

Teaching Complexity Management: Faith Integration on the Edge of Chaos

PAUL GRATTON
Montreat College

JAMES COCKERHAM
Montreat College

ABSTRACT: This paper provides an example of discipline-specific biblical faith integration in a master’s-level complexity management course. This approach encourages students to integrate biblical concepts with complexity management concepts, providing them opportunity to reflect on and exercise their faith.

KEYWORDS: complexity, antifragile, Christian higher education, faith integration

INTRODUCTION

Faith integration is an increasingly important area of scholarship and practice as Christian colleges and universities seek to make a difference in the lives of students, live up to their mission statements, and differentiate themselves in an increasingly competitive higher education marketplace (Adams, 2020; Noble, 2020). Unfortunately, most faculty at Christian colleges do not receive training in their master’s and doctoral programs on how to integrate faith with subjects in their field of study, especially those who completed their training at secular institutions (Underwood et al., 2022). Training on faith integration, if it happens at all, occurs at the faculty’s teaching institution or is driven by the interest and volition of the individual faculty member. Faith integration is core to the mission of Christian institutions as well as the differentiation and value proposition Christian institutions offer in the higher education market (Bodi, 2023). Thus, it is important for faculty at Christian higher education institutions to clearly define faith integration practices and expectations at their institution and to provide resources and share experiences and best practices related to faith integration within fields of study and academic specialties.

Christian institutions of higher education are uniquely situated to utilize biblical faith integration to focus on the

student as a whole person, both providing students with greater knowledge in their field and encouraging students to incorporate their faith into their professional lives after college (Dulaney et al., 2015). Doing so is consistent with the notion of building antifragile Christians. Christian colleges are also well-positioned to build discipleship in their programs so that graduates can be sent out well-equipped to apply biblically sound principles and address complexity through a Christian lens in their respective fields.

As complexity theory is a pervasive concept across disciplines, it is important to consider how the Christian faith can be explored and deepened through the lens of complexity and to also consider the interdisciplinary opportunities that exist when teaching complexity from a Christian worldview. To further this endeavor, this paper’s purpose is to provide specific examples of Christian faith integration in a master’s level business course on the topic of complexity.

What Is Christian Faith Integration?

What makes Christian institutions of higher education different than secular institutions? By putting the description of “Christian” in the mission or vision of an institution, engagement with the Christian faith is implied. One of the ways Christian institutions differentiate themselves is by incorporating aspects of the Christian faith into course curricula; this process is known as “faith integration” and it can be practiced through a variety of methods.

As Moroney (2014) points out, faith integration can go beyond the cerebral notion of integrating ideas and shaping students' worldviews; faith integration can include actions, behaviors, and practices that shape individuals and communities for the purpose of loving each other and loving God (Matthew 22:38). "Christian practices do not merely teach individuals to think in certain ways but also to live faithfully as a collective people who bear witness to the kingdom of God" (Moroney, 2014, p. 153). Thus, faith integration is intended to be a reorienting process, pointing students toward loving, serving, and honoring God above all else. There are many methods of faith integration that can be used individually or in combination, as expounded upon by Roller (2013), who identified 21 different ways to integrate faith in a course.

Complexity and Business Education

Complexity is the study of dynamic, non-linear, emergent systems that often produce unpredictable phenomena due to the number and diversity of inputs. "Complex systems are highly composite ones, built up from very large numbers of mutually interacting subunits (that are often composites themselves) whose repeated interactions result in rich, collective behaviour that feeds back into the behaviour of the individual parts" (Ricklefs et al., 2007, p. 933).

The words "complex" and "complicated" often are used as synonyms to express degrees of difficulty endemic to a problem. However, when describing systems, they are not synonyms but denote and describe fundamentally different types of problems and processes. Complicated problems are ordered problems and require precision and exactness when attempting to solve them. Yet once complicated problems are solved, the solution can be applied over and over to achieve the exact same results. Complex problems are different in this regard. These problems are unordered and cannot be codified and solved in the same way because they are always emerging and dynamically changing (Nason, 2017).

For example, a complicated task, such as preparing an organization's financial statements, has an exact set of rules that must be followed to produce the desired outcome. If the correct rules and steps are precisely followed, one can expect the exact same outcome time and time again (Nason, 2017). However, complex tasks are different. Consider the task of successfully delivering a sales pitch. It differs greatly due to many contextual and uncontrollable factors. The exact same sales pitch might be given to two different clients, yet success is determined by an extensive number of variables. Complex issues are relationally and contextually dependent, making them difficult to consistently solve through process management methods, such as Six Sigma.

There is a high degree of randomness and uncontrollability in complex systems that can lead to a feeling of unease in people and organizations more broadly (Nason, 2017).

The study of complexity first gained visibility in academia in the 1960s through the meteorological work of Edward Lorenz and his description of the "Butterfly Effect" (Gleick, 1987). Following Lorenz's work, complexity models were quickly developed to describe phenomena in other areas such as biology, information theory, mathematics, and social sciences that exhibited non-linear, dynamic, and emergent behaviors.

Complexity has also become a topic of study within the field of business. The world of business is complex, with markets and organizations interconnected as networks embedded within networks in which an occurrence in one part of the network can create unexpected feedback throughout the rest of the network. Consider the effects of the subprime lending crisis, which began in one sector (banking), that then had a major rippling effect across social sectors, politics, and commerce across the globe (Mukunda, 2018). Or consider the dynamic and unpredictable effects of COVID lockdowns on economics and social behavior (Herby et al., 2022). Recent events have shown us that the world we live in is too complex for us to predict. What can we do to teach our students to walk with confidence in faith, rather than fear, in a world that we cannot clearly understand or control?

Faith Integration and Complexity Management

Despite the growing breadth and applicability of complexity as an interdisciplinary field, complexity is not yet commonly integrated into the core curriculum of business education at most institutions of higher education and is not listed as a Common Professional Component (CPC) by business program accreditors in the United States (Cripps et al., 2011). As such, there is not a well-defined body of knowledge or standard way of teaching a complexity course within the greater subject of business administration. While faith integration has been explored in specific and well-defined areas of business, such as accounting (Fowler et al., 2006), organizational behavior (Underwood et al., 2022), and finance (Leeper, 2022), there is no evidence in the literature of specific faith integration teaching methods in the area of complexity.

This gap provides opportunity for Christian business faculty to thoughtfully explore faith integration within the topic of complexity. For students studying business, the topic of complexity often represents and provides a distinct paradigm shift consisting of vastly different viewpoints than those typically taught in general management, leadership,

and organizational behavior courses. Classical business management centers around planning, organizing, staffing, leading, and controlling (Pistrui & Dimov, 2018), whereas complexity business management centers around feedback, emergence, self-organization, agility, and networks (Siemens et al., 2018).

Complexity and the Christian Faith

Most modern-day social problems are multifaceted, complex, wicked problems that cannot be navigated using complicated, rule-based thinking. Wicked problems are issues that do not have a clear-cut solution, and any solution will provide some societal cost or tradeoff. It is this quality that makes these “wicked-problem” issues highly debated, contested, and often publicized in society. Therefore, it is more important than ever that Christians identify and understand complex systems and how they relate to Christianity. By understanding and applying complexity management from a biblical worldview, believers can more effectively address wicked problems plaguing our society with the love of Christ.

Black and Smith (2003) argue that complexity theory can aid in shedding light on the activities of God and enhance the spiritual maturity of Christ followers, providing spiritual guidance for daily life. “A believer networked in love within the system of Christ and other believers changes. He or she develops more Christlikeness” (p. 31). Black and Smith (2003) provide ten principles for complex systems as well as their implications for Christianity (Appendix C). For example, one principle is that patterns in complex systems form simultaneously but not uniformly across all levels. The authors indicate that in relation to this principle, God’s patterns in our lives do not form in a consecutive manner. Spiritual patterns are generally unpredictable, especially in the moment. Oftentimes, it is only in hindsight that people recognize God’s patterns at work in our lives. Similar to complexity, God’s patterns often appear to develop from what appears to be the unpredictable chaos of our lives.

FAITH INTEGRATION IN “MANAGING ON THE EDGE OF CHAOS”

The complexity course *Managing on the Edge of Chaos* is a capstone course for a Master of Science in Management and Leadership (MSML) degree. The course was designed as an 8-week, online, conceptual introduction to topics in complexity as they relate to management and leadership. The course uses multiple types of media to integrate course concepts as well as faith into lessons. Students are focused

on not only managing complexity from a business perspective but also using complexity as a lens for understanding and practicing their own faith. Throughout the course, the assignments and discussion boards relate aspects of complexity and antifragility to scripture and the Christian faith.

The first week of the course begins by describing the different types of systems in the world, as defined by Snowden’s Cynefin framework (CognitiveEdge, 2010), and how complex systems differ from simple, complicated, and chaotic systems. The course then introduces Taleb’s risk management concepts as presented in the book *Antifragile* (Taleb, 2014), which describes ways of managing risk in a world that seems to be dangerously unpredictable. This framework refers to a spectrum that ranges from fragile to resilient to antifragile. Something that is fragile will crack when faced with variability (i.e., a fragile package). When searching for the opposite of fragile, we often look toward the characteristics of resilience, meaning that the variability is absorbed or resisted. However, a resilient package does not get stronger when faced with variability; it stays the same. The opposite of fragile would be antifragile, which takes advantage of uncertainty by rapidly adapting to, and learning from, stressors. Thus, we find direct biblical integration to the concept of antifragility in the Scriptures. As James 1:2-4 says,

Consider it pure joy, my brothers and sisters, whenever you face trials of many kinds, because you know that the testing of your faith produces perseverance. Let perseverance finish its work so that you may be mature and complete, not lacking anything. (NIV)

Christians should expect and gladly engage with challenges because facing and overcoming challenges can grow a person’s spiritual maturity and draw them closer to Christ. Thus the Christian faith prepares us to face and even enjoy variability as the antifragile people of God.

There is much in complexity and antifragility that deals directly with walking in confidence in the face of uncertainty. To the authors, this sounds very similar to how faith is described in Hebrews 11: “Now faith is confidence in what we hope for and assurance about what we do not see” (Hebrews 11:1, NIV). Learning to walk in Christian faith in an uncontrollable world of uncertainty is the principal opportunity for faith integration when teaching complexity: “For we live by faith, not by sight” (2 Corinthians 5:7, NIV).

Pedagogy and Assignments

In the complexity course, students must identify complexity in the business sector and then spend time considering how businesses should respond to complexity so that they can become antifragile. Each weekly announcement

includes a Bible verse related to complexity and the readings for the week (see Appendix B for an example). Students are asked to reflect on the verse and how the Scripture relates to complexity concepts examined throughout the week. For example, in Week 1, students are asked to reflect on the following verse and how it relates to complexity: “Trust in the LORD with all your heart and learn not on your own understanding” (Proverbs 3:5, NIV). The Week 1 course content highlights the uncontrollable and unpredictable nature of the universe. Thus, with this thought exercise, students are encouraged to recognize how walking in faith with God instead of trusting their own understanding of the world is crucial to their success in life. In the example below, a student discusses how the course reshaped their initial expectations, reminding them of their journey from fragility to resilience and reinforcing the idea that embracing chaos can lead to innovation and growth.

When I first saw the title of this class, I imagined a “reactive” strategy that waits for the crisis and then activates, not an “attractive” one that sees a storm in the ocean ahead and makes an intentional move to use the wind and lightning to increase speed and delivery time instead of allowing it to destroy the boat. There was a time in my life when I was fragile and had to choose to work on becoming antifragile. Sometimes I get tired or my mind and heart stray from my faith and into fear and anxiety; I must remember “...we are more than conquerors through Him who loved us” (Romans 8:37 NKJ). I hope to gain a new perspective that embraces chaos and remembers that innovation comes from interruption. I enjoyed the way the reading almost forced my mind to rephrase my thinking and perspective and believe this will help me navigate the changes the next year will bring. (personal communication, October 25, 2022)

Throughout the course, students engage with each other through discussion board assignments. In one discussion board prompt within the course, students are asked how their specific organization can take advantage of increasing complexity in the world. Additionally, they are asked to discuss how their organization can utilize antifragility in order to benefit from complexity. Students are prompted with the verse from Hebrews 11:1-2 (NIV): “Now faith is confidence in what we hope for and assurance about what we do not see. This is what the ancients were commended for.” They are then asked how they can personally use antifragility to benefit from complexity and what they need to believe about themselves, their faith, and the world in order to deal with complexity.

This assignment allows students to apply the concepts of antifragility and complexity to each of the respective concepts, to their organization, to themselves, as well as to other students through our discussion. While applying these concepts to themselves personally, students are encouraged to consider how their faith can be viewed through complexity and antifragility and how these concepts can be integrated in their daily life. For example, in the student response below, the student mentions that in order to navigate complexity, one must adopt a flexible mindset, embrace uncertainty, and find strength in faith to seize opportunities. As one student wrote:

Embracing complexity requires the right mindset. I need to be brave, as complexity requires the willingness to take small risks. Nason (2017) discussed how a flexible attitude is crucial for learning and adaptability. It is essential to realize that the world is full of opportunity and that some vital opportunities arise from complexity. I must ensure I have the right attitude toward change and embrace uncertainty. Isaiah 41:10 reads, “Fear not, for I am with you; be not dismayed, for I am your God; I will strengthen you, I will help you, I will uphold you with my righteous right hand.” I must be confident in the Lord, who will guide me through uncertain times. (personal communication, August 7, 2023)

In another assignment, students are given a writing prompt that requires them to identify three complex global issues or challenges they would like to address. They are then prompted by Micah 6:8 (NIV): “He has told you, O man, what is good; and what does the Lord require of you but to do justice, and to love kindness, and to walk humbly with your God?” Subsequently, students are tasked with employing concepts from their study of antifragility to tackle these chosen issues. Among these concepts are fundamental asymmetry and the barbell strategy. Fundamental asymmetry revolves around the notion of having a situation where the potential for positive outcomes outweighs the potential for negative outcomes (Taleb, 2014, p. 555). The barbell strategy involves adopting two contrasting approaches: one that is cautious and low-risk and another that is more daring but promises higher potential gains (Taleb, 2014, p. 556).

The majority of students pursue wicked problems in this assignment, such as homelessness, human trafficking, and issues surrounding the healthcare field. Students are encouraged to use a Christian perspective when addressing these problems. Instead of viewing alternative opinions and perspectives as wholly negative or positive, we can use teachings from the Bible to help us work together as a society to find solutions that maximize the broader societal welfare

(Jeremiah 29:7). As Christians, students are urged to work with others with both similar and opposing viewpoints in an effort to further God's kingdom (Matthew 6:33). The following verse guides Christians in looking beyond worldly matters (struggles of flesh and blood) and focusing on serving God:

Put on the full armor of God, so that you can take your stand against the devil's schemes. For our struggle is not against flesh and blood, but against the rulers, against the authorities, against the powers of this dark world and against the spiritual forces of evil in the heavenly realms. (Ephesians 6:11-12, NIV)

By incorporating relevant Bible verses, students are invited to reevaluate their mindset toward complexity as it relates to the Christian faith, both in business and personal life. Practical assignments, including discussions and problem-solving tasks, enable students to navigate increasing complexity with an antifragile mindset. Emphasizing embracing uncertainty, fostering flexibility, and seeking strength in faith, the course equips students to confront and find opportunities within complex challenges. Moreover, it underscores applying these concepts to real-world problems and the role of Christian values in promoting collaboration and societal welfare. This integrated approach fosters a holistic understanding of complexity and antifragility, demonstrating their relevance not only in academia but also in practical, faith-driven responses to contemporary complex issues.

CONCLUSION

As Roller (2013) writes, "For most students, biblical faith-learning integration takes place with the guidance of committed Christian faculty members who are deliberately providing opportunities for integration" (p. 30). This paper provides examples from a master's-level complexity course in the area of business for Christian faculty who want to deliberately integrate the Christian faith and topics of complexity in their courses.

Many of the challenges faced by today's business professionals are complex and unpredictable. These complex challenges require people to engage with systems to learn about them, not just stand back and analyze them. When tackling wicked problems, Christian believers can, like Peter on the stormy waters, look toward God and walk in faith, not fear. In a world that is unpredictable and uncontrollable by humans, God loves and cares for people and has a purpose for them. "For we are God's handiwork, created in Christ Jesus to do good works, which God prepared in advance for

us to do" (Ephesians 2:10, NIV). By walking in faith and paying attention to the Holy Spirit, students can learn to fruitfully engage with unpredictably complex systems, trusting that God has gone before them and is making a way for them to navigate life.

The faith integration examples in this paper provide opportunities for students to reflect on and practice their faith while applying complexity theory to real-world business and social problems. Though the course described in this paper is an online course, the faith integration assignments and engagements are contextual and scalable and can be used in online or in-person course settings. Additionally, there are numerous other graduate or upper-level undergraduate courses in business and other subjects that could benefit from the inclusion of a module on complexity management as related to the integration of Christian faith.

For example, the field of entrepreneurship is very complex, and faith has been shown to influence how entrepreneurs make decisions (Cavalcanti et al., 2023). How might faith integration in entrepreneurship courses better prepare students to walk by faith and not by sight by using faith-based complexity management when launching new ventures?

The concepts presented by Taleb (2014) in his book *Antifragile* were developed as tools for risk management in finance and investing. Practitioners need to be able to navigate complex risk scenarios ethically, as technology is creating new financial risk faster than laws, regulations, and ethical guidelines can keep up (McDaniel, 2011). What opportunities exist in preparing students to dynamically apply Christian ethics to a complex financial system that increasingly buries risk in novel and undetectable ways?

"The mind cannot visualize the whole infinite self-embedding of complexity" (Gleick, 1987, p. 100). The same could be said of the Christian God. The field of complexity employs language and tools to engage with systems that are unpredictable, uncontrollable, and unknowable in the whole, even if knowable in part. The Christian Scriptures, story, and faith likewise provide language and tools for engaging with a complex, yet knowable and loving, God. Integrating the Christian faith with the field of complexity provides students with new metaphors and models for knowing God, further revealing the wonder of His created order. "For since the creation of the world God's invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made, so that people are without excuse" (Romans 1:20, NIV).

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APPENDIX A: MANAGING ON THE EDGE OF CHAOS: FIRST WEEK MATERIALS

Announcement

How can we lead, manage, and live in a world in which the future is almost entirely unpredictable? This course is designed to help answer this question. As you will learn from your Week 1 readings, the universe is not like a giant machine, like a clock that can be reduced to simple parts and analyzed. The truth is, all the computing power in the world cannot even predict with perfect accuracy all the events of the next minute, much less the weather in Montreat or the ending value of the Dow Jones Industrial Average one year from now. So again, how can we deal with such an unpredictable world? This week, your readings will introduce you to many ideas that may be new to you, including emergence, antifragility, and chaos. Also, through your readings, you will encounter numerous frameworks that will help you analyze complex systems so that rather than being confounded by complex systems, you might learn to navigate the perpetual whitewater that characterizes most of human existence.

This week as you learn more about the uncontrollable and unpredictable universe in which we live, I encourage you to reflect on the following verse, and how it relates to complexity: “Trust in the LORD with all your heart and lean not on your own understanding” (Proverbs 3:5).

Reading

- Read the preface and Chapter 1 in *It's Not Complicated*, the prologue in *Antifragile*, and the articles below.
- “Complexity: A Leader’s Framework for Understanding and Managing Change in Higher Education” (Siemens et al., 2018). What ideas come to mind related to managing change in higher education?
- “Emergence and Emergents in Entrepreneurship: Complexity Science Insights into New Venture Creation.” How does the concept of emergence relate to the creation of new ventures?
- Read the document on “Introducing the Cynefin Framework” and review the PowerPoint presentation “An Antifragile Primer” attached above.

Videos

- *Complexity Theory Overview* (Systems Innovation, 2017).
- *The Cynefin Framework* (CognitiveEdge, 2010).
- *Physics Meets Wall Street* (Tedx Talks, 2013).

Discussion Prompt

- For this discussion, please introduce yourself to the class. What is it that you hope to gain from this course? What questions do you have about chaos, complexity, and antifragility that you would like to discuss with the rest of the class?

Assessment

- Take the E13 Assessment. List your organization as “Montreat BUSN 5458.” Reflect on how developing and applying entrepreneurial competencies can help navigate complexity. What competencies have you developed throughout your time in the MSML program? How will your strengths be applicable in addressing complexity?

Assignment

- Use the People-Process-Tools Framework (described in the article “Complexity: A Leader’s Framework for Understanding and Managing Change in Higher Education”) to identify how you use (or could use) networks, emergence, self-organization, feedback, and agility in order to grow and succeed in your career or in your personal life, despite living in a world of uncertainty (see the example table posted in Week 1) (Siemens et al., 2018). Create a table using the People-Process-Tools Framework and also submit at least two paragraphs on what you learned about yourself regarding antifragility and complexity from completing this exercise.

APPENDIX B: SAMPLE ANNOUNCEMENT FOR THE COURSE

Who can tell the future? Despite the soothsaying of economists, politicians, and charlatans, no one can tell what tomorrow will bring. In Week 6, we will focus on understanding uncertainty and risk from a complexity perspective. Risk can be good or bad (positive or negative Black Swans), and the purpose of antifragility is to take advantage of asymmetries in risky situations. As Nelson writes in *INC*, “The weather is notoriously unpredictable. Thus, it is best to be prepared. If you recognize that the weather may change and carry both an umbrella and a sun visor, you will be much better positioned than people who gave no thought whatever to the weather when they left their house for their day’s activities” (p. 184). Complex changes cannot be predicted, but if we position ourselves well, we will be better equipped to adapt and take advantage of unforeseen and unexpected events.

“When times are good, be happy; but when times are bad, consider this: God has made the one as well as the other. Therefore, no one can discover anything about their future” (Ecclesiastes 7:14).

APPENDIX C: 10 PRINCIPLES OF COMPLEX ADAPTIVE SYSTEMS AND THEIR IMPLICATIONS FOR CHRISTIANS

- **Principle 1:** Systems are composed of elemental parts and relationships between parts — relationships are key.
- **Principle 2:** One non-linear relationship makes a system complex.
- **Principle 3:** All relationships follow deep rules, but the rules are not obvious.
- **Principle 4:** Patterns result from the interactions based on the deep rules of the systems.
- **Principle 5:** Patterns form simultaneously, but not uniformly, across all levels.
- **Principle 6:** Systems must be treated as “wholes,” not parts.
- **Principle 7:** When the relationship rules change (deep change), the pattern changes (surface change).
- **Principle 8:** Details of emergent patterns are not predictable.
- **Principle 9:** The impacts of deep changes are not predictable.
- **Principle 10:** Even when deep change does not occur, pattern changes (surface change) will occur (Black & Smith, 2003, pp. 16-31).