17
Veritas School (VA)	23227	13,220.00	62,594.00	19
Westminster Academy (TN)	38119	13,705.00	59,205.00	23
Westminster School at Oak Mountain (AL)	35242	—	—	—
Westside Christian Academy (OH)	44145	9,060.00	125,980.00	7
Winter Park Christian School (CO)	80478	4,000.00	91,655.00	4

Table A3. ACCS secondary school tuition as percentage of median family income of school and surrounding ZIP codes

ACCS Secondary Schools	*ZIP Code*	*Tuition*	*Median Family Income ZIP Aggregate ($)*	*Tuition as % of MFIA*
Ad Fontes Academy (VA)	20120	12,370	130,123	10
Agathos Classical School (TN)	38401	8,005	60,051	13
Alpha Omega Academy (TX)	77340	6,675	48,115	14
American Christian School (NJ)	07885	—	119,179	—
Annapolis Christian Academy (TX)	78411	10,284	59,706	17
Appomattox Christian Academy (VA)	24522	4,900	52,938	9
Augustine Christian Academy (OK)	74114	8,275	52,770	16
Augustine Classical Academy (CO)	80226	8,300	60,934	14
Augustine Classical Academy (NY)	12118	8,358	101,328	8
Baldwin Christian School (WI)	54002	5,250	78,500	7
Bayshore Christian School (AL)	36532	7,300	63,661	11
Beacon Hill Classical Academy (CA)	93010	8,728	74,832	12
Bloomfield Christian School (MI)	48302	11,380	125,313	9
Caldwell Academy (NC)	27410	12,161	77,274	16
Calvary Christian Academy (CA)	95118	10,050	157,608	6
Calvary Christian Academy (NM)	88062	3,225	41,943	8
Candies Creek Academy (TN)	37310	5,725	55,063	10
Cary Christian School (NC)	27513	9,286	111,657	8
Cedar Tree Classical Christian School (WA)	98642	6,960	90,935	8
Christian Heritage Classical School (TX)	75605	8,300	65,878	13
Clapham School (IL)	60187	13,114	130,381	10
Classical Christian Academy (ID)	83854	6,150	63,057	10
Classical School of Wichita (KS)	67218	7,275	40,679	18
Colquitt Christian Academy (GA)	31768	5,375	39,266	14
Coram Deo Academy (TX)	75025	12,610	119,299	11
Cornerstone Academy (WA)	98290	7,978	97,460	8
Cornerstone Christian Academy (VA)	24210	7,500	51,635	15
Covenant Academy (GA)	31210	11,097	49,953	22
Covenant Academy (TX)	77429	13,070	101,512	13
Covenant Christian Academy (MA)	01960	16,475	112,297	15
Covenant Christian Academy (PA)	17109	9,605	68,781	14
Covenant Christian Academy (TX)	76034	17,023	105,892	16
Covenant Christian School (FL)	32907	8,629	53,280	16

Table A3 continued

ACCS Secondary Schools	*ZIP Code*	*Tuition*	*Median Family Income ZIP Aggregate ($)*	*Tuition as % of MFIA*
Covenant Classical School (NC)	28027	8,691	75,597	11
Covenant Classical School (TX)	76108	16,425	66,243	25
Coventry Christian School (PA)	19464	9,800	114,708	9
Dominion Christian School (VA)	20190	16,388	120,588	14
Eastwood Christian School (AL)	36106	7,213	45,035	16
Eukarya Christian Academy (VA)	22655	8,050	89,583	9
Evangel Classical Christian School (AL)	35007	7,605	81,314	9
Evangelical Christian Academy (CO)	80917	9,220	61,545	15
Faith Christian Academy (MO)	64164	4,545	97,679	5
Franklin Classical School (TN)	37064	7,797	101,518	8
Geneva Academy (OR)	97470	6,250	45,368	14
Geneva Classical Academy (FL)	33813	10,050	56,842	18
Geneva School of Boerne (TX)	78015	13,203	135,179	10
Good Shepherd Reformed Episcopal School (TX)	75701	8,775	58,348	15
Grace Academy of Georgetown (TX)	78633	10,040	89,893	11
Grace Classical Academy (MO)	65802	5,753	64,560	9
Grace Community Classical School Tyler (TX)	75701	12,764	58,348	22
Greenville Classical Academy (SC)	29681	5,075	71,577	7
Grove City Christian Academy (PA)	16127	6,000	73,859	8
Heritage Classical Christian School (MO)	63026	10,444	88,223	12
Heritage Oak School (CA)	93561	7,225	50,421	14
Hickory Christian Academy (NC)	28601	7,869	54,799	14
Horizon Prep (CA)	92067	19,225	175,369	11
Island Christian Academy (WA)	98260	6,575	79,808	8
Jonathan Edwards Classical Academy (TN)	37189	9,415	64,448	15
Legacy Classical Christian Academy (TX)	76052	5,205	84,441	6
Libertas Christian School (MI)	49426	8,495	82,745	10
Liberty Classical Academy (MN)	55110	11,990	123,477	10
Logos School (ID)	83843	4,880	65,132	7
Mars Hill Academy (OH)	45040	13,250	115,962	11
Naperville Christian Academy (IL)	60563	10,800	124,291	9
New Covenant School (SC)	29621	6,640	45,521	15
New Covenant Schools (VA)	24501	10,380	60,305	17
Oak Hill Christian School (VA)	20171	12,150	120,280	10
Oak Hill Classical School (GA)	30019	10,825	75,175	14

Table A3 continued

ACCS Secondary Schools	*ZIP Code*	*Tuition*	*Median Family Income ZIP Aggregate ($)*	*Tuition as % of MFIA*
Oakdale Academy (MI)	48329	9,701	79,948	12
Ozarks Christian Academy (MO)	65775	—	48,218	—
Paideia Academy (TN)	37932	9,540	90,089	11
Paideia Classical Academy (FL)	33063	10,635	65,295	16
Petra Academy (MT)	59718	8,395	79,588	11
Pinnacle Classical Academy (AR)	72211	7,080	70,719	10
Providence Academy (TN)	37615	8,815	49,219	18
Providence Academy (WI)	54303	7,910	42,985	18
Providence Christian School (AL)	36303	8,175	42,783	19
Providence Classical Christian Academy (MO)	63126	10,450	110,664	9
Providence Classical Christian School (WA)	98011	12,540	122,222	10
Providence Classical School (AL)	35801	5,505	67,891	8
Providence Classical School (TX)	77379	14,648	81,104	18
Providence Classical School (VA)	23188	10,581	80,806	13
Providence Preparatory School (TX)	76513	5,684	54,166	10
Redeemer Christian School (AZ)	85203	10,124	38,763	26
Redeemer Classical Christian School (MD)	21087	11,075	139,747	8
Regent Preparatory School of OK (OK)	74133	10,900	71,818	15
Regents Academy (TX)	75961	6,425	47,566	14
Regents School of Austin (TX)	78735	21,043	129,931	16
Regents School of Charlottesville (VA)	22903	—	67,188	—
Regents School of Oxford (MS)	38655	8,970	49,970	18
Rockbridge Academy (MD)	21108	15,165	134,434	11
Sandhills Classical Christian School, Inc. (NC)	28327	10,030	67,847	15
Schaeffer Academy (MN)	55906	8,805	91,693	10
School of the Ozarks (MO)	65672	2,750	51,125	5
Sheridan Hills Christian School (FL)	33021	—	45,156	—
Smith Preparatory Academy (FL)	32714	5,150	56,017	9
Spokane Classical Christian School (WA)	99214	4,000	46,358	9
St. Abraham's Classical Christian Academy (CA)	95003	9,400	104,785	9
St. Stephen's Academy (OR)	97035	9,960	107,402	9
Summit Christian Academy (VA)	23601	10,490	50,486	21
Summit Classical Christian School (WA)	98024	9,350	160,266	6
The Academy of Classical Christian Studies (OK)	73131	8,890	59,128	15
The Ambrose School (ID)	83646	10,048	79,046	13

Table A3 continued

ACCS Secondary Schools	*ZIP Code*	*Tuition*	*Median Family Income ZIP Aggregate ($)*	*Tuition as % of MFIA*
The Bear Creek School (WA)	98053	34,755	166,184	21
The Covenant School (TX)	75240	22,700	40,417	56
The Geneva School (FL)	32792	16,625	85,040	20
The Paideia School of Tampa Bay (FL)	33617	9,107	31,057	29
The River Academy (WA)	98801	7,936	63,021	13
The Saint Constantine School (TX)	77036	13,100	35,136	37
The Wilberforce School (NJ)	08550	24,935	127,869	20
Trinitas Christian School (FL)	32514	7,275	60,098	12
Trinity Christian School (AL)	36801	6,840	51,852	13
Trinity Christian School (HI)	96734	15,505	101,028	15
Trinity Christian School (NJ)	07045	11,245	143,500	8
Trinity Classical Academy (CA)	91355	—	111,410	—
Veritas Academy (GA)	31412	7,720	19,922	39
Veritas Academy (PA)	17540	10,475	75,366	14
Veritas Christian Academy Fletcher (NC)	28732	13,525	71,818	19
Veritas Christian Community School (AZ)	85635	—	62,266	—
Veritas Christian School (KS)	66044	7,983	70,332	11
Veritas Collegiate Academy (VA)	22031	17,080	148,286	12
Veritas School Newberg (OR)	97132	10,076	75,257	13
Veritas School (VA)	23227	13,220	67,802	19
Westminster Academy (TN)	38119	13,705	87,776	16
Westminster School at Oak Mountain (AL)	35242	—	88,190	—
Westside Christian Academy (OH)	44145	9,060	114,375	8
Winter Park Christian School (CO)	80478	4,000	85,953	5

Table A4. ACCS secondary school ZIP codes and bordering ZIP codes

		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	01960	82,055	*School ZIP*	07045	227,959	*School ZIP*	07885	—
Bordering 1	01923	112,297	*Bordering 1*	07082	139,911	*Bordering 1*	07801	60,865
Bordering 2	01915	117,314	*Bordering 2*	07004	143,500	*Bordering 2*	07885	54,960
Bordering 3	01970	71,131	*Bordering 3*	07936	152,955	*Bordering 3*	07866	119,179
Bordering 4	01904	87,998	*Bordering 4*	07054	121,760	*Bordering 4*	07869	159,125
Bordering 5	01940	152,469	*Bordering 5*	07005	139,444	*Bordering 5*	07871	147,480
Bordering 6	01949	163,629	*Bordering 6*	07405	162,656	*Bordering 6*	—	—
Mean	—	112,413	Mean	—	155,455	Mean	—	108,322
Median	—	112,297	Median	—	143,500	Median	—	119,179
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	08550	234,567	*School ZIP*	12118	101,328	*School ZIP*	16127	75,469
Bordering 1	08520	102,002	*Bordering 1*	12866	114,313	*Bordering 1*	16153	76,000
Bordering 2	08691	173,375	*Bordering 2*	12170	110,357	*Bordering 2*	16133	53,750
Bordering 3	08648	119,118	*Bordering 3*	12154	65,800	*Bordering 3*	16038	74,063
Bordering 4	08540	196,250	*Bordering 4*	12121	86,607	*Bordering 4*	16057	65,694
Bordering 5	08536	113,457	*Bordering 5*	12188	86,696	*Bordering 5*	16156	66,136
Bordering 6	08512	92,361	*Bordering 6*	12065	109,867	*Bordering 6*	16137	73,859
Bordering 7	08690	136,620	*Bordering 7*	12019	119,966	—	—	—
—	—	—	*Bordering 8*	12020	91,280	—	—	—
Mean	—	145,969	Mean	—	98,468	Mean	—	69,282
Median	—	127,869	Median	—	101,328	Median	—	73,859
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	17109	44,250	*School ZIP*	17540	70,982	*School ZIP*	19464	67,236
Bordering 1	17112	97,681	*Bordering 1*	17522	62,967	*Bordering 1*	19525	111,577
Bordering 2	17111	76,170	*Bordering 2*	17557	65,708	*Bordering 2*	19473	117,540
Bordering 3	17070	85,700	*Bordering 3*	17529	63,984	*Bordering 3*	19468	96,364
Bordering 4	17103	27,438	*Bordering 4*	17572	79,750	*Bordering 4*	19460	122,244
Bordering 5	17110	61,392	*Bordering 5*	17505	80,667	*Bordering 5*	19425	176,273
—	—	—	*Bordering 6*	17601	89,067	*Bordering 6*	19343	153,452
—	—	—	*Bordering 7*	17543	91,468	*Bordering 7*	19465	111,875
—	—	—	—	—	—	*Bordering 8*	19518	119,500
—	—	—	—	—	—	*Bordering 9*	19512	64,828
Mean	—	65,439	Mean	—	75,574	Mean	—	114,089
Median	—	68,781	Median	—	75,366	Median	—	114,708

Table A4 continued

		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	20120	124,408	*School ZIP*	20171	165,374	*School ZIP*	20190	120,588
Bordering 1	20151	118,780	*Bordering 1*	20191	118,617	*Bordering 1*	20194	197,438
Bordering 2	22033	140,313	*Bordering 2*	22124	196,033	*Bordering 2*	22182	228,070
Bordering 3	22030	135,837	*Bordering 3*	22033	140,313	*Bordering 3*	20191	118,617
Bordering 4	20124	187,019	*Bordering 4*	20151	118,780	*Bordering 4*	20170	120,280
Bordering 5	20121	98,008	*Bordering 5*	20166	114,188	—	—	—
Bordering 6	20109	57,788	*Bordering 6*	20170	120,280	—	—	—
Bordering 7	20152	171,585	—	—	—	—	—	—
Mean	—	129,217	Mean	—	139,084	Mean	—	156,999
Median	—	130,123	Median	—	120,280	Median	—	120,588
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	21087	143,750	*School ZIP*	21108	146,694	*School ZIP*	22031	133,147
Bordering 1	21085	79,839	*Bordering 1*	21061	67,074	*Bordering 1*	22180	172,946
Bordering 2	21162	119,545	*Bordering 2*	21122	106,520	*Bordering 2*	22042	104,931
Bordering 3	21128	139,747	*Bordering 3*	21146	148,705	*Bordering 3*	22003	106,010
Bordering 4	21057	175,536	*Bordering 4*	21032	153,594	*Bordering 4*	22032	160,734
Bordering 5	21082	146,111	*Bordering 5*	21054	134,434	*Bordering 5*	22030	135,837
Bordering 6	21047	132,132	*Bordering 6*	21144	104,643	*Bordering 6*	22124	196,033
—	—	—	—	—	—	*Bordering 7*	22181	195,150
Mean	—	133,809	Mean	—	123,095	Mean	—	150,599
Median	—	139,747	Median	—	134,434	Median	—	148,286
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	22655	93,388	*School ZIP*	22903	95,216	*School ZIP*	23188	83,462
Bordering 1	22663	79,950	*Bordering 1*	22901	93,917	*Bordering 1*	23168	79,699
Bordering 2	22630	66,086	*Bordering 2*	22902	67,188	*Bordering 2*	23011	89,063
Bordering 3	22645	103,125	*Bordering 3*	22937	48,036	*Bordering 3*	23156	72,875
Bordering 4	22602	89,583	*Bordering 4*	22959	62,250	*Bordering 4*	23061	81,913
—	—	—	*Bordering 5*	22920	61,694	*Bordering 5*	23185	91,992
—	—	—	*Bordering 6*	22932	95,446	*Bordering 6*	23030	70,938
—	—	—	—	—	—	*Bordering 7*	23072	64,253
Mean	—	86,426	Mean	—	74,821	Mean	—	79,274
Median	—	89,583	Median	—	67,188	Median	—	80,806
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	23227	62,594	*School ZIP*	23601	55,921	*School ZIP*	24210	51,635

Table A4 continued

Bordering 1	23116	124,671	*Bordering 1*	23606	45,617	*Bordering 1*	24370	41,506
Bordering 2	23111	95,299	*Bordering 2*	23693	110,483	*Bordering 2*	24361	56,500
Bordering 3	23222	28,629	*Bordering 3*	23666	55,355	*Bordering 3*	24211	88,000
Bordering 4	23220	39,750	*Bordering 4*	23605	38,569	*Bordering 4*	24202	49,559
Bordering 5	23230	67,802	*Bordering 5*	23607	26,750	*Bordering 5*	24270	43,462
Bordering 6	23228	52,403	—	—	—	*Bordering 6*	24266	56,759
Bordering 7	23060	98,158	—	—	—	—	—	—
Bordering 8	23059	152,121	—	—	—	—	—	—
Mean	—	80,159	Mean	—	55,449	Mean	—	55,346
Median	—	67,802	Median	—	50,486	Median	—	51,635
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	24501	30,151	*School ZIP*	24522	71,284	*School ZIP*	27410	77,274
Bordering 1	24504	41,685	*Bordering 1*	24553	40,750	*Bordering 1*	27358	107,404
Bordering 2	24588	63,482	*Bordering 2*	23936	52,938	*Bordering 2*	27455	103,864
Bordering 3	24550	78,903	*Bordering 3*	23960	46,346	*Bordering 3*	27408	90,614
Bordering 4	24502	57,128	*Bordering 4*	23958	35,515	*Bordering 4*	27403	62,455
Bordering 5	24503	75,449	*Bordering 5*	24538	65,880	*Bordering 5*	27407	51,502
—	—	—	*Bordering 6*	24593	70,688	*Bordering 6*	27409	48,333
Mean	—	57,800	Mean	—	54,772	Mean	—	77,349
Median	—	60,305	Median	—	52,938	Median	—	77,274
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	27513	111,661	*School ZIP*	28027	88,386	*School ZIP*	28327	68,831
Bordering 1	27612	111,657	*Bordering 1*	28081	54,985	*Bordering 1*	27330	55,179
Bordering 2	27607	109,804	*Bordering 2*	28083	43,182	*Bordering 2*	27332	57,609
Bordering 3	27511	66,210	*Bordering 3*	28025	53,544	*Bordering 3*	28326	56,961
Bordering 4	27523	122,270	*Bordering 4*	28075	106,969	*Bordering 4*	28394	67,847
Bordering 5	27519	149,099	*Bordering 5*	28262	64,886	*Bordering 5*	28387	78,917
Bordering 6	27560	109,091	*Bordering 6*	28269	75,597	*Bordering 6*	28374	101,929
—	—	—	*Bordering 7*	28078	119,886	*Bordering 7*	27376	83,523
—	—	—	*Bordering 8*	28036	160,552	*Bordering 8*	27325	58,542
Mean	—	111,399	Mean	—	85,332	Mean	—	69,926
Median	—	111,657	Median	—	75,597	Median	—	67,847
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	28601	65,304	*School ZIP*	28732	74,074	*School ZIP*	29621	76,968
Bordering 1	28681	68,918	*Bordering 1*	28730	66,736	*Bordering 1*	29697	45,521
Bordering 2	28613	51,722	*Bordering 2*	28792	47,408	*Bordering 2*	29627	43,843

Table A4 continued

Bordering 3	28602	54,799	*Bordering 3*	28791	71,818	*Bordering 3*	29655	36,288
Bordering 4	28637	11,845	*Bordering 4*	28759	88,438	*Bordering 4*	29624	19,030
Bordering 5	28612	48,589	*Bordering 5*	28704	96,988	*Bordering 5*	29625	49,882
Bordering 6	28630	62,667	*Bordering 6*	28803	59,259	*Bordering 6*	29670	53,317
Mean	—	51,978	Mean	—	72,103	Mean	—	46,407
Median	—	54,799	Median	—	71,818	Median	—	45,521
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	29681	101,846	*School ZIP*	30019	97,296	*School ZIP*	31210	80,301
Bordering 1	29651	73,490	*Bordering 1*	30011	75,175	*Bordering 1*	31046	82,031
Bordering 2	29388	51,705	*Bordering 2*	30620	68,102	*Bordering 2*	31211	33,370
Bordering 3	29644	55,284	*Bordering 3*	30656	58,107	*Bordering 3*	31204	24,688
Bordering 4	29680	77,692	*Bordering 4*	30052	72,552	*Bordering 4*	31206	18,230
Bordering 5	29607	70,192	*Bordering 5*	30045	78,143	*Bordering 5*	31220	66,536
Bordering 6	29662	67,997	*Bordering 6*	30043	69,484	—	—	—
Bordering 7	29615	72,962	*Bordering 7*	30519	80,711	—	—	—
—	—	—	*Bordering 8*	30548	106,903	—	—	—
Mean	—	71,396	Mean	—	78,497	Mean	—	50,859
Median	—	71,577	Median	—	75,175	Median	—	49,953
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	31401	17,772	*School ZIP*	31768	29,919	*School ZIP*	32514	52,557
Bordering 1	31415	19,922	*Bordering 1*	31744	36,806	*Bordering 1*	32533	84,639
Bordering 2	31405	39,077	*Bordering 2*	31789	45,804	*Bordering 2*	32571	72,422
—	—	—	*Bordering 3*	31771	33,750	*Bordering 3*	32583	60,098
—	—	—	*Bordering 4*	31788	33,804	*Bordering 4*	32504	64,481
—	—	—	*Bordering 5*	31738	42,287	*Bordering 5*	32503	47,383
—	—	—	*Bordering 6*	31765	41,726	*Bordering 6*	32534	50,966
—	—	—	*Bordering 7*	31756	73,438	—	—	—
Mean	—	25,590	Mean	—	42,192	Mean	—	61,792
Median	—	19,922	Median	—	39,266	Median	—	60,098
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	32714	51,471	*School ZIP*	32792	61,698	*School ZIP*	32907	47,258
Bordering 1	32779	103,693	*Bordering 1*	32707	59,196	*Bordering 1*	32908	41,290
Bordering 2	32750	83,052	*Bordering 2*	32708	85,966	*Bordering 2*	32904	84,620
Bordering 3	32701	56,017	*Bordering 3*	32765	92,754	*Bordering 3*	32905	38,000
Bordering 4	32751	85,040	*Bordering 4*	32817	59,458	*Bordering 4*	32950	64,167
Bordering 5	32810	36,219	*Bordering 5*	32807	33,937	*Bordering 5*	32909	59,301

Table A4 continued

Bordering 6	32703	47,410	*Bordering 6*	32814	195,380	—	—	—
—	—	—	*Bordering 7*	32789	139,511	—	—	—
—	—	—	*Bordering 8*	32751	85,040	—	—	—
Mean	—	66,129	Mean	—	90,327	Mean	—	55,773
Median	—	56,017	Median	—	85,040	Median	—	53,280
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	33021	66,576	*School ZIP*	33063	60,333	*School ZIP*	33617	31,376
Bordering 1	33312	45,156	*Bordering 1*	33066	70,256	*Bordering 1*	33637	56,628
Bordering 2	33020	35,588	*Bordering 2*	33069	40,732	*Bordering 2*	33610	30,738
Bordering 3	33009	36,021	*Bordering 3*	33068	39,239	*Bordering 3*	33604	34,265
Bordering 4	33023	45,911	*Bordering 4*	33071	73,441	*Bordering 4*	33612	29,235
Bordering 5	33024	58,434	*Bordering 5*	33065	46,908	*Bordering 5*	33613	29,746
Bordering 6	33314	40,684	*Bordering 6*	33067	105,978	—	—	—
—	—	—	*Bordering 7*	33073	73,483	—	—	—
Mean	—	46,910	Mean	—	63,796	Mean	—	35,331
Median	—	45,156	Median	—	65,295	Median	—	31,057
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	33813	85,053	*School ZIP*	35007	72,031	*School ZIP*	35242	119,355
Bordering 1	33812	78,603	*Bordering 1*	35124	88,379	*Bordering 1*	35094	68,056
Bordering 2	33830	53,843	*Bordering 2*	35043	100,333	*Bordering 2*	35176	48,646
Bordering 3	33860	45,359	*Bordering 3*	35051	70,662	*Bordering 3*	35147	88,000
Bordering 4	33811	59,840	*Bordering 4*	35040	74,248	*Bordering 4*	35043	100,333
Bordering 5	33803	51,052	*Bordering 5*	35115	41,374	*Bordering 5*	35124	88,379
—	—	—	*Bordering 6*	35114	113,074	*Bordering 6*	35244	109,851
—	—	—	*Bordering 7*	35080	97,374	*Bordering 7*	35216	82,162
—	—	—	—	—	—	*Bordering 8*	35243	119,022
—	—	—	—	—	—	*Bordering 9*	35210	42,834
Mean	—	62,292	Mean	—	82,184	Mean	—	86,664
Median	—	56,842	Median	—	81,314	Median	—	88,190
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	35801	101,464	*School ZIP*	36106	68,971	*School ZIP*	36303	42,759
Bordering 1	35811	67,891	*Bordering 1*	36109	53,153	*Bordering 1*	36345	73,413
Bordering 2	35741	109,624	*Bordering 2*	36117	70,842	*Bordering 2*	36376	34,079
Bordering 3	35763	124,462	*Bordering 3*	36116	38,980	*Bordering 3*	36321	40,313
Bordering 4	35802	73,536	*Bordering 4*	36111	47,083	*Bordering 4*	36301	41,285
Bordering 5	35805	17,113	*Bordering 5*	36105	42,986	*Bordering 5*	36305	72,365

Table A4 continued

Bordering 6	35816	20,465	*Bordering 6*	36104	18,452	*Bordering 6*	36352	71,538
Bordering 7	35805	17,113	*Bordering 7*	36107	34,167	*Bordering 7*	36350	42,807
Bordering 8	35810	31,152	—	—	—	—	—	—
Bordering 9	35811	67,891	—	—	—	—	—	—
Mean	—	63,071	Mean	—	46,829	Mean	—	52,320
Median	—	67,891	Median	—	45,035	Median	—	42,783
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	36532	87,256	*School ZIP*	36801	50,714	*School ZIP*	37064	116,300
Bordering 1	36526	82,074	*Bordering 1*	36852	21,289	*Bordering 1*	37069	138,446
Bordering 2	36551	65,737	*Bordering 2*	36804	41,227	*Bordering 2*	37067	134,333
Bordering 3	36576	61,585	*Bordering 3*	36830	84,899	*Bordering 3*	37046	103,846
Bordering 4	36580	32,404	*Bordering 4*	36879	74,000	*Bordering 4*	37179	108,250
Bordering 5	36535	42,528	*Bordering 5*	36862	52,989	*Bordering 5*	38401	55,842
—	—	—	—	—	—	*Bordering 6*	38482	95,560
—	—	—	—	—	—	*Bordering 7*	38476	66,571
—	—	—	—	—	—	*Bordering 8*	37062	69,625
—	—	—	—	—	—	*Bordering 9*	37221	99,189
Mean	—	61,931	Mean	—	54,186	Mean	—	98,796
Median	—	63,661	Median	—	51,852	Median	—	101,518
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	37189	67,500	*School ZIP*	37310	85,333	*School ZIP*	37615	73,266
Bordering 1	37072	64,448	*Bordering 1*	37309	50,625	*Bordering 1*	37663	59,219
Bordering 2	37207	26,970	*Bordering 2*	37325	38,056	*Bordering 2*	37686	49,219
Bordering 3	37218	35,707	*Bordering 3*	37307	49,671	*Bordering 3*	37601	36,042
Bordering 4	37080	69,479	*Bordering 4*	37323	55,063	*Bordering 4*	37604	47,081
—	—	—	*Bordering 5*	37312	62,242	*Bordering 5*	37659	63,107
—	—	—	*Bordering 6*	37336	56,250	—	—	—
Mean	—	52,821	Mean	—	56,749	Mean	—	54,656
Median	—	64,448	Median	—	55,063	Median	—	49,219
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	37932	90,089	*School ZIP*	38119	59,205	*School ZIP*	38401	55,842
Bordering 1	37931	98,382	*Bordering 1*	38120	145,018	*Bordering 1*	37179	108,250
Bordering 2	37923	78,992	*Bordering 2*	38138	124,688	*Bordering 2*	37174	96,611
Bordering 3	37922	118,833	*Bordering 3*	38125	74,116	*Bordering 3*	37034	64,259
Bordering 4	37934	122,926	*Bordering 4*	38115	24,142	*Bordering 4*	37091	46,042
Bordering 5	37771	39,938	*Bordering 5*	38117	101,435	*Bordering 5*	38451	48,164

Table A4 continued

Bordering 6	37830	54,366	—	—	—	*Bordering 6*	38474	48,494
—	—	—	—	—	—	*Bordering 7*	38487	48,145
—	—	—	—	—	—	*Bordering 8*	38482	95,560
—	—	—	—	—	—	*Bordering 9*	37064	116,300
Mean	—	86,218	Mean	—	88,101	Mean	—	72,767
Median	—	90,089	Median	—	87,776	Median	—	60,051
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	38655	71,528	*School ZIP*	44145	125,980	*School ZIP*	45040	139,889
Bordering 1	38601	62,202	*Bordering 1*	44140	123,370	*Bordering 1*	45036	88,218
Bordering 2	38627	49,107	*Bordering 2*	44116	114,375	*Bordering 2*	45034	161,667
Bordering 3	38871	64,583	*Bordering 3*	44126	79,667	*Bordering 3*	45039	116,422
Bordering 4	38863	50,833	*Bordering 4*	44070	78,164	*Bordering 4*	45140	113,477
Bordering 5	38864	61,350	*Bordering 5*	44039	86,196	*Bordering 5*	45249	133,561
Bordering 6	38913	48,239	*Bordering 6*	44011	144,484	*Bordering 6*	45241	106,198
Bordering 7	38965	38,901	—	—	—	*Bordering 7*	45069	115,962
Bordering 8	38606	39,809	—	—	—	*Bordering 8*	45044	64,574
Bordering 9	38619	30,299	—	—	—	—	—	—
Mean	—	51,685	Mean	—	107,462	Mean	—	115,552
Median	—	49,970	Median	—	114,375	Median	—	115,962
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	48302	161,915	*School ZIP*	48329	87,214	*School ZIP*	49426	87,276
Bordering 1	48341	40,106	*Bordering 1*	48346	84,886	*Bordering 1*	49428	82,745
Bordering 2	48304	158,958	*Bordering 2*	48359	103,571	*Bordering 2*	49418	81,709
Bordering 3	48301	174,487	*Bordering 3*	48326	75,009	*Bordering 3*	49315	91,696
Bordering 4	48322	111,538	*Bordering 4*	48340	29,452	*Bordering 4*	49323	74,231
Bordering 5	48324	125,313	*Bordering 5*	48328	53,880	*Bordering 5*	49464	87,527
Bordering 6	48320	63,482	*Bordering 6*	48327	71,875	*Bordering 6*	49401	68,977
—	—	—	*Bordering 7*	48386	117,222	—	—	—
Mean	—	119,400	Mean	—	77,889	Mean	—	82,023
Median	—	125,313	Median	—	79,948	Median	—	82,745
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	54002	68,393	*School ZIP*	54303	38,048	*School ZIP*	55110	102,733
Bordering 1	54013	57,375	*Bordering 1*	54313	91,766	*Bordering 1*	55038	124,151
Bordering 2	54028	55,625	*Bordering 2*	54302	36,769	*Bordering 2*	55082	123,477
Bordering 3	54767	78,500	*Bordering 3*	54304	47,921	*Bordering 3*	55115	149,286
Bordering 4	54022	101,154	—	—	—	*Bordering 4*	55109	68,686

Table A4 continued

Bordering 5	54015	88,854	—	—	—	*Bordering 5*	55117	42,456
Bordering 6	54017	83,657	—	—	—	*Bordering 6*	55127	123,669
Mean	—	76,223	Mean	—	53,626	Mean	—	104,923
Median	—	78,500	Median	—	42,985	Median	—	123,477
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	55906	128,125	*School ZIP*	59718	79,588	*School ZIP*	60187	130,381
Bordering 1	55991	76,389	*Bordering 1*	59714	72,188	*Bordering 1*	60188	86,009
Bordering 2	55957	72,500	*Bordering 2*	59715	87,113	*Bordering 2*	60137	150,698
Bordering 3	55932	82,813	*Bordering 3*	59730	84,821	*Bordering 3*	60189	124,291
Bordering 4	55934	95,469	*Bordering 4*	59741	71,595	*Bordering 4*	60190	135,658
Bordering 5	55904	51,774	—	—	—	—	—	—
Bordering 6	55902	126,548	—	—	—	—	—	—
Bordering 7	55901	91,693	—	—	—	—	—	—
Bordering 8	55960	121,058	—	—	—	—	—	—
Mean	—	94,041	Mean	—	79,061	Mean	—	125,407
Median	—	91,693	Median	—	79,588	Median	—	130,381
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	60563	119,167	*School ZIP*	63026	95,598	*School ZIP*	63126	87,946
Bordering 1	60555	92,188	*Bordering 1*	63122	139,049	*Bordering 1*	63119	113,351
Bordering 2	60189	124,291	*Bordering 2*	63127	127,614	*Bordering 2*	63123	75,417
Bordering 3	60532	127,827	*Bordering 3*	63128	107,976	*Bordering 3*	63128	107,976
Bordering 4	60540	138,202	*Bordering 4*	63010	74,135	*Bordering 4*	63127	127,614
Bordering 5	60504	81,526	*Bordering 5*	63052	76,235	*Bordering 5*	63122	139,049
Bordering 6	60502	134,870	*Bordering 6*	63049	71,524	—	—	—
—	—	—	*Bordering 7*	63088	80,847	—	—	—
Mean	—	116,867	Mean	—	96,622	Mean	—	108,559
Median	—	124,291	Median	—	88,223	Median	—	110,664
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	64164	216,500	*School ZIP*	65672	51,477	*School ZIP*	65775	45,266
Bordering 1	64089	105,625	*Bordering 1*	65616	46,162	*Bordering 1*	65789	65,000
Bordering 2	64165	110,903	*Bordering 2*	65679	54,712	*Bordering 2*	65788	37,308
Bordering 3	64155	90,995	*Bordering 3*	72662	42,222	*Bordering 3*	65692	27,813
Bordering 4	64154	88,333	*Bordering 4*	65739	51,125	*Bordering 4*	72576	52,417
Bordering 5	64153	97,679	—	—	—	*Bordering 5*	72583	41,858
Bordering 6	64163	43,846	—	—	—	*Bordering 6*	65777	59,583
—	—	—	—	—	—	*Bordering 7*	65626	51,750

Table A4 continued

—	—	—	—	—	—	*Bordering 8*	65790	35,804
—	—	—	—	—	—	*Bordering 9*	65637	51,169
Mean	—	107,697	Mean	—	49,140	Mean	—	46,797
Median	—	97,679	Median	—	51,125	Median	—	48,218
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	65802	37,546	*School ZIP*	66044	59,875	*School ZIP*	67218	33,511
Bordering 1	65803	39,955	*Bordering 1*	66054	58,018	*Bordering 1*	67208	50,391
Bordering 2	65757	67,841	*Bordering 2*	66086	97,000	*Bordering 2*	67206	106,875
Bordering 3	65742	70,761	*Bordering 3*	66052	62,885	*Bordering 3*	67207	51,097
Bordering 4	65809	110,568	*Bordering 4*	66025	87,652	*Bordering 4*	67210	40,580
Bordering 5	65804	61,013	*Bordering 5*	66046	58,958	*Bordering 5*	67216	40,777
Bordering 6	65807	43,796	*Bordering 6*	66049	101,641	*Bordering 6*	67211	27,079
Bordering 7	65619	76,683	*Bordering 7*	66073	70,332	*Bordering 7*	67214	30,082
Bordering 8	65738	61,279	*Bordering 8*	66066	78,500	—	—	—
Bordering 9	65612	87,647	—	—	—	—	—	—
Bordering 10	65781	78,589	—	—	—	—	—	—
Bordering 11	65806	25,817	—	—	—	—	—	—
Mean	—	63,458	Mean	—	74,985	Mean	—	47,549
Median	—	64,560	Median	—	70,332	Median	—	40,679
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	72211	76,082	*School ZIP*	73131	105,250	*School ZIP*	74114	74,783
Bordering 1	72212	106,272	*Bordering 1*	73013	101,599	*Bordering 1*	74104	43,977
Bordering 2	72227	70,719	*Bordering 2*	73151	175,000	*Bordering 2*	74112	39,941
Bordering 3	72205	57,000	*Bordering 3*	73141	36,087	*Bordering 3*	74129	39,980
Bordering 4	72204	31,280	*Bordering 4*	73121	71,016	*Bordering 4*	74145	41,708
Bordering 5	72210	61,947	*Bordering 5*	73111	19,004	*Bordering 5*	74135	61,765
Bordering 6	72223	129,375	*Bordering 6*	73105	47,292	*Bordering 6*	74105	62,215
—	—	—	*Bordering 7*	73114	24,167	*Bordering 7*	74107	34,920
—	—	—	*Bordering 8*	73134	59,128	*Bordering 8*	74119	70,372
—	—	—	—	—	—	*Bordering 9*	74120	61,563
Mean	—	76,096	Mean	—	70,949	Mean	—	53,122
Median	—	70,719	Median	—	59,128	Median	—	52,770
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	74133	73,013	*School ZIP*	75025	137,824	*School ZIP*	75240	31,352
Bordering 1	74145	41,708	*Bordering 1*	75035	140,240	*Bordering 1*	75254	36,195
Bordering 2	74146	32,087	*Bordering 2*	75070	112,215	*Bordering 2*	75080	86,641

Table A4 continued

Bordering 3	74012	71,818	*Bordering 3*	75013	156,024	*Bordering 3*	75243	30,106
Bordering 4	74011	82,035	*Bordering 4*	75002	105,917	*Bordering 4*	75251	40,417
Bordering 5	74008	97,969	*Bordering 5*	75074	65,190	*Bordering 5*	75230	159,615
Bordering 6	74137	130,417	*Bordering 6*	75023	88,767	*Bordering 6*	75244	105,469
Bordering 7	74136	35,982	*Bordering 7*	75024	126,382	—	—	—
Bordering 8	74135	61,765	—	—	—	—	—	—
Mean	—	69,644	Mean	—	116,570	Mean	—	69,971
Median	—	71,818	Median	—	119,299	Median	—	40,417
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	75605	84,783	*School ZIP*	75701	54,779	*School ZIP*	75961	42,031
Bordering 1	75640	65,878	*Bordering 1*	75702	31,560	*Bordering 1*	75978	74,583
Bordering 2	75650	76,667	*Bordering 2*	75707	65,795	*Bordering 2*	75965	67,976
Bordering 3	75602	36,930	*Bordering 3*	75703	69,152	*Bordering 3*	75946	53,125
Bordering 4	75601	60,521	*Bordering 4*	75709	61,917	*Bordering 4*	75935	45,482
Bordering 5	75604	45,770	*Bordering 5*	75704	42,006	*Bordering 5*	75972	47,566
Bordering 6	75645	86,733	—	—	—	*Bordering 6*	75937	53,269
—	—	—	—	—	—	*Bordering 7*	75944	47,000
—	—	—	—	—	—	*Bordering 8*	75949	54,821
—	—	—	—	—	—	*Bordering 9*	75901	47,205
—	—	—	—	—	—	*Bordering 10*	75964	37,578
Mean	—	65,326	Mean	—	54,202	Mean	—	51,876
Median	—	65,878	Median	—	58,348	Median	—	47,566
		MFIZ ($)			*MFIZ ($)*			*MFIZ*
School ZIP	76034	206,504	*School ZIP*	76052	108,137	*School ZIP*	76108	66,236
Bordering 1	76092	250,000	*Bordering 1*	76078	76,389	*Bordering 1*	76020	78,734
Bordering 2	76051	96,366	*Bordering 2*	76247	96,316	*Bordering 2*	76135	63,929
Bordering 3	76039	65,064	*Bordering 3*	76177	101,630	*Bordering 3*	76127	66,250
Bordering 4	76021	78,698	*Bordering 4*	76131	70,897	*Bordering 4*	76116	44,583
Bordering 5	76054	115,417	*Bordering 5*	76179	84,441	*Bordering 5*	76008	133,544
Bordering 6	76182	95,917	*Bordering 6*	76071	60,152	—	—	—
Bordering 7	76248	150,313	—	—	—	—	—	—
Mean	—	132,285	Mean	—	85,423	Mean	—	75,546
Median	—	105,892	Median	—	84,441	Median	—	66,243
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	76513	75,563	*School ZIP*	77036	24,914	*School ZIP*	77340	43,015
Bordering 1	76543	38,250	*Bordering 1*	77042	41,539	*Bordering 1*	77359	80,609

Table A4 continued

Bordering 2	76502	71,906	*Bordering 2*	77063	41,923	*Bordering 2*	77358	53,214
Bordering 3	76554	53,510	*Bordering 3*	77057	65,227	*Bordering 3*	77356	102,570
Bordering 4	76534	54,821	*Bordering 4*	77081	22,853	*Bordering 4*	77873	37,330
Bordering 5	76571	30,750	*Bordering 5*	77074	30,750	*Bordering 5*	77831	36,544
Bordering 6	76548	81,588	*Bordering 6*	77099	36,890	—	—	—
Bordering 7	76559	51,591	*Bordering 7*	77072	33,381	—	—	—
Mean	—	57,247	Mean	—	37,185	Mean	—	58,880
Median	—	54,166	Median	—	35,136	Median	—	48,115
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	77379	116,290	*School ZIP*	77429	107,417	*School ZIP*	78015	135,179
Bordering 1	77375	79,019	*Bordering 1*	77377	110,536	*Bordering 1*	78006	95,107
Bordering 2	77389	129,815	*Bordering 2*	77070	63,820	*Bordering 2*	78163	137,527
Bordering 3	77388	97,596	*Bordering 3*	77065	62,397	*Bordering 3*	78257	186,513
Bordering 4	77090	32,585	*Bordering 4*	77095	95,607	*Bordering 4*	78255	133,324
Bordering 5	77068	53,457	*Bordering 5*	77433	109,375	—	—	—
Bordering 6	77069	83,188	—	—	—	—	—	—
Bordering 7	77070	63,820	—	—	—	—	—	—
Mean	—	81,971	Mean	—	91,525	Mean	—	137,530
Median	—	81,104	Median	—	101,512	Median	—	135,179
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	78411	59,706	*School ZIP*	78633	134,769	*School ZIP*	78735	136,528
Bordering 1	78404	37,907	*Bordering 1*	76527	60,625	*Bordering 1*	78733	204,085
Bordering 2	78413	87,973	*Bordering 2*	76537	68,685	*Bordering 2*	78746	221,333
Bordering 3	78414	100,748	*Bordering 3*	78626	75,625	*Bordering 3*	78704	88,203
Bordering 4	78412	41,854	*Bordering 4*	78628	104,161	*Bordering 4*	78745	57,977
—	—	—	*Bordering 5*	78642	115,791	*Bordering 5*	78749	109,779
—	—	—	—	—	—	*Bordering 6*	78736	123,333
—	—	—	—	—	—	*Bordering 7*	78738	175,495
Mean	—	65,638	Mean	—	93,276	Mean	—	139,592
Median	—	59,706	Median	—	89,893	Median	—	129,931
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	80226	60,934	*School ZIP*	80478	91,655	*School ZIP*	80917	60,071
Bordering 1	80215	80,165	*Bordering 1*	80446	56,369	*Bordering 1*	80923	93,169
Bordering 2	80214	48,141	*Bordering 2*	80482	113,828	*Bordering 2*	80922	86,366
Bordering 3	80204	26,998	*Bordering 3*	80442	80,250	*Bordering 3*	80915	55,251
Bordering 4	80219	39,732	—	—	—	*Bordering 4*	80909	39,360

Table A4 continued

Bordering 5	80232	74,468	—	—	—	*Bordering 5*	80918	63,018
Bordering 6	80228	100,490	—	—	—	—	—	—
Mean	—	61,561	Mean	—	85,526	Mean	—	66,206
Median	—	60,934	Median	—	85,953	Median	—	61,545
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	83646	87,298	*School ZIP*	83843	64,638	*School ZIP*	83854	55,872
Bordering 1	83616	113,688	*Bordering 1*	83872	130,813	*Bordering 1*	83858	64,934
Bordering 2	83713	73,582	*Bordering 2*	83855	49,698	*Bordering 2*	83869	43,685
Bordering 3	83642	65,346	*Bordering 3*	83857	65,625	*Bordering 3*	83815	61,179
Bordering 4	83687	51,592	*Bordering 4*	83871	60,781	*Bordering 4*	83814	46,771
Bordering 5	83669	84,509	*Bordering 5*	83535	41,250	*Bordering 5*	99019	115,145
—	—	—	*Bordering 6*	83832	78,750	*Bordering 6*	99025	77,708
—	—	—	*Bordering 7*	99179	91,667	*Bordering 7*	99021	90,223
—	—	—	*Bordering 8*	99113	90,417	—	—	—
—	—	—	*Bordering 9*	99163	62,385	—	—	—
Mean	—	79,336	Mean	—	73,602	Mean	—	69,440
Median	—	79,046	Median	—	65,132	Median	—	63,057
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	85203	49,453	*School ZIP*	85635	54,441	*School ZIP*	88061	40,761
Bordering 1	85213	68,217	*Bordering 1*	85638	77,750	*Bordering 1*	88043	43,125
Bordering 2	85204	43,739	*Bordering 2*	85603	31,731	—	—	—
Bordering 3	85210	30,109	*Bordering 3*	85615	77,750	—	—	—
Bordering 4	85201	33,787	*Bordering 4*	85650	76,424	—	—	—
Bordering 5	85256	26,641	*Bordering 5*	85613	62,266	—	—	—
—	—	—	*Bordering 6*	85616	29,623	—	—	—
Mean	—	41,991	Mean	—	58,569	Mean	—	41,943
Median	—	38,763	Median	—	62,266	Median	—	41,943
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	91355	108,800	*School ZIP*	92067	187,202	*School ZIP*	93010	97,524
Bordering 1	91354	124,029	*Bordering 1*	92091	243,162	*Bordering 1*	93066	93,750
Bordering 2	91350	114,019	*Bordering 2*	92014	205,192	*Bordering 2*	93012	138,490
Bordering 3	91321	53,214	*Bordering 3*	92127	163,536	*Bordering 3*	93033	47,968
Bordering 4	91381	147,500	*Bordering 4*	92075	125,296	*Bordering 4*	93030	55,913
Bordering 5	91384	107,832	*Bordering 5*	92024	137,281	*Bordering 5*	93036	53,918
Mean	—	109,232	Mean	—	176,945	Mean	—	81,261

Table A4 continued

Median	—	111,410	Median	—	175,369	Median	—	74,832
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	93561	69,954	*School ZIP*	95003	104,785	*School ZIP*	95118	147,346
Bordering 1	93531	90,522	*Bordering 1*	95033	186,528	*Bordering 1*	95125	177,417
Bordering 2	93518	48,125	*Bordering 2*	95076	52,790	*Bordering 2*	95136	107,636
Bordering 3	93501	30,486	*Bordering 3*	95073	119,023	*Bordering 3*	95123	120,401
Bordering 4	93560	52,717	*Bordering 4*	95010	64,702	*Bordering 4*	95120	229,632
Bordering 5	93203	36,237	—	—	—	*Bordering 5*	95124	167,869
Mean	—	54,674	Mean	—	105,566	Mean	—	158,384
Median	—	50,421	Median	—	104,785	Median	—	157,608
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	96734	109,755	*School ZIP*	97035	120,684	*School ZIP*	97132	60,582
Bordering 1	96744	108,472	*Bordering 1*	97219	121,862	*Bordering 1*	97123	73,565
Bordering 2	96817	61,889	*Bordering 2*	97034	178,665	*Bordering 2*	97140	110,244
Bordering 3	96822	89,577	*Bordering 3*	97062	91,897	*Bordering 3*	97013	75,257
Bordering 4	96816	101,028	*Bordering 4*	97224	94,120	*Bordering 4*	97002	85,469
Bordering 5	96795	74,969	*Bordering 5*	97223	87,433	*Bordering 5*	97137	84,861
Bordering 6	96821	155,098	—	—	—	*Bordering 6*	97111	73,958
—	—	—	—	—	—	*Bordering 7*	97148	105,795
—	—	—	—	—	—	*Bordering 8*	97119	71,563
Mean	—	100,113	Mean	—	115,777	Mean	—	82,366
Median	—	101,028	Median	—	107,402	Median	—	75,257
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	97470	45,368	*School ZIP*	98011	119,386	*School ZIP*	98024	164,750
Bordering 1	97479	42,759	*Bordering 1*	98021	146,058	*Bordering 1*	98014	128,654
Bordering 2	97447	31,250	*Bordering 2*	98072	157,647	*Bordering 2*	98065	155,781
Bordering 3	97443	60,164	*Bordering 3*	98034	122,222	*Bordering 3*	98027	134,219
Bordering 4	97457	34,500	*Bordering 4*	98028	116,458	*Bordering 4*	98029	154,394
Bordering 5	97471	69,524	—	—	—	*Bordering 5*	98075	183,773
Bordering 6	97495	77,321	—	—	—	*Bordering 6*	98074	186,474
—	—	—	—	—	—	*Bordering 7*	98053	187,153
Mean	—	51,555	Mean	—	132,354	Mean	—	161,900
Median	—	45,368	Median	—	122,222	Median	—	160,266
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*

Table A4 continued

School ZIP	98053	187,153	*School ZIP*	98260	88,750	*School ZIP*	98290	102,732
Bordering 1	98077	180,385	*Bordering 1*	98282	79,808	*Bordering 1*	98252	84,562
Bordering 2	98019	166,184	*Bordering 2*	98236	73,884	*Bordering 2*	98272	974,545
Bordering 3	98014	128,654	*Bordering 3*	98249	100,595	*Bordering 3*	98296	133,975
Bordering 4	98024	164,750	*Bordering 4*	98253	73,125	*Bordering 4*	98205	92,188
Bordering 5	98074	186,474	—	—	—	*Bordering 5*	98258	84,931
Bordering 6	98052	155,705	—	—	—	—	—	—
Mean	—	167,044	Mean	—	83,232	Mean	—	245,489
Median	—	166,184	Median	—	79,808	Median	—	97,460
		MFIZ ($)			*MFIZ ($)*			*MFIZ ($)*
School ZIP	98642	96,055	*School ZIP*	98801	60,315	*School ZIP*	99214	117,375
Bordering 1	98629	93,375	*Bordering 1*	98802	58,456	*Bordering 1*	99201	30,226
Bordering 2	98604	79,344	*Bordering 2*	98828	65,139	*Bordering 2*	99202	47,840
Bordering 3	98686	88,494	*Bordering 3*	98926	73,658	*Bordering 3*	99205	44,876
Bordering 4	98685	108,025	*Bordering 4*	98815	72,125	*Bordering 4*	99207	33,860
Bordering 5	98660	51,157	*Bordering 5*	98822	60,903	*Bordering 5*	99204	51,458
Bordering 6	97231	132,059	—	—	—	—	—	—
Bordering 7	98674	73,665	—	—	—	—	—	—
Mean	—	90,272	Mean	—	65,099	Mean	—	54,273
Median	—	90,935	Median	—	63,021	Median	—	46,358

APPENDIX 4

REQUEST FOR CURRICULUM DOCUMENTS

The following letter was used via email communication to request official, publicly available curriculum documents for the research study in the event that official curriculum documents were not available on a school's website. This letter was emailed to the head administrator identified on the school's website in addition to the contact person listed on the ACCS website for member schools.

Greetings,

My name is Chase Austin and I am a doctoral student at The Southern Baptist Theological Seminary in Louisville, Kentucky. I am conducting a research project on all classical Christian schools which are members of the Association of Classical Christian Schools (ACCS) and offer all secondary grades (9-12). Your school is included in my study. I have searched the school website but have been unable to find certain publicly available documents that I hope to include in my study.

If available would you share the following documents with me electronically: 1) the most recent graduate or school profile; 2) course descriptions of all courses for grades 9-12 (including AP if offered); 3) your scope and sequence for grades 9-12; and all student fees/academic costs for one year (including tuition rates, registration fees, activity fees, book fees, etc.)?

I have included a PDF of my research profile and academic vita if you would like to know more about me or my study. If you would like more information about my research, then I am happy to speak with you. My email address is caustin627@students.sbts.edu and my personal cellular phone number is (502) 777- 5903.

Cordially,

Chase Austin
Ed.D. Candidate
The Southern Baptist Theological Seminary
(502) 777- 5903
Caustin627@students.sbts.edu

APPENDIX 5

IFL DATA USING BADLEY'S PARADIGMS

Table A5. Word frequency count of Badley's IFL paradigm publication

Word	*Length*	*Count*	*Weighted Percentage (%)*	*Similar Words*
integration	11	399	4.37	constitute, constitutes, entire, incorporate, incorporated, incorporation, incorporative, inhere, integral, integrality, integrate, integrated, integrating, integration, integrative, integrity, structural, structurally, structure, structured, totality, unified, unify, unity, whole, wholeness
learning	8	251	2.27	condition, conditions, determine, discovering, instructive, knowledge, learning, reading, readings, scholarship, seeing, studies, study, studying, takes, taking, teach, teaching
education	9	191	2.06	civilization, cultivate, derives, develop, developed, developer, developers, developing, development, develops, educating, education, educational, educationally, educators, educators', enlightenment, instructive, pedagogical, pedagogy, school, schooling, schools, teach, teaching, trained, training
faith	5	157	1.88	close, closely, congregation, faith, faithful, religion
christian	9	147	1.78	christian, christianity, christianly, christians, christians'
concept	7	148	1.69	concept, conception, conceptions, concepts, construct, construction, creation, design, designation, notions
meaning	7	103	0.79	based, close, closely, entail, entails, implied, implies, imply, implying,

Table A5 continued

Word	*Length*	*Count*	*Weighted Percentage (%)*	*Similar Words*
meaning	7	103	0.79	based, close, closely, entail, entails, implied, implies, imply, implying, importance, important, intended, meaning, meanings, means, significant, signify, substance, think, thinking, tight, tightly
distinction	11	104	0.76	classified, classifying, clear, clearing, clearly, decide, differentiate, differentiated, differentiates, disparate, distinct, distinction, distinctions, distinguish, distinguishable, distinguishing, noted, notes, noting, others, separability, separate, special, typical, typically
disciplines	11	103	0.72	condition, conditions, correct, correctly, disciplinary, discipline, disciplines, field, fields, studies, study, studying, subject, subjects, trained, training
curriculum	10	59	0.71	curriculum, programs
example	7	91	0.69	cases, example, examples, exercise, illustrate, illustrated, illustrates, illustration, illustrations, illustrative, instances, lesson, model, models, represent, representing, represents
different	9	57	0.66	conflicting, differ, difference, differences, different, differently, differing, differs, disagree, disputation, disputed, otherwise, unlike
proposals	9	71	0.62	advisability, offer, offered, offering, offerings, offers, proposal, proposals, proposed, proposes, proposing, purpose, purposes, suggest, suggested, suggesting, suggests
language	8	55	0.61	language, speech, terminology, words
world	5	61	0.55	creation, domain, domains, earth, existence, existing, human, public, publication, reality, secular, secularism, secularization, universally, universities, university, world, worlds
question	8	47	0.55	doubt, headed, inquisition, question, questioned, questions, speculate, wonder, wonders

Table A5 continued

Word	*Length*	*Count*	*Weighted Percentage (%)*	*Similar Words*
students	8	45	0.55	scholarly, scholars, student, students, students'
related	7	70	0.54	associations, comparing, concern, concerns, connect, connected, connection, connections, connects, dealing, deals, interrelate, interrelations, links, refer, reference, references, refers, relate, related, relates, relating, relation, relations, relative, relatively
using	5	67	0.50	applied, applies, apply, applying, employ, enjoying, exercise, function, habits, practical, practice, practices, purpose, purposes, roles, usage, useful, usefully, usefulness, using
level	5	57	0.50	degree, degrees, equal, equally, layers, level, levels, point, pointed, pointing, points, stories
clearly	7	78	0.48	author, authority, authors, clarification, clarity, clear, clearing, clearly, earning, enlightenment, light, makes, making, opening, openness, readable, realized, understand, understanding, understandings
evangelical	11	37	0.45	evangelic, evangelical, evangelicalism, evangelicals, gospel
first	5	43	0.45	begin, begins, first, initial, initially, start, starting
fusion	6	37	0.44	coalition, fusion
college	7	36	0.44	college, colleges
correlation	11	34	0.41	correlation, correlations, correlative
attempt	7	47	0.41	attempt, attempted, attempting, attempts, effort, efforts, endeavor, endeavors, essay, essays, seeking, tried, trying
discussion	10	39	0.39	discourse, discuss, discussed, discussing, discussion, discussions, words
logical	7	35	0.39	cohere, coherence, coherent, consistent, logical, logically, order

Table A5 continued

Word	*Length*	*Count*	*Weighted Percentage (%)*	*Similar Words*
present	7	57	0.39	confronted, current, demonstrate, demonstrated, demonstrates, displayed, faced, gives, introduction, portrayed, present, presentation, presentations, presented, presenters, presents, represent, representing, represents, short, shows
essentially	11	44	0.38	basic, essential, essentially, fundamental, fundamentalism, fundamentally, necessary, necessities, require, required, requires, requiring, substantive
phrase	6	40	0.38	articulate, articulated, articulating, phrase, phraseology, phrases, words
parts	5	68	0.37	break, character, component, components, constituent, constituents, contributes, contribution, departments, division, divisions, function, leave, leaves, partial, parts, percentage, portions, regions, roles, section, sections, separability, separate, share, shared, sharing, split, start, starting, voice, voiced, voices
elements	8	36	0.37	component, components, constituent, constituents, element, elements, primary
might	5	32	0.36	might, power
takes	5	87	0.36	accept, acceptance, accepting, accepts, admit, adopt, asked, asking, assume, assuming, bring, carried, carries, carry, choose, claim, claimed, claims, consume, demands, direct, direction, directions, driving, engage, engaged, exactly, guide, involve, involved, involvement, leads, needed, removed, require, required, requires, requiring, selection, selections, strike, takes, taking, trained, training

Table A5 continued

Word	*Length*	*Count*	*Weighted Percentage (%)*	*Similar Words*
following	9	46	0.34	accompanied, accompanies, accompanying, adopt, beings, coming, follow, followed, following, follows, observation, observations, observe, observed, observers, pursues, succeed, survey, surveyed, surveying, trace
contested	9	47	0.33	argue, argued, argues, arguing, argument, argumentative, arguments, competition, content, contents, contested, disputation, disputed, protestant, protestants, protested
reformed	8	28	0.33	redeeming, reformed, regeneration
called	6	44	0.33	address, addressed, addresses, addressing, anticipated, anticipates, called, calling, calls, career, claim, claimed, claims, named, predict, predicted, promised, songs, vocation
making	6	73	0.32	build, building, cause, constitute, constitutes, construct, construction, create, creating, devise, drawing, establish, fashion, fashioning, fixed, formed, forms, gives, makes, making, named, produce, produced, reach, reached, stimulate, takes, taking, throws, worked, works
usually	7	32	0.31	common, commonalities, commonality, normally, usual, usually
course	6	46	0.31	class, classes, course, courses, formed, forms, lines, natural, naturally, nature, running, trends
various	7	39	0.31	diverse, diversity, respect, respective, respectively, several, various
seems	5	42	0.31	apparent, apparently, appear, appearance, appeared, appearing, appears, become, becomes, becoming, coming, decorated, looked, ostensibly, seems
thought	7	50	0.31	attention, consideration, considerations, ideas, intellect, persuasion, reflect, reflection, reflective, think, thinking, thought, thoughtful, viewed, views
people	6	25	0.30	people

Table A5 continued

Word	*Length*	*Count*	*Weighted Percentage (%)*	*Similar Words*
incorporation	13	48	0.30	contain, contains, incorporate, incorporated, incorporation, incorporative, internally
specific	8	30	0.28	particular, particulars, specific, specifically, stipulated, stipulates, stipulating
worldview	9	23	0.28	worldview, worldviews
subject	7	53	0.28	cases, content, contents, issues, matter, matters, opening, openness, subject, subjects, theme, themes, topic, topics
second	6	25	0.27	moment, second
several	7	57	0.27	break, differentiate, differentiated, differentiates, distinguish, distinguishable, distinguishing, individual, individuals, individuals', respect, respective, respectively, separability, separate, serious, seriously, several, single, singles
theological	11	22	0.26	divine, theologians, theological, theologically, theology
understanding	13	52	0.26	agreement, agreements, comprehensive, intellect, interpret, interpretation, perceive, reading, readings, realized, reason, reasons, seeing, understand, understanding, understandings
connections	11	44	0.26	associations, attach, conjunction, connect, connected, connection, connections, connects, continue, continued, continues, continuing, continuous, joined, links, united
continue	8	35	0.26	continue, continued, continues, continuing, continuous, covered, covers, extend, persistently, proceedings, proceeds, remain, remains, retain
results	7	44	0.25	accompanied, accompanies, accompanying, answer, answering, answers, attend, attendance, attends, effects, events, incidental, issues, leads, leave, leaves, result, results, solution, solutions

Table A5 continued

Word	*Length*	*Count*	*Weighted Percentage (%)*	*Similar Words*
dialogical	10	21	0.25	dialog, dialogical, dialogue
condition	9	52	0.25	circumstances, condition, conditions, consideration, considerations, shaping, specified, specify, specifying, stipulated, stipulates, stipulating, terms
institutions	12	39	0.25	bring, constitute, constitutes, creation, establish, found, foundation, foundations, founded, initial, initially, institute, institution, institutional, institutions, introduction, original, originated
callie	6	20	0.24	callie
points	6	55	0.24	design, designation, detail, detailed, details, direct, direction, directions, guide, headed, indicate, indicates, place, placed, point, pointed, pointing, points, shows
process	7	38	0.24	action, actions, advance, advancing, operate, operates, outgrowth, procedural, process, processes, serve, served, serves, treat, worked, works
similar	7	25	0.24	likely, likewise, similar, similarities, similarity, standard, standards
transformational	16	21	0.24	shift, shifts, transform, transformation, transformational, transformationally, transformative, transformed, transforming
health	6	19	0.23	health
perspective	11	29	0.23	perspective, perspectives, posited, positive, viewed, views
noting	6	43	0.23	lines, markedly, mention, mentioned, notably, noted, notes, notice, noting, observation, observations, observe, observed, observers, remarking, remarks
knowledge	9	32	0.22	cognitive, initial, initially, knowledge, verse, verses

Table A5 continued

Word	*Length*	*Count*	*Weighted Percentage (%)*	*Similar Words*
views	5	53	0.22	aspect, aspects, catch, catches, consider, considered, considering, considers, horizon, prospects, regard, regarding, seeing, shows, sight, survey, surveyed, surveying, viewed, views
consider	8	60	0.22	believe, believed, believes, consider, considered, considering, considers, count, counts, dealing, deals, debate, debated, debates, regard, regarding, takes, taking, think, thinking
science	7	18	0.22	science, sciences
teachers	8	18	0.22	instructor, teacher, teachers
particular	10	33	0.22	detail, detailed, details, especially, except, exception, particular, particulars, special, specified, specify, specifying
express	7	41	0.21	aspect, aspects, construct, construction, explicit, explicitly, express, expressed, expressing, expression, expressions, expressive, faced, limited, looked, reflect, reflection, reflective, saying, shows, state, stated, states, utterly, verbalize
forms	5	40	0.21	build, building, descriptors, formed, forms, kinds, organization, pattern, shaping, signify, varieties, variety,
model	5	28	0.21	framework, frameworks, model, models, pattern
still	5	18	0.21	however, notwithstanding, smoothly, still
reference	9	42	0.21	address, addressed, addresses, addressing, character, cited, extensive, mention, mentioned, named, quotation, refer, reference, references, refers, source, sources worked, works
agree	5	20	0.21	accord, according, agree, agreed, agreeing, concord, corresponding
perhaps	7	24	0.20	perhaps, possibilities, possibility, possible, possibly
include	7	17	0.20	admit, include, included, includes, including

Table A5 continued

Word	*Length*	*Count*	*Weighted Percentage (%)*	*Similar Words*
illustrate	10	36	0.20	demonstrate, demonstrated, demonstrates, illustrate, illustrated, illustrates, illustration, illustrations, illustrative, instances
original	8	41	0.20	arise, begin, begins, creative, develop, developed, developer, developers, developing, development, develops, growing, initial, initially, master, original, originated, rooted, rooting, roots, source, sources, start, starting
political	9	18	0.19	civilization, cultivate, culture, cultures, political, smoothly
academic	8	16	0.19	academia, academic
dental	6	16	0.19	dental
fused	5	19	0.19	blending, combination, combinations, combines, fused, fuses, fusing
literature	10	16	0.19	literature
philosophy	10	16	0.19	doctrine, philosophy
definition	10	17	0.19	classical, decide, definite, definition, definitions, determine
interest	8	22	0.19	concern, concerns, interest, interesting, interestingly, interests, involve, involved, involvement
review	6	20	0.18	reader, readers, review, reviewer, reviewing, survey, surveyed, surveying
paradigm	8	15	0.18	paradigm, paradigms
activity	8	15	0.18	action, actions, active, activities, activity, participants, participate, participated, participating
study	5	48	0.17	consider, considered, considering, considers, examine, examined, report, reported, sketch, sketches, studies, study, studying, survey, surveyed, surveying, worked, works
higher	6	14	0.17	higher
often	5	14	0.17	frequently, often
rawls	5	14	0.17	rawls

APPENDIX 6

TOP-RANKED COLLEGES AND UNIVERSITIES

1. Amherst College
2. Bard College
3. Barnard College
4. Bates College
5. Boston College
6. Boston University
7. Bowdoin College
8. Brandeis University
9. Brown University
10. Bryn Mawr College
11. Bucknell University
12. California Institute of Technology
13. Carleton College
14. Carnegie Mellon University
15. Case Western Reserve University
16. Centre College
17. Claremont McKenna College
18. Colby College
19. Colgate University

20. College of the Holy Cross
21. College of William and Mary
22. Colorado College
23. Columbia University
24. Connecticut College
25. Cornell University
26. Dartmouth College
27. Davidson College
28. Dickinson College
29. Duke University
30. Emory University
31. Franklin and Marshall College
32. Georgetown University
33. Georgia Institute of Technology
34. Gettysburg College
35. Grinnell College
36. Hamilton College
37. Harvard University
38. Harvey Mudd College
39. Haverford College
40. Johns Hopkins University
41. Kenyon College
42. Lafayette College

43. Lehigh University
44. Macalester College
45. Massachusetts Institute of Technology
46. Middlebury College
47. Mount Holyoke College
48. New York University
49. Northeastern University
50. Northwestern University
51. Oberlin College
52. Occidental College
53. Pitzer College
54. Pomona College
55. Princeton University
56. Rensselaer Polytechnic Institute
57. Rice University
58. Scripps College
59. Sewanee-University of the South
60. Skidmore College
61. Smith College
62. Soka University of America
63. Stanford University
64. Swarthmore College
65. Trinity College

66. Tufts University
67. Tulane University
68. Union College
69. United States Air Force Academy
70. United States Military Academy
71. United States Naval Academy
72. University of California-Berkley
73. University of California-Davis
74. University of California-Irvine
75. University of California-Los Angeles
76. University of California-San Diego
77. University of California-Santa Barbara
78. University of Chicago
79. University of Florida
80. University of Illinois-Urbana-Champaign
81. University of Miami
82. University of Michigan-Ann Arbor
83. University of North Carolina-Chapel Hill
84. University of Notre Dame
85. University of Pennsylvania
86. University of Richmond
87. University of Rochester
88. University of Southern California

89. University of Virginia
90. University of Wisconsin-Madison
91. Vanderbilt University
92. Vassar College
93. Wake Forest University
94. Washington and Lee University
95. Washington University in St. Louis
96. Wellesley College
97. Wesleyan University
98. Whitman College
99. Williams College
100. Yale University

APPENDIX 7

COLLEGE RANKING DATA

Table A6. *US News and World Report* college rankings for liberal arts colleges from 2014-2015 to 2018-2019

2019	*2018*	*2017*	*2016*	*2015*	*Mean*	*Median*	*Name*
1	1	1	1	1	1.0	1	Williams College
2	2	2	2	2	2.0	2	Amherst College
3	3	4	3	3	3.2	3	Swarthmore College
3	3	3	4	4	3.4	3	Wellesley College
5	3	6	4	5	4.6	5	Bowdoin College
5	6	4	4	7	5.2	5	Middlebury College
5	6	7	4	5	5.4	5	Pomona College
5	8	7	8	8	7.2	8	Carleton College
9	8	9	9	8	8.6	9	Claremont McKenna College
10	10	9	9	11	9.8	10	Davidson College
11	10	11	14	14	12.0	11	Washington and Lee University
11	12	12	12	11	11.6	12	Vassar College
11	18	12	12	8	12.2	12	Haverford College
11	12	12	14	19	13.6	12	Smith College
22	21	12	9	13	15.4	13	United States Naval Academy
16	18	12	14	15	15.0	15	Hamilton College
18	12	12	19	15	15.2	15	Colby College
18	12	21	14	15	16.0	15	Harvey Mudd College
16	12	12	19	22	16.2	16	Colgate University
18	21	21	14	15	17.8	18	Wesleyan University
11	18	19	19	19	17.2	19	Grinnell College
18	12	19	22	24	19	19	United States Military Academy
22	23	27	25	19	23.2	23	Bates College
27	26	24	23	24	24.8	24	Macalester College
30	26	24	23	23	25.2	24	Oberlin College
27	23	24	25	27	25.2	25	Colorado College

Table A6 continued

2019	*2018*	*2017*	*2016*	*2015*	*Mean*	*Median*	*Name*
30	26	23	29	24	26.4	26	Scripps College
25	26	27	29	32	27.8	27	Barnard College
25	23	27	32	30	27.4	27	University of Richmond
27	32	31	25	27	28.4	27	Bryn Mawr College
30	26	27	25	30	27.6	27	Kenyon College
30	26	32	29	27	28.8	29	United States Air Force Academy
36	33	32	32	32	33.0	32	Bucknell University
35	33	32	32	34	33.2	33	College of the Holy Cross
41	33	32	36	35	35.4	35	Pitzer College
30	36	36	35	41	35.6	36	Mount Holyoke College
36	36	36	37	35	36.0	36	Lafayette College
39	36	38	38	41	38.4	38	Union College
41	41	38	38	37	39.0	38	Skidmore College
36	39	47	40	37	39.8	39	Franklin and Marshall College
22	39	41	45	41	37.6	41	Soka University of America
43	41	41	40	37	40.4	41	Whitman College
51	51	41	40	37	44.0	41	Dickinson College
39	44	44	43	44	42.8	44	Occidental College
46	44	38	43	45	43.2	44	Trinity College
46	46	44	45	45	45.2	45	Centre College
46	46	50	48	45	47.0	46	Connecticut College
56	46	49	45	45	48.2	46	Bard College
49	41	47	48	45	46.0	47	Sewanee-University of the South
49	46	51	48	50	48.8	49	Gettysburg College

Table A7. *US News and World Report* college rankings for universities from 2014-2015 to 2018-2019

2019	*2018*	*2017*	*2016*	*2015*	*Mean*	*Median*	*Name*
1	1	1	1	1	1.0	1	Princeton University
2	2	2	2	2	2.0	2	Harvard University
3	3	3	4	4	3.4	3	University of Chicago
3	3	3	3	3	3.0	3	Yale University
3	5	5	4	4	4.2	4	Columbia University
7	5	5	4	4	5.0	5	Stanford University
3	5	7	7	7	5.8	7	Massachusetts Institute of Technology
8	9	8	8	8	8.2	8	Duke University
8	8	8	9	8	8.2	8	University of Pennsylvania
10	11	10	10	12	10.6	10	Johns Hopkins University
12	10	12	10	10	10.8	10	California Institute of Technology
12	11	11	12	11	11.4	11	Dartmouth College
10	11	12	12	13	11.6	12	Northwestern University
14	14	14	14	16	14.4	14	Brown University
14	14	15	15	16	14.8	15	Vanderbilt University
16	14	15	15	15	15.0	15	Cornell University
16	14	15	18	19	16.4	16	Rice University
18	18	15	18	16	17.0	18	University of Notre Dame
19	18	19	15	14	17.0	18	Washington University in St. Louis
22	21	20	20	20	20.6	20	University of California-Berkley
21	21	20	21	21	20.8	21	Emory University
22	20	20	21	21	20.8	21	Georgetown University
19	21	24	23	23	22.0	23	University of California-Los Angeles
22	21	23	23	25	22.8	23	University of Southern California
25	25	24	23	25	24.4	25	Carnegie Mellon University
25	25	24	26	23	24.6	25	University of Virginia
27	29	27	27	27	27.4	27	Tufts University
27	27	27	27	27	27.0	27	Wake Forest University
27	28	27	29	29	28.0	28	University of Michigan-Ann Arbor
30	30	30	30	30	30.0	30	University of North Carolina-Chapel Hill
38	32	31	30	31	32.4	31	Boston College
30	30	36	32	32	32.0	32	New York University
33	34	32	33	33	33.0	33	University of Rochester
38	32	32	34	33	33.8	33	College of William and Mary
35	34	34	34	35	34.4	34	Brandeis University
35	34	34	36	35	34.8	35	Georgia Institute of Technology

Table A7 continued

2019	*2018*	*2017*	*2016*	*2015*	*Mean*	*Median*	*Name*
30	37	37	37	40	36.2	37	University of California-Santa Barbara
42	37	37	37	38	38.2	37	Case Western Reserve University
33	42	39	39	42	39.0	39	University of California-Irvine
38	46	44	41	38	41.4	41	University of California-Davis
41	42	44	39	37	40.6	41	University of California-San Diego
42	37	39	41	42	40.2	41	Boston University
44	40	39	41	54	43.6	41	Tulane University
44	40	39	47	42	42.4	42	Northeastern University
49	42	39	41	42	42.6	42	Rensselaer Polytechnic Institute
46	52	44	41	42	45.0	44	University of Illinois-Urbana-Champaign
49	46	44	41	47	45.4	46	University of Wisconsin-Madison
53	46	44	47	40	46.0	46	Lehigh University
35	42	50	47	48	44.4	47	University of Florida
53	46	44	51	48	48.4	48	University of Miami

APPENDIX 8

COLLEGE BOARD LIST OF AP COURSES

Table A8. Core area AP course offerings

English	*History & Social Sciences*	*Mathematics*	*Science*
AP English Language and Composition	AP Comparative Government and Politics	AP Calculus AB	AP Biology
AP English Literature and Composition	AP European History	AP Calculus BC	AP Chemistry
	AP Human Geography	AP Statistics	AP Computer Science A
	AP Macroeconomics		AP Computer Science Principles
	AP Microeconomics		AP Environmental Science
	AP Psychology		AP Physics 1
	AP United States Government and Politics		AP Physics 2
	AP United States History		AP Physics C: Electricity and Magnetism
	AP World History: Modern		AP Physics C: Mechanics

Note: “AP Courses,” AP Central accessed April 16, 2018, https://apstudent.collegeboard-.org/apcourse

APPENDIX 9

TESTING ASSUMPTIONS AND EVALUATIVE TABLES FOR ANOVA ANALYSIS

Summary of Testing Assumptions

Field provides four basic assumptions which must be met for parametric tests to be accurate: normally distributed data, homogeneity of variance, interval data, and independence.[1] The assumption of normality and testing for homogeneity of variance are the most complex of the four, furthermore the assumption of normality is especially important when using general linear models because these models assume that the deviations that are encountered are normally distributed.[2]

Field recommends using the Kolmogorov-Smirnov test to confirm whether the research data distribution deviates from a comparable normal distribution.[3] The Kolmogorov-Smirnov test revealed that only SAT_{med}, MFIZ, and MFIA returned non-significant values indicating no deviation from normality. In other words, only these three distributions were not significantly different from normal distributions thus meeting the assumption of normality.

SAT_{med}, D (58) = 0.20, $p > 0.05$, this distribution was not significantly different from a normal distribution. MFIZ, D (58) = 0.06. $p > 0.05$, this distribution was also not significantly different from a normal distribution. MFIA, D (58) = 0.187, $p > 0.05$, was not significantly different from a normal distribution. The results of the

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[1] Andy P. Field, *Discovering Statistics Using SPSS*, 3rd ed. (Los Angeles: SAGE Publications, 2009), 132-33.

[2] Field, *Discovering Statistics*, 134.

[3] Field, *Discovering Statistics*, 144.

Kolmogorov-Smirnov test for the assumption of normality are presented in table A9.

Table A9. Tests of Normality

	Kolmogorov-Smirnov		
	Stat.	*df*	*Sig.*
Median SAT	0.067	45	0.200
AP Avail	0.262	45	0.000*
TopCU	0.190	45	0.000*
Tuition	0.190	45	0.001*
Median Family Income of School ZIP ($)	0.123	45	0.084
Tuition as % of MFIZ	0.194	45	0.000*
Median Family Income ZIP Aggregate ($)	0.123	45	0.085
Tuition as % of MFIA	0.183	45	0.001*

Note: *$p < 0.001$, "Stat." = Statistic, "df" = degrees of freedom, "Sig." = Significant

The results of the Kolmogorov-Smirnov test indicated that of all the dependent variables and covariates in the research study only SAT_{med}, MFIZ, and MFIA were approximately normally disturbed. Furthermore, MFIZ and MFIA returned nearly identical non-significance values so only MFIA was carried forward as a covariate within inferential statistics.

In testing for homogeneity of variance (or homogeneity of error variance) only SAT_{med} was used as it was the only dependent variable to meet the assumptions for normality. Field recommends Levene's test for homogeneity of variance. Levene's test tests the null hypothesis that the variances in different groups are equal.[4] The desired result for this test was that the results would fail to reject the null hypothesis across all independent variables, with $p > 0.05$. The results of Levene's test are presented below in

[4] Field, *Discovering Statistics*, 150.

table A10. Levene's test revealed SAT_{med} failed to reject the null hypothesis across all independent variables, with $p > 0.05$ suggesting that SAT_{med} could be used as a dependent variable within inferential statistics.

Table A10. Levene's test of equality of error variances

		F	*df1*	*df2*	*Sig.*
Median SAT	Based on Mean	1.066	3	7	0.423
	Based on Median	0.520	3	7	0.682

Note: Tests the null hypothesis that the error variance of the dependent variable is equal across groups; Design: Intercept + Bible + BibleIFL + EngIFL + MathIFL + SciIFL + SSIFL + Bible * BibleIFL + Bible * EngIFL + Bible * MathIFL + Bible * SciIFL + Bible * SSIFL + BibleIFL * EngIFL + BibleIFL * MathIFL + BibleIFL * SciIFL + BibleIFL * SSIFL + EngIFL * MathIFL + EngIFL * SciIFL + EngIFL * SSIFL + MathIFL * SciIFL + MathIFL * SSIFL + SciIFL * SSIFL + Bible * BibleIFL * EngIFL + Bible * BibleIFL * MathIFL + Bible * BibleIFL * SciIFL + Bible * BibleIFL * SSIFL + Bible * EngIFL * MathIFL + Bible * EngIFL * SciIFL + Bible * EngIFL * SSIFL + Bible * MathIFL * SciIFL + Bible * MathIFL * SSIFL + Bible * SciIFL * SSIFL + BibleIFL * EngIFL * MathIFL + BibleIFL * EngIFL * SciIFL + BibleIFL * EngIFL * SSIFL + BibleIFL * MathIFL * SciIFL + BibleIFL * MathIFL * SSIFL + BibleIFL * SciIFL * SSIFL + EngIFL * MathIFL * SciIFL + EngIFL * MathIFL * SSIFL + EngIFL * SciIFL * SSIFL + MathIFL * SciIFL * SSIFL + Bible * BibleIFL * EngIFL * MathIFL + Bible * BibleIFL * EngIFL * SciIFL + Bible * BibleIFL * EngIFL * SSIFL + Bible * BibleIFL * MathIFL * SciIFL + Bible * BibleIFL * MathIFL * SSIFL + Bible * BibleIFL * SciIFL * SSIFL + Bible * EngIFL * MathIFL * SciIFL + Bible * EngIFL * MathIFL * SSIFL + Bible * EngIFL * SciIFL * SSIFL + Bible * MathIFL * SciIFL * SSIFL + BibleIFL * EngIFL * MathIFL * SciIFL + BibleIFL * EngIFL * MathIFL * SSIFL + BibleIFL * EngIFL * SciIFL * SSIFL + BibleIFL * MathIFL * SciIFL * SSIFL + EngIFL * MathIFL * SciIFL * SSIFL + Bible * BibleIFL * EngIFL * MathIFL * SciIFL + Bible * BibleIFL * EngIFL * MathIFL * SSIFL + Bible * BibleIFL * EngIFL * SciIFL * SSIFL + Bible * BibleIFL * MathIFL * SciIFL * SSIFL + Bible * EngIFL * MathIFL * SciIFL * SSIFL + BibleIFL * EngIFL * MathIFL * SciIFL * SSIFL + Bible * BibleIFL * EngIFL * MathIFL * SciIFL * SSIFL

The remaining two assumptions for parametric tests were that the data had to be interval data and the data had to be independent. Both assumptions were met with all remaining data, thus all research assumptions for inferential statistics were satisfied. To

answer Research Question 3 a general linear model was used. This type of inferential statistical analysis compares more than two independent variables against one dependent variable. I determined to move forward with the dependent variable and covariate that met the testing assumptions by conducting an analysis of variance (ANOVA). Field notes that the assumptions under which an ANOVA is reliable are the same as for all parametric tests based on normal distribution, so long as the variances in each condition are similar, independent, and the dependent variable is measured on an interval scale.[5] As was demonstrated above each of these assumptions were met by the dependent variable (SAT_{med}) and the covariate (MFIA).

Once the assumptions for an ANOVA were met, a general linear model (GLM) univariate or two-way ANOVA was selected as the inferential statistical tool to use. A GLM univariate ANOVA was performed whereby all of the independent variables or fixed factors were included in the analysis.

[5] Field, *Discovering Statistics*, 359.

Table A11. Tests of Between-Subjects Effects

Dependent Variable: Median SAT						
Source	*Type IV Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial Eta Squared*
Corrected Model	67609.070[a]	11	6146.279	1.987	0.186	0.757
Intercept	24234515.490	1	24234515.490	7832.866	0.000	0.999
Bible	0.000	0	—	—	—	0.000
BibleIFL	1420.455[b]	1	1420.455	0.459	0.520	0.062
EngIFL	2444.643[b]	1	2444.643	0.790	0.404	0.101
MathIFL	6.259[b]	1	6.259	0.002	0.965	0.000
SciIFL	10820.455[b]	1	10820.455	3.497	0.104	0.333
SSIFL	11881.000[b]	1	11881.000	3.840	0.091	0.354
Bible * BibleIFL	0.000	0	—	—	—	0.000
Bible * EngIFL	0.000	0	—	—	—	0.000
Bible * MathIFL	0.000	0	—	—	—	0.000
Bible * SciIFL	0.000	0	—	—	—	0.000
Bible * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL	0.000	0	—	—	—	0.000
BibleIFL * MathIFL	13615.364[b]	1	13615.364	4.401	.074	0.386
BibleIFL * SciIFL	0.000	0	—	—	—	0.000
BibleIFL * SSIFL	0.000	0	—	—	—	0.000
EngIFL * MathIFL	0.000	0	—	—	—	0.000
EngIFL * SciIFL	0.000	0	—	—	—	0.000
EngIFL * SSIFL	0.000	0	—	—	—	0.000
MathIFL * SciIFL	4.455[b]	1	4.455	0.001	0.971	0.000
MathIFL * SSIFL	0.000	0	—	—	—	0.000
SciIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL	0.000	0	—	—	—	0.000

Table A11 continued

Source	*Type IV Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial Eta Squared*
Bible * BibleIFL * MathIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * SciIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * EngIFL * MathIFL	0.000	0	—	—	—	0.000
Bible * EngIFL * SciIFL	0.000	0	—	—	—	0.000
Bible * EngIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * MathIFL * SciIFL	0.000	0	—	—	—	0.000
Bible * MathIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * SciIFL * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL * MathIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL * SciIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * MathIFL * SciIFL	0.000	0	—	—	—	0.000
BibleIFL * MathIFL * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
EngIFL * MathIFL * SciIFL	0.000	0	—	—	—	0.000
EngIFL * MathIFL * SSIFL	0.000	0	—	—	—	0.000

Table A11 continued

Source	*Type IV Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial Eta Squared*
EngIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL * MathIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL * SciIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * MathIFL * SciIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * MathIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * EngIFL * MathIFL * SciIFL	0.000	0	—	—	—	0.000
Bible * EngIFL * MathIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * EngIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL * MathIFL * SciIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL * MathIFL * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000

Table A11 continued

Source	*Type IV Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial Eta Squared*
EngIFL * MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL * MathIFL * SciIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL * MathIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * EngIFL * MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL * MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL * MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
Error	21657.667	7	3093.952	__	__	__
Total	31147228.000	19	__	__	__	__
Corrected Total	89266.737	18	__	__	__	__

Note: a. R Squared = 0.757 (Adjusted R Squared = 0.376); b. The Type IV testable hypothesis is not unique.

Table A12. Estimated grand mean of ANOVA

Dependent Variable: Median SAT			
Mean	*Std. Error*	*95% Confidence Interval*	
		Lower Bound	*Upper Bound*
1269.972[a]	14.349	1236.041	1303.903

Note: a. Based on modified population marginal mean.

Table A13. Estimated marginal means for BibleIFL*MathIFL

Dependent Variable: Median SAT					
BibleIFL	*MathIFL*	*Mean*	*Std. Error*	*95% Confidence Interval*	
				Lower Bound	*Upper Bound*
N	N	1287.000	36.946	1208.252	1365.748
	Y	1232.000	52.249	1120.633	1343.367
Y	N	1270.286	27.928	1210.758	1329.814
	Y	1298.000	30.166	1233.702	1362.298

Table A14. Estimated marginal means for Bible

Dependent Variable: Median SAT				
Bible Course	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1285.833[a]	32.114	1209.895	1361.771
Y	1266.800[a]	15.977	1229.021	1304.579

Note: a. Based on modified population marginal mean.

Table A15. Estimated marginal means for BibleIFL

Dependent Variable: Median SAT				
BibleIFL	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1261.667[a]	25.388	1201.633	1321.701
Y	1274.125[a]	17.382	1233.022	1315.228

Note: a. Based on modified population marginal mean.

Table A16. Estimated marginal means for EngIFL

Dependent Variable: Median SAT				
EngIFL	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1303.733[a]	23.158	1248.974	1358.493
Y	1245.857[a]	18.207	1202.804	1288.910

Note: a. Based on modified population marginal means.

Table A17. Estimated marginal means for MathIFL

Dependent Variable: Median SAT				
MathIFL	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1270.952[a]	18.351	1227.559	1314.345
Y	1268.600[a]	22.934	1214.370	1322.830

Note: a. Based on modified population marginal means.

Table A18. Estimated marginal means for SciIFL

Dependent Variable: Median SAT				
SciIFL	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1214.417[a]	25.388	1154.383	1274.451
Y	1297.750[a]	17.382	1256.647	1338.853

Note: a. Based on modified population marginal means.

Table A19. Estimated marginal means for SSIFL

Dependent Variable: Median SAT				
SSIFL	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1330.433[a]	21.781	1278.930	1381.937
Y	1226.786[a]	19.054	1181.729	1271.842

Note: a. Based on modified population marginal means.

APPENDIX 10

TESTING ASSUMPTIONS AND EVALUATIVE TABLES FOR ANCOVA ANALYSIS

Summary of Testing Assumptions

Field includes two additional assumptions to the previous list of parametric assumptions, all of which must be met before an ANCOVA is run. The two additional assumptions are independence of the covariate and homogeneity of regression slopes.[1] Again, the only covariate in the study which passed the earlier parametric testing assumptions was MFIA. To test whether MFIA met the independence of covariate assumption an ANOVA was used to check that the levels of the covariate do not differ significantly across groups. The results of this ANOVA showed that levels of the covariate do not differ significantly across the independent variables. Table A20 shows the between-subjects effects of the covariate (MFIA) on all the independent variables. This test returned no significant values ($p < 0.05$) thus the covariate met this assumption.

[1] Andy P. Field, *Discovering Statistics Using SPSS*, 3rd ed. (Los Angeles: SAGE Publications, 2009), 397.

Table A20. Independence of the covariate

Source	*Type III Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial Eta Squared*
Corrected Model	73987.800[a]	13	5691.369	1.862	0.255	0.829
Intercept	1160317.377	1	1160317.377	379.711	0.000	0.987
Corrected Model	73987.800[a]	13	5691.369	1.862	0.255	0.829
Intercept	1160317.377	1	1160317.377	379.711	0.000	0.987
Bible	6338.930	1	6338.930	2.074	0.209	0.293
BibleIFL	15865.393	1	15865.393	5.192	0.072	0.509
EngIFL	4.770	1	4.770	0.002	0.970	0.000
MathIFL	6007.561	1	6007.561	1.966	0.220	0.282
SciIFL	11686.840	1	11686.840	3.824	0.108	0.433
SSIFL	2719.650	1	2719.650	0.890	0.389	0.151
Bible * MFIA	11515.340	1	11515.340	3.768	0.110	0.430
BibleIFL * MFIA	14724.348	1	14724.348	4.819	0.080	0.491
EngIFL * MFIA	63.363	1	63.363	0.021	0.891	0.004
MathIFL * MFIA	3050.996	1	3050.996	0.998	0.364	0.166
SciIFL * MFIA	8005.787	1	8005.787	2.620	0.166	0.344
SSIFL * MFIA	935.895	1	935.895	0.306	0.604	0.058
Error	15278.937	5	3055.787	—	—	—
Total	31147228.000	19	—	—	—	—
Corrected Total	89266.737	18	—	—	—	—

Note: a. R Squared = .829 (Adjusted R Squared = .384)

For the final assumption, homogeneity of regression slopes the ANCOVA model was customized in SPSS in order to look at the independent variable by covariate interactions. Regarding the homogeneity of regression slopes, the main thing to consider is the interaction term and the significance value of the covariate by outcome interaction. If this effect is significant ($p < 0.05$) then the assumption of homogeneity of regression slopes has been broken and thus is not tenable. Table A21 below includes the test for homogeneity of regression slopes, there were two specific interactions between the covariate (MFIA) and the independent variables (BibleIFL*MathIFL*MFIA and MathIFL*SciIFL*MFIA) both of which returned non-significant results ($p > 0.05$) along with non-significant results for the other independent variables in the analysis, thus the assumption of homogeneity of regression slopes was met and the ANCOVA was carried out.

Table A21. Test for homogeneity of regression slopes

Source	*Type IV Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial Eta Squared*
Corrected Model	73073.582[a]	13	5621.045	1.736	0.282	0.819
Intercept	420072.568[b]	1	420072.568	129.707	0.000	0.963
Bible	1854.409	1	1854.409	0.573	0.483	0.103
BibleIFL	300.239	1	300.239	0.093	0.773	0.018
EngIFL	171.209	1	171.209	0.053	0.827	0.010
MathIFL	277.191[b]	1	277.191	0.086	0.782	0.017
SciIFL	1261.674[b]	1	1261.674	0.390	0.560	0.072
SSIFL	6964.122	1	6964.122	2.150	0.202	0.301
MFIA	1088.922[b]	1	1088.922	0.336	0.587	0.063
BibleIFL * MathIFL * MFIA	3310.093	2	1655.047	0.511	0.628	0.170
BibleIFL * MathIFL	2281.934	1	2281.934	0.705	0.440	0.124
MathIFL * SciIFL	0.000	0	—	—	—	0.000
MathIFL * SciIFL * MFIA	593.521	1	593.521	.183	.686	0.035
Error	16193.155	5	3238.631	—	—	__
Total	31147228.000	19	—	—	—	__
Corrected Total	89266.737	18	—	—	—	__

Note: a. R Squared = 0.768 (Adjusted R Squared = 0.347), b. the Type IV testable hypothesis is not unique.

Table A22. Tests of Between-Subjects Effects

Dependent Variable: Median SAT						
Source	*Type IV Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial Eta Squared*
Corrected Model	68741.462[a]	12	5728.455	1.675	0.272	0.770
Intercept	1891401.258	1	1891401.258	552.899	0.000	0.989
MFIA	1132.392	1	1132.392	0.331	0.586	0.052
Bible	0.000	0	—	—	—	0.000
BibleIFL	802.805[b]	1	802.805	0.235	0.645	0.038
EngIFL	2096.152[b]	1	2096.152	0.613	0.464	0.093
MathIFL	2.056[b]	1	2.056	0.001	0.981	0.000
SciIFL	7293.444[b]	1	7293.444	2.132	0.195	0.262
SSIFL	6109.277[b]	1	6109.277	1.786	0.230	0.229
Bible * BibleIFL	0.000	0	—	—	—	0.000
Bible * EngIFL	0.000	0	—	—	—	0.000
Bible * MathIFL	0.000	0	—	—	—	0.000
Bible * SciIFL	0.000	0	—	—	—	0.000
Bible * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL	0.000	0	—	—	—	0.000
BibleIFL * MathIFL	11122.784[b]	1	11122.784	3.251	0.121	0.351
BibleIFL * SciIFL	0.000	0	—	—	—	0.000
BibleIFL * SSIFL	0.000	0	—	—	—	0.000
EngIFL * MathIFL	0.000	0	—	—	—	0.000
EngIFL * SciIFL	0.000	0	—	—	—	0.000
EngIFL * SSIFL	0.000	0	—	—	—	0.000
MathIFL * SciIFL	5.787[b]	1	5.787	0.002	0.969	0.000
MathIFL * SSIFL	0.000	0	—	—	—	0.000
SciIFL * SSIFL	0.000	0	—	—	—	0.000

Table A22 continued

Source	*Type IV Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial Eta Squared*
Bible * BibleIFL * EngIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * MathIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * SciIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * EngIFL * MathIFL	0.000	0	—	—	—	0.000
Bible * EngIFL * SciIFL	0.000	0	—	—	—	0.000
Bible * EngIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * MathIFL * SciIFL	0.000	0	—	—	—	0.000
Bible * MathIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * SciIFL * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL * MathIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL * SciIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * MathIFL * SciIFL	0.000	0	—	—	—	0.000
BibleIFL * MathIFL * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000

Table A22 continued

Source	*Type IV Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial Eta Squared*
EngIFL * MathIFL * SciIFL	0.000	0	—	—	—	0.000
EngIFL * MathIFL * SSIFL	0.000	0	—	—	—	0.000
EngIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL * MathIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL * SciIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * MathIFL * SciIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * MathIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * EngIFL * MathIFL * SciIFL	0.000	0	—	—	—	0.000
Bible * EngIFL * MathIFL * SSIFL	0.000	0	—	—	—	0.000

Table A22 continued

Source	*Type IV Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial Eta Squared*
Bible * EngIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL * MathIFL * SciIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL * MathIFL * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
EngIFL * MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL * MathIFL * SciIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL * MathIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000

Table A22 continued

Source	*Type IV Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial Eta Squared*
Bible * BibleIFL * MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * EngIFL * MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
BibleIFL * EngIFL * MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	0.000
Bible * BibleIFL * EngIFL * MathIFL * SciIFL * SSIFL	0.000	0	—	—	—	.000
Error	20525.275	6	3420.879	—	—	—
Total	31147228.000	19	—	—	—	—
Corrected Total	89266.737	18	—	—	—	—

Note: a. R Squared = .770 (Adjusted R Squared = .310); b. The Type IV testable hypothesis is not unique.

Table A23. Estimated grand mean of ANCOVA

Dependent Variable: Median SAT			
Mean	*Std. Error*	*95% Confidence Interval*	
		Lower Bound	*Upper Bound*
1270.717	15.144	1233.661	1307.773

Table A24. Estimated marginal means for BibleIFL*MathIFL

Dependent Variable: Median SAT					
BibleIFL	*MathIFL*	*Mean*	*Std. Error*	*95% Confidence Interval*	
				Lower Bound	*Upper Bound*
N	N	1294.453	34.201	1210.767	1378.139
	Y	1235.945	41.922	1133.366	1338.525
Y	N	1261.238	23.552	1203.607	1318.868
	Y	1293.873	29.284	1222.219	1365.528

Table A25. Estimated marginal means for Bible

Dependent Variable: Median SAT				
Bible Course	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1283.848	33.944	1200.790	1366.906
Y	1268.091	16.949	1226.619	1309.563

Table A26. Estimated marginal means for BibleIFL

Dependent Variable: Median SAT				
BibleIFL	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1265.199	27.393	1198.171	1332.227
Y	1273.476	18.312	1228.667	1318.285

Table A27. Estimated marginal means for EngIFL

Dependent Variable: Median SAT				
EngIFL	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1298.954	25.729	1235.998	1361.909
Y	1250.548	20.809	1199.631	1301.465

Table A28. Estimated marginal means for MathIFL

Dependent Variable: Median SAT				
MathIFL	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	Upper Bound
N	1270.728	19.300	1223.502	1317.953
Y	1270.702	24.391	1211.021	1330.384

Table A29. Estimated marginal means for SciIFL

Dependent Variable: Median SAT				
SciIFL	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1222.535	30.196	1148.648	1296.422
Y	1294.808	18.979	1248.367	1341.249

Table A30. Estimated marginal means for SSIFL

Dependent Variable: Median SAT				
SSIFL	*Mean*	*Std. Error*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
N	1321.563	27.609	1254.006	1389.119
Y	1234.399	24.011	1175.646	1293.151

The SPSS program evaluated the covariate MFIA in the estimated marginal means tables for the ANCOVA at the following values: Median Family Income ZIP Aggregate ($) = 94597.37.

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ABSTRACT

WISDOM, ELOQUENCE, AND ACADEMIC RIGOR
IN ACCS SCHOOLS: A MIXED METHODS STUDY

Chase Tolliver Austin, EdD
The Southern Baptist Theological Seminary, 2019
Chair: Dr. Jeffrey M. Horner

This study explored the relationship between the Christian liberal arts and sciences curriculum and academic rigor among classical Christian schools. It used convergent data-transformation methods to analyze publicly available curriculum descriptions in relationship to publicly available academic data. This study correlated the two sets of variables to determine the relationship between the two.

A review of the precedent literature first described the history of the classical Christian school movement then presented the philosophical and theological foundations of the movement. Next it examined studies of both Christian curriculum and academic rigor, both theoretical and practical curriculum studies were reviewed. The term "Christian liberal arts and sciences" was used to describe the curriculum found within classical Christian schools. It also reviewed studies examining selected criteria (AP courses, SAT scores, and acceptances into top-ranked liberal arts colleges and universities) as measures of academic rigor. Very few published studies examined the intersection of both topics and none did so within the classical Christian school movement.

The convergent data-transformation research design consisted of both qualitative and quantitative analyses consisting of four phases. The study required a research population which could demonstrate both the Christian liberal arts and sciences curriculum and academic rigor within a classical Christian school setting, hence the

selection of the Association of Classical Christian Schools (ACCS). The first phase collected publicly available qualitative data of the Christian liberal arts and sciences. The second phase gathered both tuition and family income data to control for possible confounding variables. The third phase coded schools' course descriptions for integration of faith and learning (IFL) language, which was then transformed into quantitative data for further analysis. The fourth phase performed a two-way analysis of variance (ANOVA) on all independent variables and one dependent variable (SAT scores). Following the ANOVA, an analysis of variance with covariates (ANCOVA) was performed to control for the covariate of family income levels.

Overall, this study found that ACCS secondary schools provided academically rigorous curriculum when compared to other categories of schools with regard to SAT scores. Controlling for family income levels did not strengthen the academic rigor measurements. The frequency of IFL language within certain disciplines correlated with both higher and lower academic measures as seen in a positive correlation between Bible courses and math courses with high IFL frequency and above average SAT scores. Science courses with high IFL frequency correlated with above average SAT scores while social studies courses with low IFL frequency correlated with above average SAT scores.

This study utilized a recent methodology for correlating the Christian liberal arts and sciences curriculum and academic rigor within a new context, classical Christian schools.

KEYWORDS: academic rigor, ACCS, ANCOVA, ANOVA, AP, Badley paradigms, census study, Christian liberal arts and sciences curriculum, classical Christian school, convergent data transformation, correlation, course catalogue, course descriptions, directed content analysis, Douglas Wilson, faith integration, integration of faith and learning, Kenneth Badley, Littlejohn and Evans, median family income, mixed methods, official curriculum, Robert Littlejohn and Charles T. Evans, SAT, secondary schools, top-ranked liberal arts colleges and universities, tuition, Wilson

VITA

Chase Tolliver Austin

EDUCATION

BA, Morehead State University, 2004
MAT, University of Louisville, 2009

ORGANIZATIONAL

Society for Classical Learning
Society of Christian Philosophers
Society of Professors in Christian Education

ACADEMIC EMPLOYMENT

Social Studies Teacher, Jefferson County [Kentucky] Public Schools, 2009-2014
Middle School Social Studies Goal Clarity Coach, Jefferson County [Kentucky] Public Schools, 2014-2018
Academic Instructional Coach, Jefferson County [Kentucky] Public Schools, 2018-
Online Teaching Assistant, The Southern Baptist Theological Seminary, 2018-