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A BIBLICAL-THEOLOGICAL MODEL OF
COGNITIVE DISSONANCE THEORY:
RELEVANCE FOR CHRISTIAN EDUCATORS

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A BIBLICAL-THEOLOGICAL MODEL OF
COGNITIVE DISSONANCE THEORY:
RELEVANCE FOR CHRISTIAN EDUCATORS

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To Penny, my bride and best friend.

You are my answer to Proverbs 31:10.

Thank you for being there and keeping me grounded.

You will never know how much I cherish your encouragement.

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PREFACE

How does an old guy survive the Ph.D. process on the heels of an M.Div.? I could not have done it without the help of many. First, my Lord has called me from death to life and given me a desire to equip teachers in His kingdom. He has given me the privilege of receiving a world-class education. I thank Him for His love and mercy.

My wife, Penny, committed, seven years ago, to see me through these third and fourth excursions into the academy. It began with a second master's. She renewed that commitment just over three years ago when we realized doctoral work needed to be in our future. I thank her for her life with me and for her proofreading skills on a book that was never hers to read.

Our children have been supportive and encouraging throughout these years. Our son, Brandon, and his wife, Christa, have made me a granddaddy for the first time. They serve the Lord with gladness and have been a lesson in integrity for me. Our daughter, Andrea, taught me to have a missional heart—to see others the way God sees them. She also served as content reader for my dissertation. Her keen mind sharpened my thoughts. I look forward to standing beside each of our kids—Brandon, Andrea, Christa, and Dale—in eternity as we worship the Lamb together.

I owe my love for reading and, like Timothy, knowledge of my faith especially to my mother and grandmothers. My father was a pastor for several of my formative years, but the influence these godly women had in my life turned proposition into praxis.

My spiritual journey has been a tortuous one. Several pastors have been used

by God to straighten my path. First, Rev. Willard Plunk baptized me and later heard my call to ministry. Rev. Allan Mitchell recognized God's gifting in my life at the time I was ready to recommit myself to the Lord. Dr. Hershael York took that gifting and expanded my influence by teaching me to equip others. I thank God for putting each of these men in my life at the exact moments He did.

On par with the influence of these pastors, the faculty at The Southern Baptist Theological Seminary have taught me to glorify God in new ways. My committee, especially, has been alongside me, pouring their lives into me years longer than this doctoral journey. My chair, Dr. Michael Wilder, has given me both encouragement and correction at their proper time. He allowed me to live the dream by co-teaching master's and doctoral level students. Dr. Timothy Paul Jones taught me to teach and launched my doctoral career with the most profound class I have had in twenty years of higher education—Theological Anthropology and Human Development. Dr. Shane Parker introduced me to the work of Leon Festinger and helped me find my place at the academic table.

Many other family members and friends have encouraged me in special ways throughout these two degrees. I cannot thank them enough for loving me even in the times when academic priorities displaced them from their rightful place in my life.

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Indianapolis, Indiana

December 2012

CHAPTER 1

RESEARCH CONCERN

Prompting the transformation of students arguably is the touchstone of successful education.¹ But, the sheer number of teaching-method books on the market² indicates that the sure means of prompting that transformation remains elusive. What would be useful is an intrinsic motivator that could be triggered to whet the appetite of the student's desire to learn, a desire that is innate to human beings as well argued by Yount.³

Leon Festinger, a social-psychologist, recognized such a drive and reported his findings in 1957 in *A Theory of Cognitive Dissonance*.⁴ Lauded at one point as “the most important development in social psychology,”⁵ Festinger's theory is supported and refined by over 1,200 research articles.⁶ Yet, despite the nuanced observations, no tenable

¹John M. Dettoni, “On Being a Developmental Teacher,” in *Nurture That Is Christian: Developmental Perspectives on Christian Education*, ed. James C. Wilhoit and John M. Dettoni (Grand Rapids: Baker Academic, 1998), 262.

²A late 2011 search on the phrase “teaching method” at Amazon.com returned over 150,000 results and a search on the phrase “teaching AND method AND textbook” returned almost ten million results on Google.

³William R. Yount, *Created to Learn: A Christian Teacher's Introduction to Educational Psychology*, 2nd ed. (Nashville: B&H Academic, 2010).

⁴Leon Festinger, *A Theory of Cognitive Dissonance* (Evanston, IL: Row, Peterson and Co., 1957).

⁵Robert A. Wicklund and Jack W. Brehm, *Perspectives on Cognitive Dissonance* (Hillsdale, NJ: Lawrence Erlbaum Associates, 1976), x.

⁶Ralph W. Hood, Jr. “Where Prophecy Lives: Psychological and Sociological Studies of Cognitive Dissonance,” in *How Prophecy Lives*, ed. Diana G. Tumminia and William H. Swatos, Jr.

purpose for the drive toward consonance has been accepted. Therefore, the theory remains descriptive rather than prescriptive.

By examining the circumstances under which cognitive dissonance is observed in Scripture, the origin and purpose of the drive toward consonance will be inferred. With an accurate understanding of origin and purpose, the drive can be used for its intended purpose, turning accurate description into designed prescription. The pedagogical model built around this purpose could revolutionize Christian education.

Introduction to the Research Problem

Festinger's Cognitive Dissonance Theory (CDT) describes a physiological and psychological arousal that occurs when two elements of knowledge about a person's cognition, affection, or behavior are reckoned by the person to be inconsistent—or dissonant.⁷ Dissonance has magnitude that is dependent upon the importance of the elements involved.⁸ The arousal experienced motivates the person to reduce the dissonance, that is, to bring the disparate elements into a more consonant relationship.⁹

Alternatives and Modifications to Festinger's Theory

Throughout its long course, the observations made by Cognitive Dissonance Theory researchers have been alternatively explained. Two of the more popular alternatives are self-perception theory and impression-management theory. The former

(Boston: Brill, 2011), 28.

⁷Festinger, *A Theory of Cognitive Dissonance*, 3.

⁸Ibid., 16.

⁹Ibid., 18.

disputes the ability to perceive one's own attitudes.¹⁰ The latter suggests that reported attitude changes are feigned based on the desire of the experimental subject to make a favorable impression on the researcher.¹¹ Both of these alternatives fail to account for the physiological changes measured in the arousal of cognitive dissonance.¹²

Revisions proposed to the original theory have been more fruitful. For example, Steele proposed the self-affirmation theory that demonstrates dissonance arousal when cognitions "threaten the perceived integrity of the self."¹³ The "New Look," a second proposed revision, separates dissonance arousal from dissonance motivation. Motivation, according to the New Look, is reliant on interpretation of the perceived arousal, which is influenced by the environment in which the arousal occurs.¹⁴ Contrary to the high self-esteem anticipated by many researchers, hypocrisy theory, a third revision, suggests that self-esteem, itself, may be the measure against which other cognitions are measured. Therefore, "if a person considered himself or herself to be a 'schnook,' he or she might expect to do schnooky things" without arousal of any dissonance.¹⁵

¹⁰Daryl J. Bem, "Self-Perception: An Alternative Interpretation of Cognitive Dissonance Phenomena," *Psychological Review* 76 (1967): 183–200.

¹¹James T. Tedeschi, Barry R. Schlenker, and Thomas V. Bonoma, "Cognitive Dissonance: Private Ratiocination Or Public Spectacle?" *American Psychologist* 26 (1971): 685–95.

¹²Eddie Harmon-Jones and Judson Mills, eds., *Cognitive Dissonance: Progress on a Pivotal Theory in Social Psychology* (Washington, DC: American Psychological Association, 1999), 10-13.

¹³Claude M. Steele, "The Psychology of Self-Affirmation: Sustaining the Integrity of the Self," in *Advances in Experimental Social Psychology*, vol. 21, ed. Leonard Berkowitz (New York: Academic Press, 1988), 290.

¹⁴Joel Cooper and Russell H. Fazio, "A New Look At Dissonance Theory," *Advances in Experimental Social Psychology* 17 (1984): 257.

¹⁵Elliot Aronson, "Dissonance, Hypocrisy, and the Self-Concept," in *Cognitive Dissonance: Progress on a Pivotal Theory in Social Psychology*, ed. Eddie Harmon-Jones and Judson Mills

Aronson, Beauvois and Joule, and Cooper¹⁶ have compiled various lists of other modifications proposed to improve Festinger's original theory. While these sometimes improve the explanatory accuracy of dissonance research, none are a replacement for Festinger's original work.

Proposed Origin and Purpose of Cognitive Dissonance

Despite the bounty of revisions and alternatives, in over five decades of refinement and challenge, very few theories have been offered to explain the origin or purpose underlying the drive so eloquently elucidated by Festinger and others.¹⁷ Even some cognitive dissonance researchers have noted this deficiency.¹⁸

Tedeschi and colleagues list two alternatives for the origin of the tension experienced with dissonance arousal. First, they suggest that the origin could be genetic, in "some type of mysterious mechanism, like a gyroscope, that works in the fashion of a computing device automatically activated by any illogically formed cognition pair." The only other alternative they present is a "socially acquired drive."¹⁹ Despite developing their own alternative to Cognitive Dissonance Theory—impression management theory,

(Washington, DC: American Psychological Association, 1999), 111.

¹⁶Elliot Aronson, "The Return of the Repressed: Dissonance Theory Makes a Comeback," *Psychological Inquiry* 3 (1992): 303–11; Jean-Leon Beauvois and Robert-Vincent Joule, *A Radical Dissonance Theory* (London: Taylor & Francis, 1996); Joel Cooper, *Cognitive Dissonance: Fifty Years of a Classic Theory* (Los Angeles: Sage, 2007).

¹⁷David Heywood, *Divine Revelation and Human Learning: A Christian Theory of Knowledge* (Burlington, VT: Ashgate, 2004), 69.

¹⁸Eddie Harmon-Jones et al., "Left Frontal Cortical Activation and Spreading of Alternatives: Tests of the Action-Based Model of Dissonance," *Journal of Personality and Social Psychology* 94 (2008): 1.

¹⁹Tedeschi, Schlenker, and Bonoma, "Cognitive Dissonance," 689.

Tedeschi and colleagues leave the nature/nurture debate open.²⁰

For those willing to venture a guess, evolution is typically credited as the originator of the drive toward consonance. Cognitive dissonance researchers have studied primates and assumed the presence of cognitive dissonance, though one group admits, “Despite long-standing interest in cognitive dissonance, there is still little understanding of its origins—both developmentally over the life course and evolutionarily as the product of human phylogenetic history.”²¹

Regarding purpose, in the broader field of the study of self, cognition, in general, is tied to food procurement and the associated social environment.²² Likewise, in social psychology, the discipline from which Festinger and many other cognitive dissonance researchers write, the social nature and self-perception of humanity is tied to the goal of procreation.²³

²⁰Ibid. After presenting genetics and social-acquisition as the two alternatives for a source of the drive, these researchers conclude, “In either case, there can be only certain conditions under which the genetically or socially governed mechanism can be activated, and sometimes it rather inexplicably exerts more energy in restoring the logical relations between cognitive elements than at other times. This type of implausible basis for dissonance effects is probably the weakest link in the theory. A more adequate theory would explain why inconsistency is motivationally activating.”

²¹Samantha West et al., “The Phylogenetic Roots of Cognitive Dissonance,” *Journal of Comparative Psychology* 124 (2010): 431; Louisa C. Egan, Laurie R. Santos, and Paul Bloom, “The Origins of Cognitive Dissonance: Evidence From Children and Monkeys,” *Psychological Science* 18 (2007): 978.

²²Constantine Sedikides and John J. Showronski, “On the Evolutionary Functions of the Symbolic Self: The Emergence of Self-Evaluation Motives,” in *Psychological Perspectives on Self and Identity*, ed. Abraham Tesser, Richard B. Felson, and Jerry M. Suls (Washington, DC: American Psychological Association, 2000), 95, 97.

²³Lee Ross, Mark Lepper, and Andrew Ward, “History of Social Psychology: Insights, Challenges, and Contributions to Theory and Application,” in *Handbook of Social Psychology*, 5th ed., ed. Susan T. Fiske, Daniel T. Gilbert, and Gardner Lindzey (Hoboken, NJ: Wiley, 2010), 34.

Uses and Misuses of the Theory in Christianity

Although the underlying purpose for the drive remains unexplained, Cognitive Dissonance Theory is used and misused. For example, the theory is misused as a hermeneutic to discount the supernatural nature of the early spread of Christianity, suggesting, instead, that the disconfirming cognition of the failure of Christ to return prompted proselytizing as a means to reduce the early disciples' dissonance between belief and reality.²⁴ In contrast, the theory is used as a motivator to critical thinking for those planning and leading short-term mission trips.²⁵ Marion Snapper recommends another use in the field of Christian education. Snapper connects consonance—the resolution of dissonance—to the Hebrew word *shalom*, which he understands to be the ultimate motivator.²⁶ Although Snapper falls short of tendering a model in which cognitive dissonance could be employed in pedagogy, he presumes Festinger's theory can be used to motivate learners.²⁷

Suggestion of Cognitive Dissonance in Scripture

Scripture may hold the key to understanding the purpose of the drive behind Festinger's theory. Social psychologists report accurate observations that describe the drive in detail, but their conclusions are based on a naturalistic foundation. Replacing the

²⁴Robert P. Carroll, *When Prophecy Failed* (reprint, London: Xpress Reprints, 1996).

²⁵Shane Walton Parker, "Cognitive Dissonance and Adolescent Short-Term Mission Methodology" (Ph.D. diss., The Southern Baptist Theological Seminary, 2007).

²⁶Marion Snapper, "Motivation for Learning Faith-Knowledge," in *Christian Approaches to Learning Theory: A Symposium*, ed. Norman De Jong (Lanham, MD: University Press of America, 1984), 158.

²⁷*Ibid.*, 166.

naturalistic foundation with a biblical-theological foundation will change the conclusions drawn from the same observations. The biblical-theological foundation can be built by examining, in detail, the presence of cognitive dissonance in Scripture.

Even a cursory look at Scripture reveals evidence of cognitive dissonance. For example, Adam's response to his decision to disobey God when tempted in the Garden reveals dissonance reduction mechanisms. Job's response to chapter after chapter of his trials reveals a different mode of dissonance reduction. Jesus, in contrast, responds to both temptation and trials without any obvious dissonance. God's response to each of these may reveal the purpose. A detailed examination of the canon of Scripture, then, may improve the descriptive fidelity and extend the prescriptive facility of Festinger's theory allowing a model of pedagogy to be developed that will exploit the innate drive to prompt transformation of the student.

Relationship between Social Science and Scripture

Use of Scripture in this context, however, must be done with caution. Rodd argues against the application of social science to Scripture, considering the product to be fruitless, at best.²⁸ His caution has been taken seriously throughout the current research.

The research assumes that social psychologists have accurately identified evidences for the presence of cognitive dissonance in their research. It is these evidences that were sought in Scripture. Then, from a biblical-theological foundation—in contrast to social psychology's naturalistic foundation—conclusions were drawn to infer an origin

²⁸Cyril S. Rodd, "On Applying a Sociological Theory to Biblical Studies," *Journal for the Study of the Old Testament* 19 (1981): 104.

and purpose for the drive toward consonance. This purpose has been applied to a biblical-theological model of cognitive dissonance that is relevant for educators and gives relevance to efforts to transform students in education.

Purpose Statement

The purpose of this content analysis research was to develop a biblical-theological model of Cognitive Dissonance Theory applicable to pedagogy. Evidence of cognitive dissonance found in Scripture was used to infer a purpose for the innate drive toward consonance. This inferred purpose is incorporated into a model of pedagogy that advocates extrinsic activation of intrinsic motivators to learn.

Research Delimitations

Definitions for terms related to cognitive dissonance are those used by Leon Festinger and are distinguished from closely related terms from other researchers.

Two types of evidence were used to identify cognitive dissonance in Scripture. First was the identification of key terms from the literature that signal either dissonance or the consequence of dissonance. Second was the presumption by a trained observer of the presence of dissonance in the context of a passage.

As a census study, there are no additional delimitations introduced by sampling.

Research Questions

1. To what degree, if any, are the evidences of Cognitive Dissonance Theory found in Scripture?
2. How, if present, is dissonance induced in Scripture?
3. What mechanisms of dissonance reduction, if any, are evidenced in Scripture?

4. What, if any, are the consequences of dissonance reduction mechanisms evidenced in Scripture?
5. How does cognitive dissonance, if present, connect to the biblical metanarrative?
6. How does the drive toward dissonance reduction, if present, connect to wisdom in Scripture?

Terminology

Biblical metanarrative. Following an adaptation of Hamilton, the biblical metanarrative “can be summarized in four words: creation, fall, redemption, consummation. This sequence functions as an umbrella story encompassing the whole canonical narrative, but it is also repeated countless times on both individual and corporate levels.”²⁹

Cognition. “Elements . . . or things a person knows about himself, about his behavior, and about his surroundings.” These elements include opinions, beliefs, values, and attitudes. Cognitions are determined by and responsive to reality. According to Festinger, there are three possible relationships between cognitions: irrelevance, dissonance, and consonance.³⁰

Cognitive dissonance. The existence of nonfitting relations among cognitions. Festinger understands dissonance to be a cognitive inconsistency that is “a motivating factor in its own right,” that is, it is “an antecedent condition which leads to activity oriented toward dissonance reduction.”³¹

Cognitive Dissonance Theory. A formal theory of motivation proposed by

²⁹James M. Hamilton, Jr., *God’s Glory in Salvation through Judgment: A Biblical Theology* (Wheaton, IL: Crossway, 2010), 49.

³⁰Festinger, *A Theory of Cognitive Dissonance*, 9-11.

Leon Festinger in *A Theory of Cognitive Dissonance*³² and supported by a vast body of research.³³ In distinction from pre-choice discomfort, the theory predicts the experience of cognitive dissonance as an arousal after a commitment to a dissonant cognition following conflict and choice. The power of the theory is in accurately predicting non-intuitive responses in the face of choice after conflict. Festinger limits the relationships between disparate cognitions to three possibilities (see *Cognition*, above) and limits the dissonance reduction mechanisms to four broad categories (see *Dissonance Reduction Mechanisms*, below).

Consonance. Consistency in relations among cognitions.³⁴ Consonance is the antonym of dissonance.

Dissonance. Synonym of cognitive dissonance. Although this term is used in a variety of ways elsewhere, for the purpose of this study, Festinger's very narrow definition was used.

Dissonance Reduction Mechanisms. Actions taken to reduce the presence of dissonance. "The presence of dissonance gives rise to pressures to reduce or eliminate the dissonance. The strength of the pressures to reduce the dissonance is a function of the magnitude of the dissonance. In other words, dissonance acts in the same way as a state of drive or need or tension."³⁵ There are four mechanisms proposed to reduce dissonance: (1) Change one of the cognitions, (2) add new cognitive elements, (3) change the

³¹Ibid., 3.

³²Ibid.

³³Cooper, *Cognitive Dissonance*, 29.

³⁴Festinger, *A Theory of Cognitive Dissonance*, 3.

³⁵Ibid., 18.

importance of one of the elements, and (4) ignore reality.³⁶

Storyline divisions. Books of the Bible have been variously categorized in genre and topical divisions. For the purpose of this study, the storyline division of Hamilton was followed. These divisions are listed in Table A1 in Appendix 1.

Procedural Overview

This qualitative study was a multi-phase, content analysis of the entire canon of Christian scripture.

In the preliminary work, the study associated the homeostatic drive toward dissonance reduction with a variety of disciplines including representative hard sciences, soft sciences, and pedagogical practices. Terms and behaviors were identified from relevant literature that signal the triggering of cognitive dissonance. Then, the research consisted of five phases.

In Phase 1, the primary researcher

1. Developed an initial coding scheme based on cognitive dissonance literature
2. Divided the Bible into individual cases to be coded

In Phase 2, the primary researcher

3. Coded the individual cases

In Phase 3, the primary researcher

4. Finalized a code book with instructions for outside coders
5. Assembled and trained an outside coding team of original language experts from the school of theology
6. Selected a sample of coded stories for coding by the outside coders

³⁶Ibid., 18-21.

The outside coders

7. Coded the provided cases using the instructions and code book

The primary researcher

8. Determined the intercoder reliability

In Phase 4, the primary researcher

9. Analyzed the data
10. Evaluated the results

In Phase 5, the primary researcher

11. Developed a pedagogical model in light of the findings
12. Wrote the research report

Qualitative analysis of the coding phases was conducted using the software *HyperResearch*TM from ResearchWare, Inc. In this phase, the primary researcher examined the findings for patterns of use of cognitive dissonance in the various storyline divisions of Scripture, the figures who “carry the biblical timeline” or who show the greatest amount of dissonance, the use of cognitive dissonance in the biblical metanarrative, and the connection between cognitive dissonance and wisdom as described by Scripture.

From the analysis, a model of Cognitive Dissonance Theory was advanced applicable to education and grounded in the findings. A description of potential applications of the models as well as methods by which the model could be tested were also advanced.

Research Assumptions

Combining social science research and Scripture in a qualitative study requires a number of assumptions.

1. Observations made by cognitive dissonance researchers are valid observations, even if the conclusions drawn are invalid.
2. Criteria used to identify the presence of cognitive dissonance arousal in social science research are valid means of identifying the same phenomena in Scripture.
3. Cognitive dissonance will have a similar appearance across language, cultural, and temporal boundaries.
4. Scripture contains an accurate report of historical events.
5. A biblical-theological worldview will yield more accurate conclusions than a naturalistic worldview.

CHAPTER 2

PRECEDENT LITERATURE

Cognitive Dissonance Theory describes an innate, post-decisional drive to reduce the discrepancy between elements of knowledge in cognitive, affective, or behavioral domains. This chapter will review the precedent literature relevant to Cognitive Dissonance Theory. A biblical-theological foundation for the human person will be established and then contrasted with a naturalistic foundation typical for social psychologists. Then, observations and conclusions of social psychologists will be examined. Specifically, the theory of cognitive dissonance will be reviewed along with proposed alternatives and key modifications to the theory in order to demonstrate the maturity of the theory. To corroborate the innate drive postulated by Cognitive Dissonance Theory, observations from the cognitive dissonance literature will be compared to similar ideas in select hard sciences, soft sciences, and related pedagogical practices. Finally, the purpose of the current research will be proposed by which biblical-theological presuppositions will replace the social psychologists' naturalistic presuppositions in an effort to improve the descriptive fidelity and to extend the prescriptive facility of Cognitive Dissonance Theory to Christian pedagogy.

Biblical-Theological Foundations of Anthropology

The first point of exploration is the biblical view of humanity. As part of God's

special revelation of himself,¹ the Bible contains descriptions of what humanity is designed to be as well as what human choices have caused them to be. Differences between design and corruption of the design can be appreciated in the biblical metanarrative of creation—fall—redemption—consummation.²

Creation

Scripture records that on the sixth day of creation, “God said, ‘Let us make man in our image, according to our likeness; and let them rule over the fish of the sea and over the birds of the sky and over the cattle and over all the earth, and over every creeping thing that creeps on the earth’” (Gen 1:26).³ God’s view of humanity, that is, theological anthropology, is introduced in this verse in his plan for the creation of his image-bearer—the *imago Dei*. In the next two verses, God’s plan is inaugurated as human beings are distinguished as male and female so that they may populate the earth and identified as the divine image so that they may have dominion as vice-regents under God.⁴

Concept of the *Imago Dei*. While the *imago Dei* has been variously described, most descriptions fail to capture the holistic way in which humans were created. It is the whole of the human person that is the divine image and separates people from other

¹Wayne A. Grudem, *Systematic Theology: An Introduction to Biblical Doctrine* (Grand Rapids: Zondervan, 1994), 1254.

²James M. Hamilton, Jr., *God’s Glory in Salvation through Judgment: A Biblical Theology* (Wheaton, IL: Crossway, 2010), 49.

³All biblical quotations will be from the New American Standard Bible.

⁴Peter J. Gentry and Stephen J. Wellum, *Kingdom through Covenant: A Biblical-Theological Understanding of the Covenants* (Wheaton, IL: Crossway, 2012), 190.

creatures, not in degrees, but in kind.⁵ This ontological view explains the distinction between “image” and “likeness” in the creation story. “Image” describes humanity as a servant king in relation to creation; “likeness” describes humanity in a sonship relationship with God.⁶

Effects of the *imago Dei*. The ontological view also allows for an effective explanation of other understandings of the *imago Dei* that pertain to the present research—teleological, substantival, relational, and functional views.⁷ Each of these can be seen as effects of rather than holistic explanations for the *imago Dei*. The teleological view of God’s purpose for humanity reveals the transformability of the image-bearer under the influence of the Holy Spirit. This transformation is important in connecting Cognitive Dissonance Theory to Christian education. Second, the substantival view describes rationality as an effect of the *imago Dei*. Rationality is important to the observations made and conclusions drawn from cognitive dissonance research. Relationality is a third effect of the *imago Dei* and is one of the points of intersection between Scripture and social psychology. A fourth view—the functional view—describes the primary effect of the *imago Dei* as the dominion described in the creation account.⁸ Together these effects impact the relationship of the image-bearer to God, self, others, and all of creation. Central to the covenant between God and humanity in creation are

⁵Ibid., 180.

⁶Gentry and Wellum, *Kingdom through Covenant*, 196-97.

⁷Ibid., 203.

⁸James R. Estep, Jr., Michael J. Anthony, and Gregg R. Allison, *A Theology for Christian Education* (Nashville: B&H Academic, 2008), Kindle Electronic ed., 179-80.

faithfulness and loyalty in love.⁹

Fall

The first human couple, though, violated the covenant. Even as image-bearers of God, humans were not created in “a state of consummate and unchangeable perfection.” God gave Adam and Eve a probationary command to test them. With the command came the potential for disobedience.¹⁰ Actualizing that potential resulted in the primordial fall into sin of the first human couple, the consequences of which were passed down to their descendants.¹¹ The consequences of this marred ontology were realized in every effect of the *imago Dei*. Among other distorted effects, rationality became flawed, relationality became strained, dominion became disrupted, and transformation became necessary.

Imago Dei corrupted. Paul explains the inheritance of sin when he contrasts Jesus, as the second Adam, to the original Adam: “So then as through one transgression there resulted condemnation to all men, even so through one act of righteousness there resulted justification of life to all men. For as through the one man’s disobedience the many were made sinners, even so through the obedience of the One the many will be made righteous” (Rom 5:18-19). As sinners in perpetual disobedience to God, the image-bearers corrupted the image and that corruption is hereditary.¹²

⁹Gentry and Wellum, *Kingdom through Covenant*, 141.

¹⁰Anthony A. Hoekema, *Created in God’s Image* (Grand Rapids: Wm. B. Eerdmans, 1994), 83.

¹¹Norman L. Geisler, *Systematic Theology*, vol. 3, *Sin, Salvation* (Minneapolis: Bethany House, 2004), 125.

¹²Hoekema, *Created in God’s Image*, 149.

Imago Dei not lost. In the fall, some believe that the image of God was lost from humanity.¹³ Evidence against the loss of the image appears in three biblical passages. First is the record of the birth of Seth to Adam and Eve that emphasizes the transitive nature of the divine image. The author of Genesis rehearses the original creation of the image-bearers and repeats the terms in describing Seth as the naturally-born likeness and image of Adam, the divinely-created likeness and image of God: “This is the book of the generations of Adam. In the day when God created man, He made him in the likeness of God. He created them male and female, and He blessed them and named them Man in the day when they were created. When Adam had lived one hundred and thirty years, he became the father of a son in his own likeness, according to his image, and named him Seth” (Gen 5:1-3).¹⁴ These verses support the ontological view of the *imago Dei* in a sonship relationship with God and a servant kingship relationship with creation.¹⁵

Likewise, in the postdiluvial covenant with Noah, God establishes and explains the rationale for capital punishment in terms of being directly connected to the continued bearing of God’s image in humanity, which Gentry and Wellum connect to the creation

¹³The view that the image of God was lost from humanity coincident with the fall into sin has been held by notable theologians like Luther and Barth. For example, in Karl Barth, *Church Dogmatics*, ed. G. W. Bromiley and T. F. Torrance, vol. 1, *The Doctrine of the Word of God*, pt. 1, 2nd ed., trans. G. W. Bromiley (New York: T&T Clark International, 2004), 241, Logos Bible Software 4 (DVD), Barth writes that the image of God “was lost in Adam but restored in Christ.” In Kenneth S. Kantzer, “Revelation and Inspiration of Neo-Orthodox Theology Part III: Contemporary Thinking About Revelation,” *Bibliotheca Sacra* 115 (1958): 303, Kantzer describes Martin Luther, contra John Calvin, teaching that the image of God was completely lost in the fall. In Charles Lee Feinberg, “The Image of God,” *Bibliotheca Sacra* 129 (1972): 245, Feinberg suggests that Lutherans tend to follow Luther in this understanding.

¹⁴Ronald T. Habermas, “Practical Dimensions of *Imago Dei*,” *Christian Education Journal* 13, no. 2 (1993): 85.

¹⁵Gentry and Wellum, *Kingdom through Covenant*, 203, 304.

covenant:¹⁶ “Whoever sheds man’s blood, by man his blood shall be shed, for in the image of God He made man” (Gen 9:6). In the New Testament, James recognizes the continued bearing of God’s image and laments the paradoxical use of the tongue to bless God and curse God’s image: “But no one can tame the tongue; it is a restless evil and full of deadly poison. With it we bless our Lord and Father, and with it we curse men, who have been made in the likeness of God; from the same mouth come both blessing and cursing. My brethren, these things ought not to be this way” (Jas 3:8-10).

Redemption

Although the image was not lost, the marring of the image in the fall brought the need for redemption of the image-bearer effected by the Creator (Rom 3:22-24; 6:23; Eph 2:8-9). Each of the effects of the *imago Dei* introduced in the creation section are involved—teleology, substance, relationality, and function.

Teleology. The teleology of humanity is described in answer to the first question of the Westminster catechism: “Man’s chief and highest end is to glorify God, and fully to enjoy him forever.” Because of sin, humans are incapable of living out their purpose; their relationship with God has been affected by spiritual separation, guilt and shame, as well as a loss of fellowship.¹⁷ The solution to the problems caused by sin is restoration through redemption rather than reformation of the human condition.

This restoration must be effected by a gracious God.¹⁸ Paul writes to Titus

¹⁶Ibid., 175, 203, 304.

¹⁷Geisler, *Systematic Theology*, 126-27.

¹⁸Ibid., 150.

about this need for grace:

But when the kindness of God our Savior and His love for mankind appeared, He saved us, not on the basis of deeds which we have done in righteousness, but according to His mercy, by the washing of regeneration and renewing by the Holy Spirit, whom He poured out upon us richly through Jesus Christ our Savior, so that being justified by His grace we would be made heirs according to the hope of eternal life. (Titus 3:4-7)

Paul also writes to the church in Ephesus on the same theme and connects the need for grace to the purposes God has for humanity:

For by grace you have been saved through faith; and that not of yourselves, it is the gift of God; not as a result of works, so that no one may boast. For we are His workmanship, created in Christ Jesus for good works, which God prepared beforehand so that we would walk in them. (Eph 2:8-10)

In order to attain the designed purpose, the Christian life involves the process of sanctification. Sanctification is described as being made into the righteousness of Christ, which is credited to the person at regeneration, that is, being “brought into conformity of one’s legal status with God.”¹⁹ In God’s work of sanctification, he restores the person to wholeness, which some relate to the Hebrew concept of peace—*shalom*.²⁰ That peace is experienced in the context of relationships between the person and God, self, others, and the rest of natural creation.²¹ Peace, or wholeness, involves changes that occur in cognition, affection, and behavior.²² These three domains will be connected to social psychology generally and to the social psychological theory of cognitive

¹⁹Millard J. Erickson, *Christian Theology*, 2nd ed. (Grand Rapids: Baker Book House, 1998), 980.

²⁰Marion Snapper, “Motivation for Learning Faith-Knowledge,” in *Christian Approaches to Learning Theory: A Symposium*, ed. Norman De Jong (Lanham, MD: University Press of America, 1984), 155.

²¹Nicholas Wolterstorff, *Reason Within the Bounds of Religion*, 2nd ed. (Grand Rapids: William B. Eerdmans Publishing Company, 1984), 113-14.

²²Les L. Steele, *On the Way: A Practical Theology for Christian Formation* (Grand Rapids:

dissonance specifically in later sections.

Substance. In the substantial effects of the *imago Dei*, rationality has become flawed in the fall and is being corrected in the redemption. The retained ability to reason allows a person to decide, to observe, and to learn. However, reason alone is suspect due to the impairment consequent in the fall; therefore, reason must be augmented by divine revelation in order to attain accurate comprehension of the created order.²³

Paul assumes the restoration of rationality connected to revelation as part of the sanctification process.²⁴ He urges the Christians in Rome, “[D]o not be conformed to this world, but be transformed by the renewing of your mind, so that you may prove what the will of God is, that which is good and acceptable and perfect” (Rom 12:2).

This realignment of cognition toward orthodoxy certainly applies to matters of salvation, but right thinking is also necessary in all aspects of life, including apprehension of any discipline of study. Harris demonstrates that Christian knowledge can affirm, supplement, and challenge disciplinary knowledge and suggests that disciplinary knowledge can affirm, supplement, and challenge Christian knowledge.²⁵ The synergy between revelatory insight and disciplinary expertise is key to the current research which attempts to augment observations from the discipline of social psychology with the special revelation found in Scripture.

Baker Book House, 1990), 102-04.

²³Robert A. Harris, *The Integration of Faith and Learning* (Eugene, OR: Cascade Books, 2004), 175.

²⁴Lee S. Bond, “Renewing the Mind: The Role of Cognition Language in Pauline Theology and Ethics,” *Tyndale Bulletin* 58, no. 2 (2007): 320, Logos Bible Software 4, DVD.

²⁵Harris, *Integration of Faith and Learning*, 236-38.

Relationality. Rationality is being restored and, because of the strain placed on all relationships in the fall, relationality, another effect of the *imago Dei*, is also being restored. One's relationship with God is closely tied to the relationship with humanity. Jesus connected the two by summarizing all of the commandments in what he described as the greatest two. When a lawyer asked about the first, Jesus responded with both:

One of them, a lawyer, asked [Jesus] a question, testing Him, "Teacher, which is the great commandment in the Law?" And He said to him, "'You shall love the Lord your God with all your heart, and with all your soul, and with all your mind.' This is the great and foremost commandment. The second is like it, 'You shall love your neighbor as yourself.' On these two commandments depend the whole Law and the Prophets." (Matt 22: 35-40)

As this love for God and God's image-bearer is expressed, relationships are also restored with God, self, others, and all of natural creation.²⁶ But, because of the marring of the *imago Dei*, this love is impossible. Paul identifies the solution God has provided in redemption by giving humanity his own love: "[T]he love of God has been poured out within our hearts through the Holy Spirit who was given to us" (Rom 5:5). The result of the indwelling Spirit is also identified by Paul as the fruit of the Spirit, which addresses both affect and behavior: "[T]he fruit of the Spirit is love, joy, peace, patience, kindness, goodness, faithfulness, gentleness, self-control; against such things there is no law" (Gal 5:22-23).

This God-given love for God and others strengthens community for which humans were created. Redemption of the person leads to service to others,²⁷ which Jesus described as being salt and light (Matt 5:13-16). The basic unit of community is the

²⁶Geisler, *Systematic Theology*, 127.

²⁷Bruce Demarest, *Seasons of the Soul: Stages of Spiritual Development* (Downers Grove, IL: InterVarsity Press, 2009), 141.

family. Before the fall, God established the family as he created Eve as a “helper suitable” for Adam and created the model for marriage (Gen 2:18-25). It is through the family that the teachings of the faith were to be passed on in Deuteronomy 6. It is through family relationships that God works to sanctify believers in Ephesians 5.²⁸

Relevant to the current research, Pazmiño describes a symbiotic relationship between community and learning. He explains that as the community informs the knowledge and faith in the transformation of the person, the person influences the community. Learning and community, therefore, cannot be separated.²⁹

Function. Just as the substantial and relational aspects of the *imago Dei* describe the need for redemption, so, too, does the functional view. The dominion commanded by God in Genesis 1:26-28 has been disrupted. In pronouncing the penalty for disobedience in the Garden of Eden, God told Adam that creation was going to resist human dominion: “Cursed is the ground because of you; in toil you will eat of it all the days of your life. Both thorns and thistles it shall grow for you; and you will eat the plants of the field; by the sweat of your face you will eat bread, till you return to the ground, because from it you were taken; for you are dust, and to dust you shall return” (Gen 3:17b-19). Instead of dominion by humans, since the fall, Satan has been allowed some rule over the natural world. Three times in the Gospel of John, Satan is called “the ruler of this world,” (John 12:31; 14:30; 16:11) and Paul calls him “the prince of the

²⁸E.g., David Lee Talley, “Gender and Sanctification: From Creation to Transformation, A Comparative Look At Genesis 1-3, the Creation and Fall of the Man and the Woman, and Ephesians 5, the Sanctification of the Man and the Woman in a Redemptive Marriage Context,” *Journal for Biblical Manhood and Womanhood* 8 (Spring 2003): 6-15.

²⁹Robert W. Pazmiño, *Foundational Issues in Christian Education: An Introduction in Evangelical Perspective*, 3rd ed. (Grand Rapids: Baker Academic, 2008), 181-82.

power of the air” (Eph 2:2).

With Christ’s advent, the dominion of the natural world is being restored. In each of the synoptic gospels, Jesus declares the presence of the kingdom of God or the kingdom of heaven (Matt 3:2; 4:17; 10:7; 12:28; Mark 1:15; 9:1; Luke 4:43; 8:1; 9:22, 27; 10:9, 11; 11:20; 17:21; 21:31). As with all that was lost in the fall, dominion is being restored but awaits full realization in the consummation. The desire for dominion has potential influence on the experimental conditions under which cognitive dissonance is researched and on the presuppositions from which conclusions from that research are made.

Consummation

While restoration begins in the process of sanctification, full restoration of the individual believer awaits the consummation at Christ’s second advent. In the consummation, the *imago Dei* will be perfected so that the effects of the *imago Dei*—teleology, substance, relationality, and function will be set right. The faithfulness and loyalty in love rejected by Adam and Eve in God’s covenant with creation will be restored so that it will be possible to keep the covenant in eternity.³⁰

Teleology. For believers the transformation of the teleological effect of the *imago Dei* occurs through resurrection for those who have died and through translation for those who remain alive until Christ’s return. Paul explains:

Now I say this, brethren, that flesh and blood cannot inherit the kingdom of God; nor does the perishable inherit the imperishable. Behold, I tell you a mystery; we will not all sleep, but we will all be changed, in a moment, in the twinkling of an

³⁰Gentry and Wellum, *Kingdom through Covenant*, 139, 141.

eye, at the last trumpet; for the trumpet will sound, and the dead will be raised imperishable, and we will be changed. For this perishable must put on the imperishable, and this mortal must put on immortality (1 Cor 15:50-53).

Earlier in the same letter, Paul emphasizes the centrality of the resurrection to the Christian faith:

Now if Christ is preached, that He has been raised from the dead, how do some among you say that there is no resurrection of the dead? But if there is no resurrection of the dead, not even Christ has been raised; and if Christ has not been raised, then our preaching is vain, your faith also is vain. Moreover we are even found to be false witnesses of God, because we testified against God that He raised Christ, whom He did not raise, if in fact the dead are not raised. For if the dead are not raised, not even Christ has been raised; and if Christ has not been raised, your faith is worthless; you are still in your sins. Then those also who have fallen asleep in Christ have perished. If we have hoped in Christ in this life only, we are of all men most to be pitied. (1 Cor 15:12-19)

The author of Hebrews mentions the resurrection as one of the elementary teachings of Christianity (Heb 6:1-2). Jesus also teaches the truth of resurrection, calling himself “the resurrection and the life” (John 11:25-26). Paul explains that Jesus is the first fruit of the resurrection (1 Cor 15:20), and through Jesus, believers will be resurrected to eternal life (1 Cor 15:22-23).

Jesus gives John a glimpse of the new heaven and new earth wherein all things are made right and God dwells with his people forever (Rev 21-22). Paul writes to the Romans about the anticipation of the time when all of the effects of the fall will be corrected:

For the anxious longing of the creation waits eagerly for the revealing of the sons of God. For the creation was subjected to futility, not willingly, but because of Him who subjected it, in hope that the creation itself also will be set free from its slavery to corruption into the freedom of the glory of the children of God. For we know that the whole creation groans and suffers the pains of childbirth together until now. And not only this, but also we ourselves, having the first fruits of the Spirit, even we ourselves groan within ourselves, waiting eagerly for our adoption as sons, the redemption of our body. (Rom 8:19-23)

At the consummation, Jesus will be seen in his perfection as the image-bearer

of God³¹ and believers will be like him.³²

Substance. Rationality, the substantial effect of the *imago Dei*, will be corrected beginning with the most important element of knowledge—God.³³ In Jesus’ prayer for his followers, the Son tells the Father, “This is eternal life, that they may know You, the only true God, and Jesus Christ whom You have sent” (John 17:3). Ezekiel prophesies about the new covenant between God and God’s people that results in eternal life;³⁴ Jeremiah anticipates the fulfillment of the new covenant as intimate knowledge of God by his people.³⁵

Paul prays that the church at Ephesus may be given “a spirit of wisdom and of revelation in the knowledge of him” (Eph 1:17). Elsewhere, Paul describes the process

³¹In 2 Cor 4:4, Paul describes Jesus as “the image of God,” and in Col 1:15, Paul describes Jesus as “the image of the invisible God.” While not using the term “image of God,” the author of Hebrews describes the meaning of the phrase in speaking about Jesus: “He is the radiance of [God’s] glory and the exact representation of [God’s] nature” (Heb 1:3).

³²In discussing God’s elect people, Paul writes that they are “predestined to become conformed to the image of His Son” (Rom 8:29). In comparing what was lost in Adam, “the earthy,” and regained in Christ, “the heavenly,” Paul writes, “Just as we have borne the image of the earthy, we will also bear the image of the heavenly” (1 Cor 15:49). In writing about the promise of Christ’s return, John promises, “We know that when He appears, we will be like Him, because we will see Him just as He is” (1 John 3:2).

³³The writer of Proverbs connects wisdom and knowledge to the fear of the Lord. For example, he writes, “The fear of the Lord is the beginning of knowledge; fools despise wisdom and instruction” (Prov 1:7). Elsewhere, he writes, “The fear of the Lord is the beginning of wisdom, and the knowledge of the Holy One is understanding” (Prov 9:10). The psalmist agrees when he writes, “The fear of the Lord is the beginning of wisdom; a good understanding have all those who do His commandments; His praise endures forever” (Ps 111:10).

³⁴“I will give you a new heart and put a new spirit within you; and I will remove the heart of stone from your flesh and give you a heart of flesh. I will put My Spirit within you and cause you to walk in My statutes, and you will be careful to observe My ordinances” (Ezek 36:26-27).

³⁵“But this is the covenant which I will make with the house of Israel after those days,’ declares the Lord, ‘I will put My law within them and on their heart I will write it; and I will be their God, and they shall be My people. They will not teach again, each man his neighbor and each man his brother, saying, “Know the Lord,” for they will all know Me, from the least of them to the greatest of them,’ declares the Lord, ‘for I will forgive their iniquity, and their sin I will remember no more’” (Jer 31:33-34)

that culminates in corrected rationality.³⁶ He anticipates the completion of the work in believers at the consummation so that rationality is restored: “For we know in part and we prophesy in part; but when the perfect comes, the partial will be done away. When I was a child, I used to speak like a child, think like a child, reason like a child; when I became a man, I did away with childish things. For now we see in a mirror dimly, but then face to face; now I know in part, but then I will know fully just as I also have been fully known” (1 Cor 13:9-12). In John’s vision of the consummation, he reports the intimacy between God and his people: “There will no longer be any curse; and the throne of God and of the Lamb will be in it, and His bond-servants will serve Him; they will see His face, and His name will be on their foreheads” (Rev 22:3-4).

Relationality. Relationality, an effect of the *imago Dei* that was strained in the fall, will also be perfected in the consummation. Rather than being at enmity with God, believers will live as God’s children. John records God’s promise: “He who overcomes will inherit these things, and I will be his God and he will be My son” (Rev 21:7). Believers will also be servants of God. Again, John records, ““There will no longer be any curse; and the throne of God and of the Lamb will be in it, and His bond-servants will serve Him; they will see His face, and His name will be on their foreheads” (Rev

³⁶For example, to the church at Rome, Paul describes the restoration of rationality: “Therefore I urge you, brethren, by the mercies of God, to present your bodies a living and holy sacrifice, acceptable to God, which is your spiritual service of worship. And do not be conformed to this world, but be transformed by the renewing of your mind, so that you may prove what the will of God is, that which is good and acceptable and perfect” (Rom 12:1-2). Paul describes the process of correction to the church at Ephesus: “But you did not learn Christ in this way, if indeed you have heard Him and have been taught in Him, just as truth is in Jesus, that, in reference to your former manner of life, you lay aside the old self, which is being corrupted in accordance with the lusts of deceit, and that you be renewed in the spirit of your mind, and put on the new self, which in the likeness of God has been created in righteousness and holiness of the truth” (Eph 4:20-24). More concisely, Paul writes to the church at Colossae: “Do not lie to one another, since you laid aside the old self with its evil practices, and have put on the new self who is being renewed to a true knowledge according to the image of the One who created him” (Col 3:9-10).

22:3-4).

Rightly related to God, people will also be rightly related to each other.

Relationships will be perfected so that even marriage, the most intimate relationship among people before the consummation, will no longer be necessary. When asked about marriage in the resurrection, Jesus taught,

The sons of this age marry and are given in marriage, but those who are considered worthy to attain to that age and the resurrection from the dead, neither marry nor are given in marriage; for they cannot even die anymore, because they are like angels, and are sons of God, being sons of the resurrection. (Luke 20:34-36)

In the new creation, John reports another promise of God that includes elimination of suffering:

And I heard a loud voice from the throne, saying, "Behold, the tabernacle of God is among men, and He will dwell among them, and they shall be His people, and God Himself will be among them, and He will wipe away every tear from their eyes; and there will no longer be any death; there will no longer be any mourning, or crying, or pain; the first things have passed away." (Rev 21:3-4)

Function. Dominion, a functional effect of the *imago Dei* that was disrupted in the fall, will also be corrected. The image-bearer will finally function in the servant kingship role intended by God. Peter anticipates God's eternal kingdom (2 Pet 1:10-11). Believers will be admitted to God's kingdom. Jesus teaches,

But when the Son of Man comes in His glory, and all the angels with Him, then He will sit on His glorious throne. All the nations will be gathered before Him; and He will separate them from one another, as the shepherd separates the sheep from the goats; and He will put the sheep on His right, and the goats on the left. Then the King will say to those on His right, 'Come, you who are blessed of My Father, inherit the kingdom prepared for you from the foundation of the world.' (Matt 25:31-34)

Not only will believers be in the kingdom, in some way they will be the kingdom. John writes,

John to the seven churches that are in Asia: Grace to you and peace, from Him who

is and who was and who is to come, and from the seven Spirits who are before His throne, and from Jesus Christ, the faithful witness, the firstborn of the dead, and the ruler of the kings of the earth. To Him who loves us and released us from our sins by His blood—and He has made us to be a kingdom, priests to His God and Father—to Him be the glory and the dominion forever and ever. Amen. (Rev 1:4-6)

In the eternal kingdom, humans will again be put in dominion over the earth.³⁷

Again John reports, “You have made them to be a kingdom and priests to our God; and they will reign upon the earth” (Rev 5:10). The human relationship with the created order will be perfected.

Wisdom

The *imago Dei* has effects that are teleological, substantial, relational, and functional. The combined effect relates to biblical wisdom, defined as “that orientation which allows one to live in harmonious accord with God’s ordering of the world.”³⁸

Gentry and Wellum connect the relationship between God and his image-bearers to creation: “The biblical story begins with the fact that there is only one God. He has created everything and especially made humankind to rule under him. In this context, God is the center of the universe and we humans find our purpose in having a right relationship to God and to one another.”³⁹

Zuck extends this connection with creation in a description of biblical wisdom, which he says involves “man’s search for order (or regularity and purpose) in the natural realm and in human experience. Successfully coping with reality (i.e., being wise)

³⁷In Luke 1:33 and Rev 11:15, Jesus Christ is anticipated to reign forever. In 2 Tim 2:12, believers who endure to the end are promised to reign with Christ. In Rev 20:6, believers will reign in the millennium and in Rev 22:5, they will reign forever. Rev 5:10 makes clear that this reign will be on the earth.

³⁸*The ESV Study Bible* (Wheaton, IL: Crossway Bibles, 2008), 866.

³⁹Gentry and Wellum, *Kingdom through Covenant*, 139.

involves (1) seeing the design God has put into the created realm and (2) living in accord with that design.”⁴⁰

Old Testament wisdom. Wisdom is expressed in cognitive, affective, and behavioral domains and when expressed rightly they are orthodoxy—propositional wisdom, orthopathy—dispositional wisdom, and orthopraxy—enacted wisdom, respectively. All three are connected in Deuteronomy 6, which contains God’s practical instructions for Israel on their entrance into their inherited land. The first two sections succinctly demonstrate the connection. Moses writes, “Now this is the commandment, the statutes and the judgments which the Lord your God has commanded me to teach you, that you might do them in the land where you are going over to possess it, so that you and your son and your grandson might fear the Lord your God, to keep all His statutes and His commandments which I command you, all the days of your life, and that your days may be prolonged” (Deut 6:1-2). The teaching is orthodoxy; fear of the Lord is orthopathy; and keeping statutes and commandments is orthopraxy.

The three are again the focus of the next section. Moses announces orthodoxy: “Hear, O Israel! The Lord is our God, the Lord is one!” (Deut 6:4). He follows with orthopathy: “You shall love the Lord your God with all your heart and with all your soul and with all your might. These words, which I am commanding you today, shall be on your heart” (Deut 6:4-6). Then, Moses describes orthopraxy—teaching the next generations: “You shall teach them diligently to your sons and shall talk of them when you sit in your house and when you walk by the way and when you lie down and when

⁴⁰Roy B. Zuck, ed. *A Biblical Theology of the New Testament* (Chicago: Moody Press, 1994), 217.

you rise up. You shall bind them as a sign on your hand and they shall be as frontals on your forehead. You shall write them on the doorposts of your house and on your gates” (Deut 6:7-9). The remainder of Deuteronomy 6 expands on this wisdom.

Biblical wisdom is practical knowledge of applied truth.⁴¹ In the Old Testament, “wisdom was intensely practical, resulted in successful living, and applied to the heart.”⁴² Gentry and Wellum demonstrate the interrelatedness of cognitive and affective domains in a discussion of loving God from the passage in Deuteronomy. In this passage they see feelings, reasoning, and will as inseparable expressions of the Hebrew concept of heart. They summarize, “In Hebrew, the word ‘heart’ refers to the core of who you are, the center of each person. It refers, in particular, to the place where we feel, where we think, and where we make decisions and plans. . . . The heart is the center of one’s being and the place where emotions, mind, and will operate in harmony and union.”⁴³ This harmonious expression is relevant to the present research in that cognitive dissonance is aroused when disharmony arises in this expression.

New Testament wisdom. In the New Testament, “wisdom is centered in Jesus Christ.”⁴⁴ Paul describes Christ as “the power of God and the wisdom of God” (1 Cor 1:24). James differentiates sources of wisdom as God and the world. Wisdom from God results in living rightly in the world; wisdom from the world results in living at enmity with God and the world (Jas 3:13-17).

⁴¹David Powlison, *Seeing with New Eyes: Counseling and the Human Condition through the Lens of Scripture* (Phillipsburg, NJ: P&R Publishing, 2003), 4.

⁴²Pazmiño, *Foundational Issues in Christian Education*, 32.

⁴³Gentry and Wellum, *Kingdom through Covenant*, 368-69.

Wisdom requires grace for a full understanding.⁴⁵ While all image-bearers have a measure of cognitive, affective, and behavioral capacities, wise use of these abilities is only fully realized within the purview of their divine purpose.

Suffering. Closely related to wisdom in Scripture is the concept of suffering. Suffering began at the fall and will be eliminated in the consummation; therefore, in the biblical metanarrative, suffering is both unique to and employed in redemption.

James tells his readers that trials lead to wisdom and, therefore, should be accepted with joy: “Consider it all joy, my brethren, when you encounter various trials, knowing that the testing of your faith produces endurance. And let endurance have its perfect result, so that you may be perfect and complete, lacking in nothing. But if any of you lacks wisdom, let him ask of God, who gives to all generously and without reproach, and it will be given to him” (Jas 1:2-5).

James is considered by some to be New Testament wisdom literature connected in style to the Hebrew wisdom literature of the Old Testament.⁴⁶ In the Old Testament wisdom literature, suffering is also described as purposeful. In Job, Eliphaz connects suffering with divine discipline: “Behold, how happy is the man whom God reproves, so do not despise the discipline of the Almighty” (Job 5:17). Suffering, then, can be God-ordained pedagogy,⁴⁷ and may be one of the primary means God uses in the

⁴⁴Demarest, *Seasons of the Soul*, 137.

⁴⁵Pazmiño, *Foundational Issues in Christian Education*, 33.

⁴⁶Ralph P. Martin, *James*, Word Biblical Commentary, vol. 48 (Dallas: Word Books, 1988), lxxxix, Logos Bible Software 4, DVD.

⁴⁷David J. A. Clines, *Job 1-20*, Word Biblical Commentary, vol. 17 (Dallas: Word Books, 1989), 148, Logos Bible Software 4, DVD.

redemption of believers.⁴⁸

Even if one successfully argues that suffering is not ordained by God, suffering is, at the least, used by God for his sanctifying purpose. Paul writes, “[W]e know that God causes all things to work together for good to those who love God, to those who are called according to His purpose” (Rom 8:28). Elsewhere Paul describes at length his theology of suffering:⁴⁹

Blessed be the God and Father of our Lord Jesus Christ, the Father of mercies and God of all comfort, who comforts us in all our affliction so that we will be able to comfort those who are in any affliction with the comfort with which we ourselves are comforted by God. For just as the sufferings of Christ are ours in abundance, so also our comfort is abundant through Christ. But if we are afflicted, it is for your comfort and salvation; or if we are comforted, it is for your comfort, which is effective in the patient enduring of the same sufferings which we also suffer; and our hope for you is firmly grounded, knowing that as you are sharers of our sufferings, so also you are sharers of our comfort. For we do not want you to be unaware, brethren, of our affliction which came to us in Asia, that we were burdened excessively, beyond our strength, so that we despaired even of life; indeed, we had the sentence of death within ourselves so that we would not trust in ourselves, but in God who raises the dead; who delivered us from so great a peril of death, and will deliver us, He on whom we have set our hope. And He will yet deliver us, you also joining in helping us through your prayers, so that thanks may be given by many persons on our behalf for the favor bestowed on us through the prayers of many. (2 Cor 1:3-11)

Harris finds five principles related to suffering in this passage: (1) appreciation for God’s character, especially his compassion and comfort, (2) trust in God, (3) identification with Christ’s suffering, (4) experience of God’s comfort that allows comforting others, and (5) the temporal limitation of suffering.⁵⁰

⁴⁸Demarest, *Seasons of the Soul*, 113.

⁴⁹Murray J. Harris, *The Second Epistle to the Corinthians: A Commentary on the Greek Text*, The New International Greek Testament Commentary (Grand Rapids: William B. Eerdmans, 2005), 123, Logos Bible Software 4, DVD.

⁵⁰*Ibid.*

Relevance of wisdom. Wisdom allows right living in the created order and wisdom seems to be central to Festinger’s theory of cognitive dissonance. In addition, wisdom is related to the present research as conclusions are drawn from presuppositions. As finite creatures, humans are incapable of completely understanding the created order. “In spite of observed harmony in the universe, much remains unpredictable and incomprehensible.” At the same time, though, humanity is “challenged to revere, love, obey, and trust the Lord, who in His sovereignty works all things according to His purposes.”⁵¹ The present research begins with a biblical-theological presupposition in order to draw conclusions from researched observations that might align more closely with God’s purposes inferred from God’s self-revelation in Scripture.

Naturalistic Presupposition of Social Psychology

In contrast to the biblical-theological foundation of anthropology presented, social psychology begins with a naturalistic foundation. While Scripture claims, “In the beginning, God . . .” (Gen 1:1), naturalistic thought claims, “In the beginning, matter. . . .” In a recent social psychology textbook, one author explicitly states the naturalistic position of the discipline that allows for separation of naturalistic conclusions from accurate observations:

Evolutionary psychology isn’t a theory, model, or hypothesis. Rather, evolutionary psychology is a set of metatheoretical assumptions that govern how scientists approach conceptual and empirical inquiry into psychological phenomena. These assumptions (e.g., that cognition is the product of an underlying physiology, and that human physiology has been shaped by a long history of biological selection pressures) are scientifically noncontroversial, and are based on a vast empirical database within the biological sciences more broadly. When applied to the conceptual landscape of social psychology, these assumptions focus scientific

⁵¹Zuck, *A Biblical Theology of the New Testament*, 217, 219.

inquiry on specific kinds of research questions and generate specific kinds of answers to those questions. These assumptions also provide a set of logical tools that, when applied rigorously, can be used to deduce specific theories, models, and hypotheses about social psychological phenomena. It is these theories, models, and hypotheses (not the metatheory of evolutionary psychology) that offer specific predictions for social psychological phenomena, and that are directly tested by empirical evidence.⁵²

Similar to Scripture's holistic view of the *imago Dei*, social psychology recognizes ontological effects in the cognitive, affective, and behavioral domains of humanity. So, too, do both groups recognize an immaterial aspect to humans. In a literature base totaling more than five thousand publications, phenomena related to "self" have been examined across several disciplines. These disciplines trace their heritage of examination of the self to the ancient Greeks, who used the term "soul." The change in terms from "soul" to "self" is deemed important to the social psychologists "because, with the rise of Christianity, the concept of soul became the domain of theology."⁵³

Both theological and non-theological writers, then, attach value to the immaterial soul/self. From a theological view, the soul represents the whole being of the *imago Dei*; from a non-theological view, the self is the focus of much of the research on cognitive dissonance. The differences between views on anthropology derive from the differences between their beginning points of God and "not-God."

Wisdom

These differing presuppositional positions and resultant differing

⁵²Steven L. Neuberg, Douglas T. Kenrick, and Mark Schaller, "Evolutionary Social Psychology," in *Handbook of Social Psychology*, 5th ed., ed. Susan T. Fiske, Daniel T. Gilbert, and Gardner Lindzey (Hoboken, NJ: Wiley, 2010), 761-62.

⁵³Jerry M. Suls, Abraham Tesser, and Richard B. Felson, "Introduction," in *Psychological Perspectives on Self and Identity*, ed. Abraham Tesser, Richard B. Felson, and Jerry M. Suls (Washington, DC: American Psychological Association, 2000), 3, 6

anthropological assumptions correspond to application of differing wisdom—God-given wisdom, in the case of the theological, and world-derived wisdom, in the case of the non-theological approach. Differences, then, arise in the effects of the *imago Dei* identified as teleology, substance, relationality, and function.

Teleology

From a scriptural viewpoint, teleology is derived from God; in social psychology, teleology is derived from the motivation of the evolved self. Motivation is manifested cognitively, affectively, and behaviorally.⁵⁴ It is proposed that natural selection has evolved these interrelated, but distinct, mechanisms to allow adaptation of the organism to the environment.⁵⁵ Together, cognitive, affective, and behavioral domains interact with external events in the environment to establish and transform personhood.⁵⁶

Substance

Social psychologists agree that rationality is substantive to humans, setting humanity apart from other creatures. Social psychologists also understand the necessity for rationality to require both consistency between elements of knowledge and coherence of knowledge into a unified whole that reflects reality. Consistency theorists suggest two means by which subjective rationality may diverge from objective rationality. The first

⁵⁴John A. Bargh, Peter M. Gollwitzer, and Gabrielle Oettingen, "Motivation," in *Handbook of Social Psychology*, 5th ed., ed. Susan T. Fiske, Daniel T. Gilbert, and Gardner Lindzey (Hoboken, NJ: Wiley, 2010), 268.

⁵⁵Neuberg, Kenrick, and Schaller, "Evolutionary Social Psychology," 763.

⁵⁶Albert Bandura, *Social Foundations of Thought and Action: A Social Cognitive Theory* (Upper Saddle River, NJ: Prentice Hall, 1986), 18-21.

departure is logic applied to a distorted perception of reality; the second is illogic applied to objective reality.⁵⁷ In both of these cases, sincere misbelief is maladaptive and must be corrected.

Although the predominant position of naturalistic thought is that accurate knowledge must be connected to objective reality, with a naturalistic presupposition, one pair of researchers suggests an evolutionary means for what they term “adaptive misbelief.” These writers admit that evolution is not a perfect designer and propose a group of errors in rationality that, while not adaptive, are helpful to the organism. One class of these “tolerable” misbeliefs that have evolved are religious beliefs.⁵⁸

Relationality

While naturalistic social psychologists classify religious beliefs as misbeliefs, they understand that relationships are important. However, rather than intrapersonal and interpersonal relationships being an extension of the relationship with the divine, the ultimate purpose they see for relationality is the “inclusive fitness” of the self. The evolved need for this fitness occurs in five concentric domains centered on self-protection and extending to the culture.⁵⁹

Selfhood, which distinguishes humans from other creatures, is seen by some as deriving from “the human capacity to make ourselves happy and miserable, both directly and through our activities in the complex social world.” The same researcher summarizes

⁵⁷Robert P. Abelson, “Psychological Implication,” in *Theories of Cognitive Consistency: A Sourcebook*, ed. Robert P. Abelson et al. (Chicago: Rand McNally, 1968), 112.

⁵⁸Ryan T. McKay and Daniel C. Dennett, “The Evolution of Misbelief,” *Behavioral and Brain Sciences* 32 (2009): 509, 551.

⁵⁹Larry C. Bernard et al., “An Evolutionary Theory of Human Motivation,” *Genetic, Social,*

his observations about the executive function of the self, but is unable to make any conclusion: “The control over action that the self exerts plays a central role in shaping the uniqueness of human experience. If psychology can understand how the executive function accomplishes control over action, that understanding will shed light on one of the defining aspects of the human condition.”⁶⁰

Function

Naturalistic social psychologists not only misconstrue rationality and relationality, their naturalistic foundation also impacts learning about the domain over which humanity was designed for dominion. For example, in a report of research that used cognitive dissonance to attempt to teach evolution to college students, a pair of science teachers laments the fact that despite clearly presenting the “certain settled principle” of evolution and common descent as “the backbone, the beautiful and efficient explanation for why organisms today are different from organisms in the past and why there is such an amazing diversity of fascinating biological organisms with awe inspiring lifestyles and body plans,” many of their students reject the notion in favor of creationism. The problem, according to these teachers, is that students who do not adopt an evolutionary position do poorly in work that expects naturalistic answers. An example they give is a semester of zoology taught “in an evolutionary context becomes irrelevant and incorrect” for those students who reject the naturalistic premise.⁶¹ While the teachers

and General Psychology Monographs 131, no. 2 (2005): 129-30.

⁶⁰Roy F. Baumeister, “Ego Depletion and the Self’s Executive Function,” in *Psychological Perspectives on Self and Identity*, ed. Abraham Tesser, Richard B. Felson, and Jerry M. Suls (Washington, DC: American Psychological Association, 2000), 29.

⁶¹Eric C. Lovely and Linda C. Kondrick, “Teaching Evolution: Challenging Religious Preconceptions,” *Integrative and Comparative Biology* 48, no. 2 (2008): 164-65.

attempt to observe the natural domain, their naturalistic foundation affects their conclusions.

Anthropological Conclusions

Social psychology intersects Scripture at a number of points in the discussion of the human. These intersections are at the observational level. The major points of disagreement are found in the conclusions drawn from observations made. The source of wisdom impacts the conclusions by changing the foundational assumptions.

In the current research, the foundational assumptions are God and “not-God.” From these beginning points, the validity of conclusions must include consistency and coherence. Since naturalistic social psychology attempts to be consistent with and cohere to its presupposition of a naturalistic foundation, the conclusions drawn are subject to reinterpretation from a biblical-theological foundation.

Having built that biblical-theological foundation of anthropology and compared it to the naturalistic alternative, the next sections will examine the observations made throughout the history of cognitive dissonance research and reinterpret the conclusions consistent with and cohering to a biblical-theological model.

Rodd argues against the application of social science to Scripture, considering the product to be fruitless, at best.⁶² His caution was taken seriously throughout the current research. However, instead of applying social science to Scripture, evidences found in the observations of social psychology were used only to examine Scripture. Then, the findings from Scripture were applied back to social psychology for the purpose

⁶²Cyril S. Rodd, “On Applying a Sociological Theory to Biblical Studies,” *Journal for the Study of the Old Testament* 19 (1981): 104.

of improving the conclusions drawn from their own observations.

Cognitive Dissonance Theory

Social psychology, a formal discipline since the 1930s, was shaped early by two key researchers, Kurt Lewin and Leon Festinger.⁶³ Lewin proposes a theory-based, experimental design for the discipline; Festinger, who studied under Lewin, justifies that design in his research on cognitive dissonance.⁶⁴

Festinger's cognitive dissonance research follows Lewin not only in experimental design, but also in expansion of Lewin's field theory of interpersonal relations. Lewin predicts psychological behavior based on subconscious tensions established by the relationship between a person and the immediate physical, social, and mental environments.⁶⁵ Festinger supplements the fact of tension in Lewin's basic theory with the innate desire for cognitive consistency found in research tracing back to Charles Peirce.⁶⁶ Festinger also nuances his theory with motivation research from behaviorists Clark Hull and Kenneth Spence.⁶⁷

⁶³Lee Ross, Mark Lepper, and Andrew Ward, "History of Social Psychology: Insights, Challenges, and Contributions to Theory and Application," in *Handbook of Social Psychology*, 5th ed., ed. Susan T. Fiske, Daniel T. Gilbert, and Gardner Lindzey (Hoboken, NJ: Wiley, 2010), 3.

⁶⁴Edward E. Jones, "Major Developments in Social Psychology During the Past Five Decades," in *Handbook of Social Psychology*, 3rd ed., vol. 1, ed. Gardner Lindzey and Elliot Aronson (New York: Random House, 1985), 69-71.

⁶⁵Kurt Lewin, *A Dynamic Theory of Personality: Selected Papers*, trans. Donald K. Adams and Karl E. Zener (New York: McGraw-Hill, 1935), Kindle Electronic ed., 1187.

⁶⁶Charles S. Peirce, "The Fixation of Belief," *Popular Science Monthly* 12 (November 1877): 1-15.

⁶⁷Clark L. Hull, *Principles of Behavior* (New York: Appleton-Century-Crofts, 1943); Kenneth W. Spence, *Behavior Theory and Conditioning* (New Haven, CT: Yale University Press, 1956).

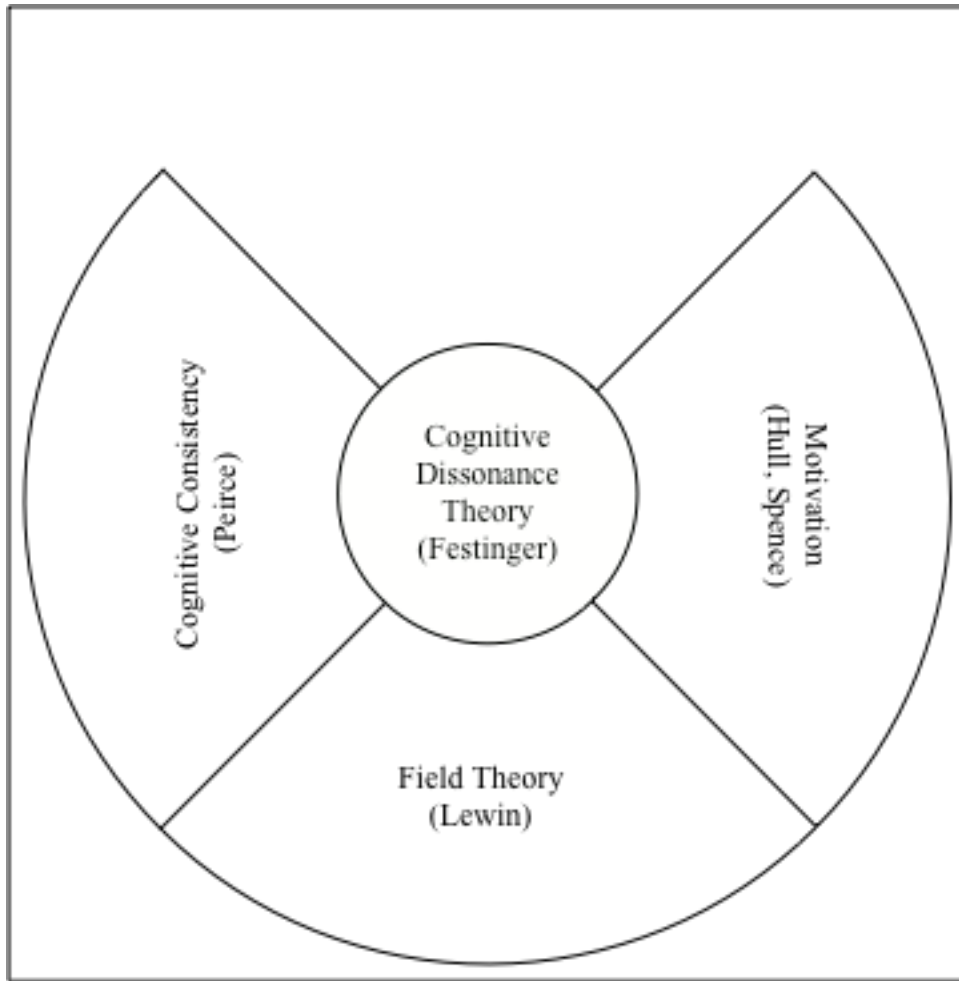


Figure 1. Influence from psychology on Festinger's Cognitive Dissonance Theory

Figure 1 pictures the triadic influence of field theory, cognitive consistency, and motivation on Cognitive Dissonance Theory. All three were researched in the 1950s and 1960s. Field theory came out of a Gestalt tradition; motivation research came out of a behaviorist tradition; but it was cognitive research that came to dominate social psychology.⁶⁸ Festinger was able to bring the three together in his theory, which accounts

⁶⁸Hazel Markus and R. B. Zajonc, "The Cognitive Perspective in Social Psychology," in *Handbook of Social Psychology*, 3rd ed., vol. 1, ed. Gardner Lindzey and Elliot Aronson (New York: Random House, 1985), 137.

for cognition, affect, and behavior.⁶⁹

In a later section, the missing piece to the circle will be added and the whole picture applied to learning theory. First, Festinger's original theory will be explored. Then, cognitive dissonance will be examined in context within the broader scope of cognitive consistency and motivation theories. Finally, cognitive dissonance research that supports the innateness of the drive described by Festinger's theory will be introduced.

Festinger's Original Theory

One of Festinger's preliminary works was a theory of social comparison processes⁷⁰ that expands Lewin's field theory.⁷¹ Festinger and colleagues note non-intuitive responses in certain social environments and propose a theory to explain one particular phenomenon described as "increased fervor following the disconfirmation of a belief."⁷² They establish five conditions under which they would predict behaviors, such as increased proselytizing, following events that disconfirm a strongly held belief. The five conditions they theorize are as follows:⁷³

1. "There must be conviction."
2. "There must be commitment to this conviction."
3. "The conviction must be amenable to unequivocal disconfirmation."

⁶⁹Joel Cooper, *Cognitive Dissonance: Fifty Years of a Classic Theory* (Los Angeles: Sage, 2007), 26.

⁷⁰Leon Festinger, "A Theory of Social Comparison Processes," *Human Relations* 7 (1954): 117-40.

⁷¹Jones, "Major Developments in Social Psychology," 68-69.

⁷²Leon Festinger, Henry W. Riecken, and Stanley Schachter, *When Prophecy Fails* (New York: Harper & Row, 1956), 3.

⁷³*Ibid.*, 216.

4. “Such unequivocal disconfirmation must occur.”
5. “Social support must be available subsequent to the disconfirmation.”

While the researchers find evidence in a number of historical events, the primary example they cite is the biblical account of increased proselytizing in the beginning of Christianity after the crucifixion of Jesus, evidence which the researchers assume disconfirms the messianic beliefs of Jesus’ followers.⁷⁴ However, Festinger’s interpretation is dependent upon a minority opinion that the suffering of Jesus was unanticipated. If, as the biblical record indicates, Jesus taught his disciples that he must suffer, then the researchers admit that the theorized condition of unequivocal disconfirmation was not met and, therefore, their theory does not explain the spread of Christianity.⁷⁵

Since historical records provide little evidence for disproof of a belief, the researchers found a real-time situation with one group that publicized a specific prediction of the end of the world. The researchers were able to insert confederates into the group to document behaviors before and after the disconfirmation of the prophecy. The research strongly supports the first four of their theorized conditions—conviction, commitment, the possibility for disconfirmation, and unequivocal disconfirmation—and tends toward support for the fifth—social support after disconfirmation.⁷⁶ With these findings, Festinger formalizes a theory of cognitive dissonance, which one leading social psychologist claims was “the most important development in social psychology to

⁷⁴Ibid., 23-24.

⁷⁵Ibid., 24.

⁷⁶Ibid.

date.”⁷⁷

The language of Cognitive Dissonance Theory. One year after publishing research on the failed prophecy group, Festinger published *A Theory of Cognitive Dissonance*, which details his eloquent theory.⁷⁸ The core of the theory is summarized by Festinger in three statements:⁷⁹

1. “There may exist dissonant or ‘nonfitting’ relations among cognitive elements.”
2. “The existence of dissonance gives rise to pressures to reduce the dissonance and to avoid increases in dissonance.”
3. “Manifestations of the operation of these pressures include behavior changes, changes of cognition, and circumspect exposure to new information and new opinions.”

Festinger connects his social-psychological theory to field theory, cognitive consistency theory, and motivational theory. A cognition, in Festinger’s terminology, is “any knowledge, opinion, or belief about the environment, about oneself, or about one’s behavior.” Using language of Lewin’s field theory, Festinger describes the content of the elements of cognition as a map of physical, social, or psychological reality.⁸⁰

Using language of cognitive consistency, Festinger describes the possible relationships between cognitive elements—cognitions can be irrelevant or relevant, and relevant cognitions can be consonant or dissonant. Irrelevant cognitions have nothing to

⁷⁷Robert A. Wicklund and Jack W. Brehm, *Perspectives on Cognitive Dissonance* (Hillsdale, NJ: Lawrence Erlbaum Associates, 1976), x.

⁷⁸Leon Festinger, *A Theory of Cognitive Dissonance* (Evanston, IL: Row, Peterson and Co., 1957).

⁷⁹*Ibid.*, 31.

⁸⁰*Ibid.*, 3, 10.

do with one another, that is, they imply nothing about each other.⁸¹ An example of a pair of irrelevant cognitions would be (1) the mass of a nebula, and (2) the latest scores of a particular sports team.

Relevant cognitions, on the other hand, are related as either consonant or dissonant. Cognitions are consonant if one follows from the other.⁸² An example of a consonant, relevant pair of cognitions would be (1) a concern about malnourished infants, and (2) a donation of money designated to feed malnourished infants; the donation follows from the concern.

Relevant cognitions may also be dissonant, meaning that one follows from the obverse of the other.⁸³ A classic example of a dissonant relation is a person who (1) knows the undesirable health risks of smoking, and (2) continues to smoke.

Finally, Festinger uses the language of motivational drives. He describes cognitive dissonance as “an antecedent which leads to activity oriented toward dissonance reduction just as hunger leads to activity oriented toward hunger reduction.”⁸⁴

The arousal of dissonance. It is relevant relationships—consonant and, especially, dissonant—that are germane to the current research. The possible combination of dissonant cognitions is incalculable. However, Festinger gives examples of potential contributors to dissonance: logical inconsistency, cultural mores, inclusion of a specific

⁸¹Ibid., 260.

⁸²Ibid., 261.

⁸³Ibid., 260-61.

⁸⁴Ibid., 3.

opinion within a more general opinion, and past experience.⁸⁵ Dissonance in these—and other—cognitions triggers a drive toward dissonance reduction.

The post-commitment nature of dissonance. The drive toward dissonance reduction follows commitment to a decision. In a series of ten experiments, Festinger and colleagues examine the decision making process.⁸⁶ In comparing pre- and post-decision activity, they find that evaluation during the pre-decision phase in any sort of conflict is more objective than the evaluation during the post-decision phase.⁸⁷ They postulate that a person in conflict attempts a type of cost-benefit analysis. Once a subjective level of confidence is reached, a decision is made with an accompanying commitment to that decision. Once the commitment is made, the world has been changed—however slightly—and dissonance can arise if that commitment is dissonant with any other cognition.⁸⁸

The post-commitment nature of Festinger’s theory of cognitive dissonance distinguishes it from theories such as Hegel’s dialectic and Piaget’s disequilibrium.⁸⁹ These two will be compared to and contrasted with Festinger’s theory more fully in a later section.

⁸⁵Ibid., 14.

⁸⁶Leon Festinger, *Conflict, Decision, and Dissonance* (Stanford, CA: Stanford University Press, 1964).

⁸⁷Ibid., 8.

⁸⁸Ibid., 156.

⁸⁹Georg W. F. Hegel, *The Phenomenology of Spirit (The Phenomenology of Mind)*, trans. J.B. Baillie (Lawrence, KS: Digireads.com Publishing, 2010), Kindle Electronic ed.; Jean Piaget, *Equilibration of Cognitive Structures: The Central Problem of Intellectual Development*, trans. Terrance Brown and Kishore Julian Thampy (Chicago: University of Chicago Press, 1985).

The magnitude of dissonance. Another distinguishing characteristic in Festinger's theory is the concept of magnitude.⁹⁰ The magnitude of either consonance or dissonance is a function of the value of the elements involved as well as the number of elements involved. For example, in considering dissonance between clusters of cognitive elements, Festinger theorizes that "the total amount of dissonance that exists between two clusters of cognitive elements is a function of the weighted proportion of all relevant relations between the two clusters that are dissonant."⁹¹

From this hypothesis concerning magnitude, Festinger proposes three factors that influence the magnitude of post-commitment dissonance: (1) "the importance of the decision," (2) "the relative attractiveness of the unchosen alternative to the chosen one," and (3) "the degree of overlap of cognitive elements corresponding to the alternatives."⁹²

The reduction of dissonance. Post-commitment dissonance of subjectively sufficient magnitude must be reduced. Festinger proposes four means by which dissonance may be reduced: (1) Change one of the cognitions, (2) add new cognitive elements, (3) change the importance of one of the elements, and (4) ignore reality.⁹³ Evidences of these dissonance reduction mechanisms are the observable signals that internal dissonance has been aroused.

Festinger describes factors which affect the means and success of dissonance reduction. First, dissonance reduction is affected by the degree of resistance to change of

⁹⁰Cooper, *Cognitive Dissonance*, 7.

⁹¹Festinger, *A Theory of Cognitive Dissonance*, 18.

⁹²*Ibid.*, 47.

⁹³*Ibid.*, 18-21.

the elements. A cognition about behavior, for example, is difficult to change, whereas attitude about that behavior typically is easier to change. Second, dissonance reduction is affected by the availability of additional cognitive elements consonant with an existing cognition. Adding consonant cognitions can reduce dissonance without changing either of the original dissonant cognitions. Third, resistance to dissonance reduction is connected to the relationship between the cognitive elements and reality. Elements most resistant to change are those that most closely approximate reality. Finally, the element with the least resistance to change determines the maximum dissonance experienced. When the least resistant cognition is changed, dissonance is reduced with no need to change the more resistant cognition.⁹⁴

CDT within the Theories of Cognitive Consistency

Cognitive Dissonance Theory, along with other theories of cognitive consistency, has a common origin in the work of Charles Peirce.⁹⁵ Peirce's work will be discussed, but first, three of the competing theories of cognitive consistency need to be described.

Congruity theory. One competing theory is congruity theory, proposed by Charles Osgood and Percy Tannenbaum. Congruity theory predicts changes in attitude based on a particular type of communication. An incongruity arises in the listener when the listener's attitude about the source of communication and the listener's attitude about an assertion made by that source are inconsistent. Osgood and Tannenbaum's theory

⁹⁴Ibid., 265-66.

⁹⁵Peirce, "The Fixation of Belief."

often predicts the change in attitude prompted by the incongruity.⁹⁶

Psycho-logic. A second competitor is a broader theory of attitude change termed “psycho-logic” and is proposed by researchers Robert Abelson and Milton Rosenberg. Their method involves diagramming the relationships between pairs of attitudinal cognitions in a square matrix. From this matrix, logical diagnostics and predictions can be made about attitude change.⁹⁷

Balance theory. A third competitor is the original theory of cognitive consistency proposed by Fritz Heider in his balance theory. Like the other theories discussed here, balance theory also predicts motivation for attitude change; and like Festinger, Heider draws on Lewin’s field theory. Heider proposes two types of relationships that must be balanced: sentiment and unit relations. Sentiment relations reflect an affective evaluation—one’s attitude toward the thing evaluated. Unit relation is the relationship created in the mind of the observer based on “similarity, causality, ownership, or other unit-forming characteristics.”⁹⁸ Heider gives an example to help the reader understand the inter-relational nature of sentiment and unit formation. In his example he describes an interplay between the attitude toward a particular person and the attitude towards an event whose cause is attributed to that person.⁹⁹ Balance exists if the

⁹⁶Percy H. Tannenbaum, “The Congruity Principle: Retrospective and Recent Research,” in *Theories of Cognitive Consistency: A Sourcebook*, ed. Robert P. Abelson et al. (Chicago: Rand McNally, 1968), 54-55.

⁹⁷Abelson, “Psychological Implication,” 114-15.

⁹⁸Fritz Heider, *The Psychology of Interpersonal Relations* (New York: John Wiley & Sons, 1958), 174, 200.

⁹⁹Fritz Heider, “Attitudes and Cognitive Organization,” *The Journal of Psychology* 21 (1946): 110.

attitude toward the person and the event are both positive or both negative. Imbalance exists if the attitude toward each is different, for example, if the attitude toward the person were positive and the attitude toward the event attributed to the person is negative. If balance does not exist, there is internal pressure to establish balance through attitude change toward one or more of the inconsistent relations.

Cognitive Dissonance Theory. Festinger's theory of cognitive consistency involves cognitive, affective, and behavioral realms, but because cognition about discrepant behavior is difficult to change, even Festinger's Cognitive Dissonance Theory focuses on attitude change as a primary means to reducing the tension caused by imbalance.¹⁰⁰

Fixation of belief. All four of these cognitive consistency theories, which predict a motivation for attitude change, derive from Peirce's work on the formation of beliefs. Peirce recognizes that humans are rational creatures, albeit with flawed rationality.¹⁰¹

From rationality come beliefs, which "guide our desires and shape our actions." Beliefs, then, are part of the cognitive realm and influence the affective and behavioral realms. Doubt is a motivator to resolve the cognition in doubt, that is, to attain a state of belief. "The sole object of inquiry," according to Peirce, is "the settlement of opinion"—establishing a belief by resolving doubt.¹⁰²

¹⁰⁰Cooper, *Cognitive Dissonance*, 8.

¹⁰¹Peirce, "The Fixation of Belief," 3.

¹⁰²Ibid., 5-6.

Peirce proposes four means by which humans can establish belief. First, through tenacity, the person may ignore anything that might cause doubt. Second, by means of the compulsion of an outside authority, the person can become settled in belief. Third, by choosing beliefs consistent with fallible rationality, the person can maintain belief. Fourth, scientific investigation can discern reality in order to establish belief. This latter method, he argues, is superior to the former three, though each of the three may be more convenient at times.¹⁰³

From Peirce's "doubt," cognitive consistency theories find the tension inherent in incongruent cognitions. From Peirce's "belief," the later theories find the balance. Cognitive consistency theories explain the imbalances more consistently than behaviorist or Gestalt theories; Festinger explains the motivating force present in the perception of the imbalance more eloquently than the other cognitive consistency theories.

CDT within the Theories of Motivational Drives

To explain the motivating force, Festinger incorporates research on drive theories from empirical psychology researchers Clark Hull and Kenneth Spence.¹⁰⁴ Hull theorizes a motivational drive that provides the energy to meet four needs,¹⁰⁵ which are discriminated as hunger, thirst, sex, and the avoidance of pain.¹⁰⁶ Spence groups the former three into "appetitional needs" required for survival of the individual and the

¹⁰³Ibid., 8-12.

¹⁰⁴Markus and Zajonc, "The Cognitive Perspective in Social Psychology," 137, 201.

¹⁰⁵R. A. Hinde, "Unitary Drives," *Animal Behaviors* 7 (1959): 137.

¹⁰⁶Edward L Deci and Richard M. Ryan, *Intrinsic Motivation and Self-Determination in Human Behavior* (New York: Plenum Press, 1985), 4.

species; and he broadened the need for avoidance of pain to “emotional needs.”¹⁰⁷ Robert Hinde labels as “biogenic” the needs identified by Spence as appetitional and Hinde labels as “psycho-genic” the needs identified by Spence as emotional.¹⁰⁸

Larry Bernard and colleagues connect both physiological and psychological needs to affect. Emotion—a change in affect—they suggest, is the conscious perception of either a homeostatic disruption of physiological needs or an arousal of psychological needs. They further suggest the purpose of motivation is fitness to a particular physical, social, and psychological environment; and this fitness is evolutionarily derived.¹⁰⁹

To social psychologists, motivation explains response choice and manifests in cognitive, affective, and behavioral realms.¹¹⁰ Lewin suggests that in a drive system, tension created by a need provides the motivation to meet that need; the energy of the system is the means by which the motivation is actuated.¹¹¹ Festinger adopts Lewin’s interpretation. However, in describing the drive-like reality of cognitive dissonance, Festinger fails to identify a physiological or psychological need for which the drive exists. Simply put, cognitive dissonance is a well described motivational drive with no clearly defined purpose.¹¹² The current research has endeavored to discover that purpose.

¹⁰⁷Spence, *Behavior Theory and Conditioning*, 165-66.

¹⁰⁸Hinde, “Unitary Drives,” 131.

¹⁰⁹Bernard et al., “An Evolutionary Theory of Human Motivation,” 135, 151.

¹¹⁰Bargh, Gollwitzer, and Oettingen, “Motivation,” 268.

¹¹¹Lewin, *A Dynamic Theory of Personality*, 883, 897.

¹¹²James T. Tedeschi, Barry R. Schlenker, and Thomas V. Bonoma, “Cognitive Dissonance: Private Ratiocination Or Public Spectacle?,” *American Psychologist* 26 (1971): 689.

Innateness of Cognitive Dissonance

Despite the lack of understanding regarding the purpose of the drive toward consonance, the fact of its existence is well established. For example, in a recent research report entitled “Is Cognitive Dissonance an Intrinsic Property of the Human Mind? An Experimental Solution to a Half-Century Debate,” Dias and colleagues found that cognitive dissonance acts as an intrinsic motivator in the absence of the extrinsic motivators used by many researchers in the field. Further, these researchers conclude “the principle of cognitive dissonance operates out of the conscious level with almost the same strength as it operates under conscious sight.”¹¹³

Dias and colleagues claim their research is the first in over five decades of cognitive dissonance research to demonstrate that cognitive dissonance actually describes an innate process of mentation.¹¹⁴ Despite the uniqueness of their findings, however, they are not the first to verify the innateness of the drive theorized by Festinger; a variety of hard science, soft science, and educational theory research support the contention that the drive triggered by cognitive dissonance is innate to humans. These subjects will be covered in detail in a later section. First, however, there are many documented attempts to improve on the conclusions drawn by cognitive dissonance researchers.

¹¹³Alvaro Machado Dias et al., “Is Cognitive Dissonance an Intrinsic Property of the Human Mind? An Experimental Solution to a Half-Century Debate,” *International Journal of Behavioral, Cognitive, Educational and Psychological Sciences* 1, no. 2 (2009): 104-08.

¹¹⁴*Ibid.*, 105.

Social Psychology's Improvement to CDT's Descriptive Fidelity

With over 1,200 research publications related to cognitive dissonance,¹¹⁵ a comprehensive review is beyond the scope of this chapter. The majority of the related work either proposes an alternative explanation for observations seen in cognitive dissonance research, or suggests modification to the original theory to improve its descriptive fidelity.¹¹⁶ Representative theories from each group will be presented.

Alternatives to CDT

One alternative interpretation is Daryl Bem's self-perception theory. This theory attempts to explain observations contrary to those predicted by Festinger's original theory. The core of self-perception theory is behavioristic. A person's own behavior

¹¹⁵Ralph W. Jr. Hood, "Where Prophecy Lives: Psychological and Sociological Studies of Cognitive Dissonance," in *How Prophecy Lives*, ed. Diana G. Tumminia and William H. Swatos, Jr. (Boston: Brill, 2011), 28.

¹¹⁶For a comprehensive review of cognitive dissonance theory and the broader field of cognitive consistency theory, four outstanding works have been published. In chronological order these are: Robert P. Abelson et al., eds. *Theories of Cognitive Consistency: A Sourcebook* (Chicago: Rand McNally, 1968). These authors present six position on consistency theory: dissonance theory, interpersonal balance, the congruity principle, expansion of a consistency theory, psychological implication, and a theory of the structure of human thought. The contributors examine the intersection of consistency theories with other psychological theories, the preconditions and properties of inconsistency, and the responses to cognitive inconsistency. Wicklund and Brehm, *Perspectives on Cognitive Dissonance*. These authors examine various aspects of cognitive dissonance—commitment, choice, foreseeability, responsibility, attribution of alternatives, the motivating force of cognitive dissonance, modes of reduction of dissonance, as well as alternatives explanations for dissonance phenomena, such as self-perception theory, impression management theory, response contagion theory, and stimulus incongruity theory. Eddie Harmon-Jones and Judson Mills, eds. *Cognitive Dissonance: Progress on a Pivotal Theory in Social Psychology* (Washington, DC: American Psychological Association, 1999). These authors discuss improvements on Festinger's theory, including Beauvois and Joule's "Radical" theory. They examine the role of self in cognitive dissonance as proposed by several theories. They also present two mathematical models to describe cognitive balance. They end with chapters that examine the centrality of affect on dissonance. The differentiation between alternatives and modifications, including representative theories in each category, as taken from these authors. Cooper, *Cognitive Dissonance: Fifty Years of a Classic Theory*. Cooper traces the history of cognitive dissonance theory. He discusses alternative theories that try to explain the phenomena observed in cognitive dissonance research. Here he covers primarily self-perception theory. With the rejection of alternative theories, Cooper discusses the modifications to Festinger's original theory that improve its predictive accuracy under specific conditions, including a number of theories related to self as well as one theory of vicarious dissonance.

becomes the means by which attitude is assessed. Bem believes that most attitudes are beyond perception and hypothesizes that any assumed attitude change is merely an evaluation of behavior based on the same societal-based clues used to infer the attitude of another person. In short, the observer and the observed are the same individual.¹¹⁷ The primary weakness in self-perception theory is the failure to account for physiological and psychological arousal and the changes that occur in response to the arousal.¹¹⁸

Another alternative explanation for cognitive dissonance research observations is impression management theory. This theory attempts to account for instances when obvious cognitive consistency exists but fails to elicit a drive toward dissonance reduction. Their conclusion is that researchers do not observe attitude change in experimental subjects; rather, the subject is managing the impression the researcher has of the subject because of societal pressure to behave as one is expected to behave. In short, the subjects feign attitude change to lead the researcher to believe that the subject's attitude and behavior are consonant.¹¹⁹ Although impression management theory can explain one research model, its weakness is its inability to explain observations from other cognitive dissonance research models and to account for the physiological changes accompanying dissonance arousal and reduction.¹²⁰

¹¹⁷Daryl. J. Bem, "Self-Perception: An Alternative Interpretation of Cognitive Dissonance Phenomena," *Psychological Review* 76 (1967): 183-86.

¹¹⁸Cooper, *Cognitive Dissonance*, 10-12.

¹¹⁹Tedeschi, Schlenker, and Bonoma, "Cognitive Dissonance," 685, 694.

¹²⁰Cooper, *Cognitive Dissonance*, 12-13. The experimental model for which impression-management theory proposes an alternative explanation is the induced-compliance paradigm. The assessment of the theory given by Harmon-Jones and Mills is: "In contrast to the assumption of the impression-management account, dissonance processes do produce genuine cognitive changes. Results supporting the dissonance interpretation have been obtained in experiments in which the attitude measure was taken by someone who did not appear connected with the experimenter that observed the participant's

Modifications to CDT

While alternative explanations to observations made in cognitive dissonance research have failed to displace Festinger's theory, there have been a number of modifications to the theory that have increased its descriptive fidelity.¹²¹ Four, in particular, have gained popularity. The first three are related through the concept of self. The fourth examines consequences of discrepant behavior on others.

Hypocrisy theory. The earliest modification of dissonance research that includes the self is by one of Festinger's graduate students, Elliot Aronson. Aronson and his colleagues propose the theory of self-consistency. They find that dissonance theory is most accurate in its predictions when the situation involves a behavior that is dissonant with the self concept.¹²² They conclude that most individuals strive to preserve a self-image that is consistent, stable, predictable, competent, and morally good.¹²³

As they continue their research, they find that some people maintain a low self-image and respond with dissonance to situations when their behavior is better than expected.¹²⁴ With these findings, the researchers re-term their theory "hypocrisy theory." In situations of hypocrisy, people behave differently than expected based on the image

behavior and in experiments using extremely private situations. Impression-management theory has difficulty accounting for findings that show that dissonance processes that justify recent behavior can produce physiological changes, and it has problems explaining results obtained in paradigms other than the induced-compliance paradigm, for example, the free-choice paradigm."

¹²¹Ibid., 15.

¹²²Elliot Aronson, "Dissonance Theory: Progress and Problems," in *Theories of Cognitive Consistency: A Sourcebook*, ed. Robert P. Abelson et al. (Chicago: Rand McNally, 1968), 23.

¹²³Elliot Aronson, "The Return of the Repressed: Dissonance Theory Makes a Comeback," *Psychological Inquiry* 3 (1992): 305.

¹²⁴Elliot Aronson, "Dissonance, Hypocrisy, and the Self-Concept," in *Cognitive Dissonance: Progress on a Pivotal Theory in Social Psychology*, ed. Eddie Harmon-Jones and Judson Mills (Washington, DC: American Psychological Association, 1999), 111.

they portray of themselves so that hypocrisy causes dissonance.

Dissonance is understood to be a defender of rationality rather than an example of rationality. These researchers believe that dissonance is a rationalizing phenomenon—people want to appear rational to themselves and others; dissonance arises when that appearance is threatened.¹²⁵

Self-affirmation theory. A second, closely related modification to Cognitive Dissonance Theory is self-affirmation theory, proposed by Claude Steele and colleagues. Hypocrisy theory relates to the circumstances under which dissonance is aroused in defense of the self; self-affirmation theory examines the means of dissonance reduction employed when the self is threatened.¹²⁶

Like Aronson and colleagues, self-affirmation researchers conclude that it is a risk to the self-image, rather than an inconsistency in cognitions, that arouses the response seen in certain cognitive dissonance research experimental conditions. They reject the traditional explanation of psychological inconsistency as the trigger, arguing that the number of inconsistencies in life is so great that a person could become psychologically incapacitated dealing with only the most important cognitive inconsistencies. Since the researchers cannot identify “an inherently important motive” for which the drive toward consonance is targeted, they conclude that cognitive dissonance is illogical as an evolutionary adaptation.¹²⁷ Instead, they find the defense of

¹²⁵Aronson, “Dissonance Theory,” 6.

¹²⁶Claude M. Steele, “The Psychology of Self-Affirmation: Sustaining the Integrity of the Self,” in *Advances in Experimental Social Psychology*, vol. 21, ed. Leonard Berkowitz (New York: Academic Press, 1988).

¹²⁷*Ibid.*, 279, 282.

self as a more attractive explanation for dissonance.

Steele and colleagues propose that a person desires to maintain an image of self that is competent, integrated, rational, and volitional. Any threat to the integrity of that image arouses a motive to reaffirm a positive self-image. They find that the threat to self-image can be reduced through explanation, rationalization, or action consistent with a positive self-image, even if the reaction has no direct connection to the discrepant experience.¹²⁸ That is, the person may find affirmation in another aspect of the self-image rather than in a response directed at the experience that caused the threat.

Self-standards theory. The self-standards theory of Jeff Stone and Joel Cooper incorporates the explanations—from hypocrisy theory—for the circumstances under which dissonance is aroused and the means—from self-affirmation theory—by which dissonance may be reduced. To these, Stone and Cooper add an explanation for the processes used to assess the circumstance that triggers dissonance arousal. Their research focuses on how people interpret and evaluate their behavior.¹²⁹ Standards—normative or personal—become the self-standard by which behavior is evaluated for appropriateness. If behavior conflicts with the person’s self-standard, dissonance is aroused and dissonance reduction mechanisms are employed.

“New Look.” In contrast to the focus on self in hypocrisy, self-affirmation, and self-standards theories, the “New Look” of Joel Cooper and Russell Fazio focuses on foreseeable, aversive consequences to others. In a comprehensive examination of

¹²⁸Ibid., 262, 289, 291.

¹²⁹Jeff Stone and Joel Cooper, “A Self-Standards Model of Cognitive Dissonance,” *Journal of Experimental Social Psychology* 37 (May 2001): 231.

cognitive dissonance literature, these researchers find a consistent pattern that predicts dissonance in response to inconsistent behavior when (1) there is a freedom to decide how to behave, (2) there is a commitment to the behavior, (3) the behavior leads to aversive consequences, and (4) those consequences are foreseeable.¹³⁰

Following these observations, Cooper and Fazio change the emphasis of research from inconsistent behaviors to the consequences of behaviors and the attribution made to those consequences.¹³¹ This change of emphasis separates the arousal aspect from the motivational aspect of dissonance theory. Arousal occurs with a cognitive discrepancy when behavior causes a foreseeable aversive consequence; if the cause of the discrepant behavior cannot be attributed to an external influence, then the arousal is interpreted negatively and the drive to reduce dissonance is activated.¹³² The resulting attitude change is theorized to be a means to interpret the discrepant behavior non-aversive.¹³³

Summary. Two weaknesses are evident in each of these four modifications to Festinger's Cognitive Dissonance Theory. First, in each theory, one of the elements of knowledge is behavior. While Festinger theorized that any two cognitive elements—cognitive, affective, or behavioral—could be involved in the arousal witnessed with cognitive dissonance, by examining only those situations that involved behavior, these

¹³⁰Cooper, *Cognitive Dissonance*, 69, 73.

¹³¹Joel Cooper, "Unwanted Consequences and the Self: In Search of the Motivation for Dissonance Reduction," in *Cognitive Dissonance: Progress on a Pivotal Theory in Social Psychology*, ed. Eddie Harmon-Jones and Judson Mills (Washington, DC: American Psychological Association, 1999), 151.

¹³²Joel Cooper and Russell H. Fazio, "A New Look At Dissonance Theory," *Advances in Experimental Social Psychology* 17 (1984): 257.

¹³³Cooper, *Cognitive Dissonance*, 79.

four groups narrow the scope of Festinger's broad theory of dissonance arousal and reduction. A second weakness derives from the naturalistic foundation, which explains the drive as either an evolutionary adaptation or a culturally-acquired response.¹³⁴

Various alternative theories and modifications to the original theory of cognitive dissonance make opposing predictions so that no replacement theory subsumes all others.¹³⁵ Instead, with a resurgence in combining the cognitive and motivational elements of the original theory, Aronson suggests that Festinger's original theory could contain each of the revisions.¹³⁶

Although each researcher recognizes the innateness of the drive, none can adequately explain the innate drive's origin or purpose.¹³⁷ Nonetheless, Aronson's summary of Festinger's theory is helpful: "It is essentially a theory about sense making—how people try to make sense out of their environment and their behavior—and thus, try to lead lives that are (at least in their own minds) sensible and meaningful."¹³⁸

CDT and Hard Science

To understand the role of cognitive dissonance in living sensible and meaningful lives, it is helpful to connect research in cognitive dissonance to related work in neurology. Neurological research supports specific aspects of Festinger's Cognitive Dissonance Theory; current understanding of neurophysiology suggests the mechanism

¹³⁴Ibid., 87-89.

¹³⁵Stone and Cooper, "Self-Standards Model," 230.

¹³⁶Aronson, "The Return of the Repressed," 307.

¹³⁷Louisa C. Egan, Laurie R. Santos, and Paul Bloom, "The Origins of Cognitive Dissonance: Evidence From Children and Monkeys," *Psychological Science* 18 (2007).

¹³⁸Aronson, "The Return of the Repressed," 304.

by which cognitive dissonance impacts social functioning.

Neurological Research

Neurological research confirms general concepts in Festinger's theory. For example, in support of the social nature of Cognitive Dissonance Theory, recent work has demonstrated that when not actively involved in nonsocial tasks—e.g., working memory tasks—“the brain's default focus is social.”¹³⁹

Additionally, research supports the concept that the drive toward consonance is an innate capacity. One line of research indicates that cognitive dissonance occurs outside active, conscious mental processing. Memory systems are involved, and it has been assumed that explicit memory is necessary for the comparison required to recognize dissonance; however, research with people experiencing amnesia, indicates that the comparison can occur outside conscious thought. Further, the research with amnesics suggests that explicit recall may actually disrupt the process of attitude change, at least when the attitude change is prompted by discrepant behavior. This work with amnesia implies that attitude change may be an automatic or sub-conscious process.¹⁴⁰

Not only does neurological research support general concepts of Festinger's theory, recent research using functional magnetic resonance imaging (fMRI) supports two distinguishing characteristics of Cognitive Dissonance Theory. The first supported characteristic is the presence of dissonance. One research effort documents

¹³⁹Matthew D. Lieberman, “Social Cognitive Neuroscience,” in *Handbook of Social Psychology*, 5th ed., ed. Susan T. Fiske, Daniel T. Gilbert, and Gardner Lindzey (Hoboken, NJ: Wiley, 2010), 176.

¹⁴⁰Matthew D. Lieberman et al., “Do Amnesics Exhibit Cognitive Dissonance Reduction? The Role of Explicit Memory and Attention in Attitude Change,” *Psychological Science* 12 (2001): 135, 138.

post-behavioral activity in predicted brain centers known to be active during conflict. The researchers conclude that their work supports Festinger's original theory and specifically fails to support self-perception theory—one of the proposed alternative explanations for dissonance observations. Not quite as strongly, the researchers suggest a lack of support for the new look theory of dissonance.¹⁴¹

The second characteristic of Cognitive Dissonance Theory supported by recent neurological research is the post-commitment nature of the arousal experienced in the presence of dissonant cognitions. One study uses fMRI to demonstrate a conflict-type arousal following commitment to a choice and preceding change of attitude toward that choice.¹⁴² A second study uses fMRI to demonstrate a post-decision, post-attitude-change decrease in activity in conflict centers and increase in activity in emotional centers in the brain.¹⁴³ Together, these recent neurological research efforts support Festinger's understanding of cognitive dissonance.

Neurophysiology

The broader field of neurophysiology supports Festinger's theory and helps explain the motivational nature of the drive toward consonance, the centrality of the affective domain in Cognitive Dissonance Theory, and the connection between cognitive dissonance and learning. Although information processing occurs throughout the central

¹⁴¹Vincent Van Veen et al., "Neural Activity Predicts Attitude Change in Cognitive Dissonance," *Nature Neuroscience* 12 (2009): 1469-74.

¹⁴²Tali Sharot, Benedetto De Martino, and Raymond J. Dolan, "How Choice Reveals and Shapes Expected Hedonic Outcome," *Journal of Neuroscience* 29 (2009): 3760.

¹⁴³Drew Westen et al., "Neural Bases of Motivated Reasoning: An fMRI Study of Emotional Constraints on Partisan Political Judgment in the 2004 U.S. Presidential Election," *Journal of Cognitive Neuroscience* 18 (2006): 1947.

nervous system, for convenience, the system will be described as afferent, processing, and efferent components (see Fig. 2).

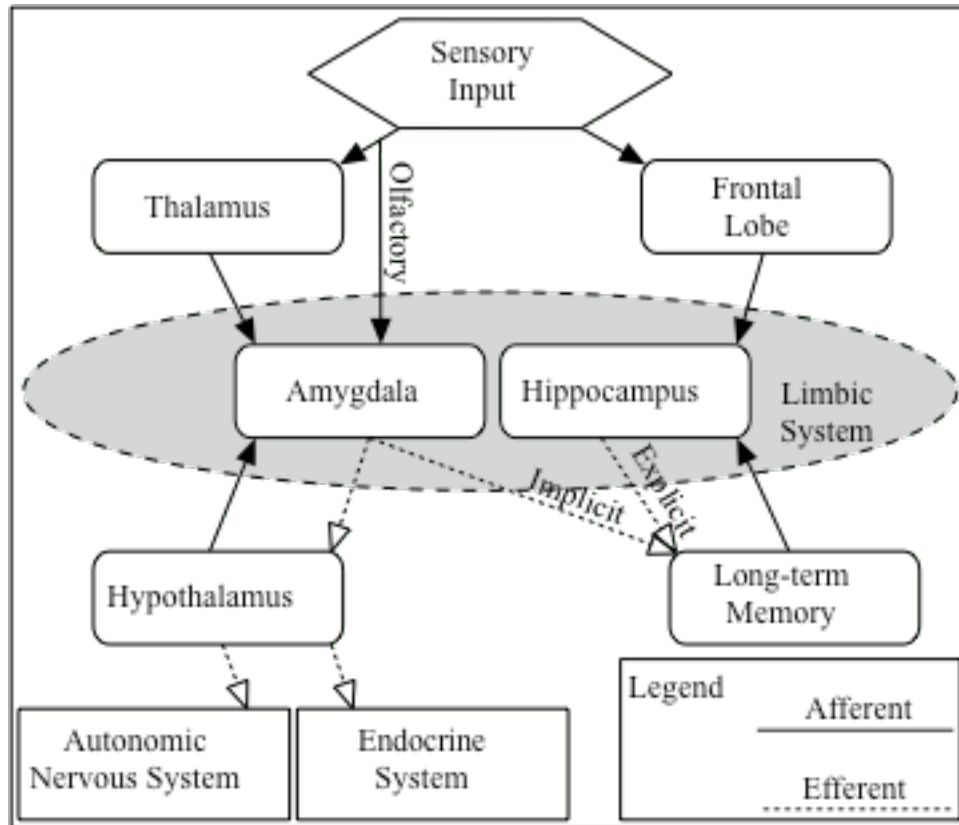


Figure 2. The centrality of the limbic system

Afferent. The afferent components bring information to the central processors. New information is presented from sensory input via parallel paths. One path is through the frontal lobe of the brain. If information is deemed important, the frontal lobe transmits the input to the hippocampus for processing.¹⁴⁴

With the exception of olfactory input, the second path for sensory information

¹⁴⁴Eric Jensen, *Brain-Based Learning: The New Paradigm of Teaching*, 2nd ed. (Thousand Oaks, CA: Corwin Press, 2008), Kindle Electronic ed., 253-59.

is through the thalamus.¹⁴⁵ If the thalamus measures uncertainty—e.g., suspicious or threatening—the information is passed to the amygdala for processing.¹⁴⁶ Olfactory input bypasses the thalamus and is fed directly to the amygdala.¹⁴⁷

New information is not all that is presented to the central processors. Relevant data from long-term memory is also presented for comparison to the new sensory information. It is the whole of long-term memory that is seen by at least one researcher as the source of a worldview.¹⁴⁸

Processing. In a simplified model, the comparison primarily occurs in either the hippocampus—which has received input from the frontal lobe, or the amygdala—which has received input from the thalamus. The hippocampus and amygdala are related structures in the limbic system of the brain.¹⁴⁹ The thalamus and hypothalamus are included in the limbic system by some authors because of their intimate connection to other limbic structures.¹⁵⁰

The limbic system is the affective bridge between the hypothalamus, which is responsible for homeostasis, and the neocortex, which is responsible for voluntary behavior.¹⁵¹ With input from the higher processing centers, the limbic system connects

¹⁴⁵Ibid., 330-33.

¹⁴⁶Ibid., 620-22.

¹⁴⁷John Nolte, *The Human Brain: An Introduction to Its Functional Anatomy*, 6th ed. (Philadelphia: Mosby, 2008), Kindle Electronic ed., 18001-11.

¹⁴⁸David A. Sousa, *How the Brain Learns*, 3rd ed. (Thousand Oaks, CA: Corwin Press, 2006), 52.

¹⁴⁹Nolte, *Human Brain*, 17530-35, 18109-15.

¹⁵⁰Sousa, *How the Brain Learns*, 18.

¹⁵¹Nolte, *Human Brain*, 7530-35.

cognition, affect, and behavior, the three types of cognition in Festinger's theory and the three domains manifested in social psychology and Scripture.

The hippocampus is responsible for consolidating learning by comparing new information to the worldview stored in long-term memory. This comparison determines if the new information makes sense and has meaning to the person.¹⁵² If so, then the new information is incorporated into long-term memory; if not, the information is not stored.¹⁵³

The amygdala is responsible for imbuing new information with emotional content¹⁵⁴—a conscious or unconscious perception of either hedonic tone or alterations in homeostasis. This emotional content is derived from the hypothalamus, which is responsible for both hedonic tone and homeostasis. Hedonic tone is the balance of a dual system of perception of pleasure and pain.¹⁵⁵ Homeostasis is the balance necessary for proper functioning of the organism and includes drives such as hunger, thirst, and sex as well as balance of temperature, water, and blood pH.¹⁵⁶

Efferent. Once the information has been processed, efferent connections stimulate changes in two areas. First, modified long-term memories are stored. The factual information from the hippocampus is stored as explicit memory;¹⁵⁷ the emotional

¹⁵²Sousa, *How the Brain Learns*, 18-19, 48.

¹⁵³Jensen, *Brain-Based Learning*, 2232-33.

¹⁵⁴*Ibid.*, 1123-27.

¹⁵⁵Bernard et al., "An Evolutionary Theory of Human Motivation," 150-51.

¹⁵⁶Jensen, *Brain-Based Learning*, 330-33.

¹⁵⁷*Ibid.*, 260-62.

content from the amygdala is attached and stored as implicit memory. This new long-term memory is then available for comparison as a new view of the world.¹⁵⁸

Along with memory storage, physiological adaptations are made. The affective amygdala sends signals to the hypothalamus, which triggers the autonomic nervous system and the endocrine system, as necessary, to restore homeostasis.¹⁵⁹ The autonomic nervous system causes rapid, short-term changes; the endocrine system causes slower, long-term corrections.

Learning. These physiologic changes affect the ability to learn from an experience.¹⁶⁰ For example, in an acute stress condition when either the stress hormone cortisol is present at moderate levels or the sympathetic neurotransmitter norepinephrine is present at high levels, memory and learning are enhanced. However, if cortisol is present in high levels, as in a chronic stress condition, memory and learning are impaired.¹⁶¹ In short, learning is influenced by the affective domain, with control of that domain centered in the limbic system.

Motivation. Not only is learning influenced, but motivation is influenced by the interplay between the limbic system and the hypothalamus. Motivation is affective and manifests in cognitive and behavioral realms.¹⁶² Affectively, motivation is under the

¹⁵⁸Sousa, *How the Brain Learns*, 18-19, 52.

¹⁵⁹Jensen, *Brain-Based Learning*, 620-22.

¹⁶⁰Paul Howard-Jones, *Introducing Neuroeducational Research: Neuroscience, Education and the Brain from Contexts to Practice* (New York: Routledge, 2010), Kindle Electronic ed., 325-35.

¹⁶¹Jensen, *Brain-Based Learning*, 310-14.

¹⁶²Nolte, *Human Brain*, 18136-49.

influence of the amygdala, with its inputs from the homeostatic hypothalamus and the information switchboard of the thalamus. Behaviorally, motivation is part of a learned response to the environment that is stored in long-term memory,¹⁶³ which contains emotional content from the amygdala. Cognitively, motivation is a function of personhood that is characterized by rationality, volition, and consciousness,¹⁶⁴ which are influenced by the information processed in the limbic system. In addition, motivation has a genetic component related to homeostasis,¹⁶⁵ which is under the control of the hypothalamus, which has two-way communication with the amygdala.¹⁶⁶ With this web of influence, the limbic system and the hypothalamus seem to be at the center of motivation, memory, and learning.

CDT and Soft Science

As with hard science, soft science corroborates the innate drive recognized by Festinger in his theory of cognitive dissonance by describing similar phenomena. Two closely related concepts—Piaget’s disequilibrium and Hegel’s dialectic—will be explored.

Piaget’s Disequilibrium

Jean Piaget, a developmental psychologist, describes age-related stages of cognitive development.¹⁶⁷ In this cognitive development, Piaget understands that

¹⁶³Bernard et al., “An Evolutionary Theory of Human Motivation,” 131-32.

¹⁶⁴Ibid., 132-33.

¹⁶⁵Ibid., 131.

¹⁶⁶Bernard et al., “An Evolutionary Theory of Human Motivation,” 131-32, 149.

¹⁶⁷Ellery Pullman, “Life Span Development,” in *Introducing Christian Education*:

ontogeny recapitulates phylogeny, that is, the cognitive development of the individual rehearses the cognitive development of the human species¹⁶⁸ in order to adapt to the social and physical environment.¹⁶⁹ The progressive stages are characterized by the ability to form more complex schemata—mental pictures of cognitive concepts as widely varying as self, other, horse, and danger. These increasingly complex schemata are used in a cyclical adaptation—which Piaget terms “equilibration”—of the reciprocal processes of assimilation and accommodation.¹⁷⁰

Assimilation and accommodation. Piaget defines assimilation as the “incorporation of an outside element (object, event, and so forth) into the subject’s sensorimotor or conceptual scheme.” Assimilation is constructive in that it extends the cognitive schema related to the object incorporated¹⁷¹ so that future behavior may be adapted. This adaptation, caused by the external influence, Piaget calls accommodation.¹⁷²

An example of this process is the first contact with a hot stove. The burn that results is assimilated so that some danger is now associated with the schema for stove. As the new schema for stove is accommodated, future contact with a stove results in

Foundations for the Twenty-First Century, ed. Michael J. Anthony (Grand Rapids: Baker Academic, 2001), 68. Piaget’s stages of development are sensorimotor, preoperational, concrete operations, and formal operations.

¹⁶⁸Nel Noddings, *Philosophy of Education*, 2nd ed. (Boulder, CO: Westview Press, 2007), Kindle Electronic ed., 120.

¹⁶⁹Piaget, *Equilibration of Cognitive Structures*, 4, 37.

¹⁷⁰Jean Piaget, *The Development of Thought: Equilibration of Cognitive Structures*, trans. Arnold Rosin (New York: Viking Press, 1977), 5, 40.

¹⁷¹*Ibid.*, 6, 39-40.

¹⁷²Jean Piaget, *The Psychology of Intelligence*, trans. Malcolm Piercy and D. E. Berlyne (New

modified behavior because of the danger associated. With the reciprocal processes of assimilation and accommodation, the schema between subject and object is re-equilibrated.¹⁷³

Motivation. Equilibration, however, is not final. Piaget understands that the new equilibration provides a point of comparison for future adaptation stimulated by either additional assimilation, prompted by new knowledge, or additional accommodation as new behaviors are applied to the object. Whether initiated by assimilation or accommodation, a new state of disequilibrium exists that must be adapted by the process—accommodation or assimilation—reciprocal to the initiator of the disequilibrium.¹⁷⁴

This disequilibrium becomes a motivator similar in function to Festinger's cognitive dissonance and consistent with Peirce's cognitive consistency, which influences both Piaget and Festinger. However, Piaget's theory differs from Festinger's in at least four significant ways. First, for Piaget, there is no endpoint; each equilibration affords the opportunity for a cyclically increasing re-equilibration.¹⁷⁵ For Festinger, in contrast, there is an endpoint at cognitive consonance. Second, Piaget's theory focuses on cognitive equilibration that directly relates to adaptive behavior. Festinger's theory impacts behavior only indirectly through a change in affect. Third, while Piaget's motivation may entail psychological arousal, he does not mention anything like Festinger's proposed

York: Routledge, 2010), 8-9.

¹⁷³Piaget, *Equilibration of Cognitive Structures*, 3.

¹⁷⁴Piaget, *Development of Thought*, 13, 30-31.

¹⁷⁵*Ibid.*, 13, 40.

physiological arousal. Finally, the cognitive disequilibrium in Piaget's theory is independent of decision where Festinger's theory requires a decision before the arousal of cognitive dissonance.

Anthropology. Piaget's theory and Festinger's theory share a naturalistic view of anthropology. While both see some innate drive toward cognitive balance, Piaget relies on Jean Jacques Rousseau's anthropology that predicts a natural drive to maximize individual potential.¹⁷⁶ Critics of Piaget claim that while cognitive development is informed by the social context,¹⁷⁷ Piaget incorrectly concludes that the individual needs no external assistance to mature.¹⁷⁸ Piaget differentiates his theory from that of dialectics by noting the absence of any effect of original sin.¹⁷⁹

Hegel's Dialectic

The dialectics challenged by Piaget are epitomized by Georg Wilhelm Friedrich Hegel. In contrast to both Festinger and Piaget, Hegel relies on a theistic foundation that imbues rationality¹⁸⁰ and coherence¹⁸¹ to the world. As a philosophical

¹⁷⁶James C. Wilhoit, "Memory: An Area of Difference Between Piaget and Goldman," *Journal of Christian Education* 2, no. 2 (1982): 42.

¹⁷⁷James E. Plueddemann, "The Power of Piaget," in *Nurture That is Christian: Developmental Perspectives on Christian Education*, ed. James C. Wilhoit and John M. Dettoni (Grand Rapids: Baker Academic, 1998), 51.

¹⁷⁸Wilhoit, "Memory," 42.

¹⁷⁹Piaget, *Development of Thought*, 30.

¹⁸⁰Georg W. F. Hegel, *Science of Logic*, 2nd ed., trans. A. V. Miller, (Amherst, NY: Humanity Books, 1989), Kindle Electronic ed., 421.

¹⁸¹Michael Allen Fox, *The Accessible Hegel* (Amherst, NY: Humanity Books, 2005), Kindle Electronic ed., 1233-38.

idealist, Hegel understands that truth is found in the immaterial world of ideas.¹⁸²

Epistemology. While he describes metaphysical realities, Hegel’s dialectic is an epistemology—a way of knowing ultimate reality rather than a description of the ultimate reality, itself.¹⁸³ However, following the philosophical idealism of Plato,¹⁸⁴ he also understands that nothing can be truly known “as it is in itself.”¹⁸⁵ In theory, Hegel’s approach offers the possibility of comprehension of all of reality;¹⁸⁶ in practice, however, apprehension of reality is asymptotic. Although never complete, Hegelians suggest that the dialectic process is a description of rationality, itself.¹⁸⁷

Scope. Hegel’s dialectic classically has been described by the terms thesis, antithesis, and synthesis. A cognition—thesis—is opposed by a challenging cognition—antithesis, and the rational mind tries to resolve any discrepancies by forming a synthesis from the two. An example of this classic description is knowing God simply as love—thesis—then learning that God will judge his enemies—antithesis. From these seemingly opposing characteristics, a synthesis of understanding God must be developed that includes both a loving and a judging God.

Although Hegel’s theory includes this simple epistemic process, his dialectic

¹⁸²Michael J. Anthony and S. Benson Warren, *Exploring the History and Philosophy of Christian Education: Principles for the Twenty-First Century* (Grand Rapids: Kregel, 2003), 234-35.

¹⁸³Fox, *The Accessible Hegel*, 775-76.

¹⁸⁴George W. Knight, *Philosophy and Education: An Introduction in Christian Perspective*, 4th ed. (Berrien Springs, MI: Andrews University Press, 2006), 43-44.

¹⁸⁵Hegel, *Science of Logic*, 2180.

¹⁸⁶Peter C. Hodgson, *God’s Wisdom: Toward a Theology of Education* (Louisville: Westminster John Knox Press, 1999), 42.

¹⁸⁷Hegel, *The Phenomenology of Spirit*, 1077.

cannot be reduced to this caricature.¹⁸⁸ The scope of the dialectic, according to Hegel, is consciousness, which he associates with spirit attempting to understand absolute truth. An example of this more involved process is described by Hegel in an exposition on the knowledge of self. A rational person knows itself as an essential being—a positive cognition. It develops a more complete view of self as it distinguishes between itself and “other”—a negative cognition concerning what the person is not. Finally, a middle position is attained as the person grows in knowledge of the relationship inherent in the distinction between self and other. Hegel describes this as “unity in diversity.”¹⁸⁹

Social nature of understanding. Because individuality can only be realized by association with others, rationality requires relationality.¹⁹⁰ Fox describes the understanding of the maturation of the individual as one of Hegel’s greatest achievements. Fox summarizes, “The self is a relational entity, constituted by its own efforts but also by its interaction with other selves, from which it acquires validation and gains in richness and depth.” By extension of this logic, Fox concludes that nothing can be known in isolation.¹⁹¹

Comparison of Festinger, Piaget, and Hegel

In summary, Piaget and Hegel corroborate cognitive mechanisms described by cognitive dissonance researchers. Hegel shares commonalities with Festinger and Piaget.

¹⁸⁸Fox, *The Accessible Hegel*, 390-94.

¹⁸⁹Hegel, *The Phenomenology of Spirit*, 6341, 7087, 11221.

¹⁹⁰Ibid., 6285.

¹⁹¹Fox, *The Accessible Hegel*, 441-42, 1648-60.

For example, Hegel's requirement for relationality connects him to Festinger whose theory is developed from social psychology, but distinguishes him from Piaget who sees external input as confounding to cognitive development.¹⁹² Festinger and Piaget both see motivating forces to their theories while Hegel sees his theory as a description of rationality. Most importantly, all three recognize related innate cognitive functioning. Hegel limits his theory to the cognitive realm while Piaget adds the behavioral and Festinger further adds the affective realm.

CDT and Pedagogical Practice

In addition to the corroboration from the hard and soft sciences, pedagogical practice also supports the innateness of the drive toward consonance. Throughout history, concepts related to Festinger's Cognitive Dissonance Theory have proven to be effective in transforming students. One ancient and one modern example will be explored before connecting Festinger's theory to learning theory.

Socratic Method

The precursor to Hegel's dialectic is the dialogical method used by Socrates, and reported by Plato, a student of Socrates, in *The Socratic Dialogues*.¹⁹³ The term "dialectic" was coined by Plato,¹⁹⁴ who also refined his teacher's method of *elenchus*—cross-examination or refutation.¹⁹⁵

¹⁹²Wilhoit, "Memory," 42.

¹⁹³Plato, *The Socratic Dialogues*, trans. Benjamin Jowett (New York: Kaplan Publishing, 2009), Kindle Electronic ed.

¹⁹⁴Fox, *The Accessible Hegel*, 309-18.

¹⁹⁵Plato, *The Socratic Dialogues*, 75.

As applied by Socrates, the Socratic method centers on ethics,¹⁹⁶ which are informed by affect. However, Socrates' method of inquiry is seen more broadly as an epistemology—the method, rather than the content, of knowing. Through a series of questions, the Socratic method replaces irrational dogmatism with logically consistent induction.¹⁹⁷ By illuminating the tension in cognitive inconsistencies, the Socratic method resembles Festinger's Cognitive Dissonance Theory.

Like Cognitive Dissonance Theory, the Socratic method requires both commitment to a position and social interaction to challenge that commitment.¹⁹⁸ Also consistent with Festinger, Socrates has a high view of humanity. Although Socrates believes that true wisdom is knowledge of one's lack of knowledge,¹⁹⁹ paradoxically, he believes that when human rationality attains coherence in conclusions, those conclusions necessarily reflect truth. At least one critic has challenged Socrates with the point that consistency can be achieved when false conclusions are based on faulty observations or faulty logic.²⁰⁰

¹⁹⁶Ibid., 290. E.g., in his dialogue with Euthyphro, Socrates raised a question about piety: Is piety beloved by the gods because it is holy, or is piety holy because it is beloved by the gods.

¹⁹⁷Leonard Nelson, *Socratic Method and Critical Philosophy: Selected Essays*, trans. Thomas K. Brown III (New Haven, CT: Yale University Press, 1949), 4-5, 15-16.

¹⁹⁸Kenneth Seeskin, *Dialogue and Discovery: A Study in Socratic Method* (New York: State University of New York Press, 1987), 3, 23.

¹⁹⁹Plato, *The Socratic Dialogues*, 530, 542, 550, 556. In defense against charges made against him, Socrates reports an attempt to find someone in Athens wiser than himself. In doing so, he visits a politician, poets, and artisans. All three groups shared the same flaw—none recognized the limitation of their discipline-specific knowledge. All three groups assumed that because they were wise in some things they were wise in all things. In the end, Socrates agreed that he was the wisest man in Athens because he knew that he did not know.

²⁰⁰Seeskin, *Dialogue and Discovery*, 35.

Mezirow's Transformative Learning

Socrates offers an ancient pedagogy that continues to find application; Jack Mezirow offers a modern model of transformation. The Socratic method focuses on conclusions; Mezirow's transformative learning focuses on the presuppositional frame of reference—"the structure of assumptions and expectations through which we filter sense perception"—that affects the accuracy with which adults interpret and relate in the world.²⁰¹

Mezirow defines transformative learning as "the process by which we transform our taken-for-granted frames of reference . . . to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide action." These frames of reference involve two dimensions—habits of mind and resulting points of view. Habits of mind are the predispositions; points of view are the expressions of those predispositions that are employed to interpret the meaning of experience. Transformative learning occurs by either replacing or adjusting existing frames of reference or by transforming either of the dimensions of the frame of reference, that is, transforming habits of mind or points of view.²⁰²

Mezirow's theory intersects Festinger's at a number of points. For example,

²⁰¹Jack Mezirow, "Learning to Think Like an Adult: Core Concepts of Transformation Theory," in *Learning as Transformation: Critical Perspectives on a Theory in Progress*, ed. Jack Mezirow (San Francisco: Jossey-Bass, 2000), 4-5, 16; While Piaget describes cognitive formation in children, Mezirow describes the adjustment of cognitive functioning through transformation. This transformation cannot occur until the formation is complete, so Mezirow describes transformation as a model of adult education. Jack Mezirow, *Transformative Dimensions of Adult Learning* (San Francisco: Jossey-Bass Publishers, 1991), Kindle Electronic ed., 1819.

²⁰²Mezirow, "Learning to Think Like an Adult," 7-8, 17, 19. Examples of habits of mind listed by Mezirow are sociolinguistic, moral-ethical, epistemic, philosophical, psychological, and aesthetic.

the stimulus to transformation is critical reflection of the adequacy of the existing frames of reference. Critical reflection, in turn, is triggered by a “disorienting dilemma” similar to Piaget’s disequilibrium and Festinger’s cognitive dissonance. Even if the trigger is an internal conflict between frames of reference, Mezirow emphasizes the social nature of the critical reflection.²⁰³ Also central to both transformative learning and Cognitive Dissonance Theory is the affective realm. Emotions are intimately connected to both the frames of reference and the disorienting dilemma that prompts reassessment of those frames of reference.²⁰⁴

Cognitive Dissonance Theory and Learning Theory

Both the Socratic method and Mezirow’s transformative learning are specific pedagogical practices. Snapper also recommends Festinger’s Cognitive Dissonance Theory as a tool for pedagogy, although he fails to proffer a pedagogical model centered on cognitive dissonance.²⁰⁵ The current research attempts to formulate such a model.

As discussed in a previous section, Festinger’s original work was influenced by three lines of research—Lewin’s field theory, Peirce’s cognitive consistency theory, and Hull and Spence’s motivation theory. Morris Bigge and Samuel Shermis describe

²⁰³Mezirow, *Transformative Dimensions of Adult Learning*, 1819, 1909. Mezirow describes ten phases of perspective transformation: (1) a disorienting dilemma, (2) self-examination with feelings of guilt or shame, (3) a critical assessment of epistemic, sociocultural, or psychic assumptions, (4) Recognition that one’s discontent and the process of transformation are shared and that others have negotiated a similar change, (5) exploration of options for new roles, relationships, and actions, (6) planning of a course of action, (7) acquisition of knowledge and skills for implementing one’s plans, (8) provisional trying of new roles, (9) building of competence and self-confidence in new roles and relationships, and (10) a reintegration into one’s life on the basis of conditions dictated by one’s new perspective.

²⁰⁴Mezirow, “Learning to Think Like an Adult,” 6-7, 16.

²⁰⁵Snapper, “Motivation for Learning Faith-Knowledge,” 166.

each of these three lines of research in the context of learning theory, classifying Lewin and Peirce in the cognitive family, and Hull and Spence in the behavioristic family.²⁰⁶

The third family of learning theories is the mind substance family, which includes Augustine and Calvin with a theistic mental discipline practice.²⁰⁷ The current research adds Augustine and Calvin's mental discipline to the other influences (see Fig. 3) in order to draw new conclusions from the observations made in cognitive dissonance research. Specifically, the corruption of rationality caused by the fall of humanity into sin, as understood by Augustine and Calvin, will replace an optimistic view of human rationality.

According to Bigge and Shermis, a learning theory is "a systematic integrated outlook in regard to the nature of the process whereby people relate to their environments in such a way as to enhance their ability to use both themselves and their environments in a most effective way."²⁰⁸ Learning theories describe the content of learning; motivation describes the instigator of learning.²⁰⁹ The current research is aimed at motivation.

²⁰⁶Morris L. Bigge and Samuel S. Shermis, *Learning Theories for Teachers*, 6th ed. (Boston: Pearson, 2004), 3. According to these authors, "A learning theory . . . is a systematic integrated outlook in regard to the nature of the process whereby people relate to their environments in such a way as to enhance their ability to use both themselves and their environments in a most effective way."

²⁰⁷Ibid., 8-9, 22. "Mind substance is a self-dependent, immaterial essence or genuine being, which parallels the physical nature of human beings; it is just as real as matter, has a nature of its own, and operates in its own distinctive fashion."

²⁰⁸Ibid., 3.

²⁰⁹William R. Yount, *Created to Learn: A Christian Teacher's Introduction to Educational Psychology*, 2nd ed. (Nashville: B&H Academic, 2010), 449.

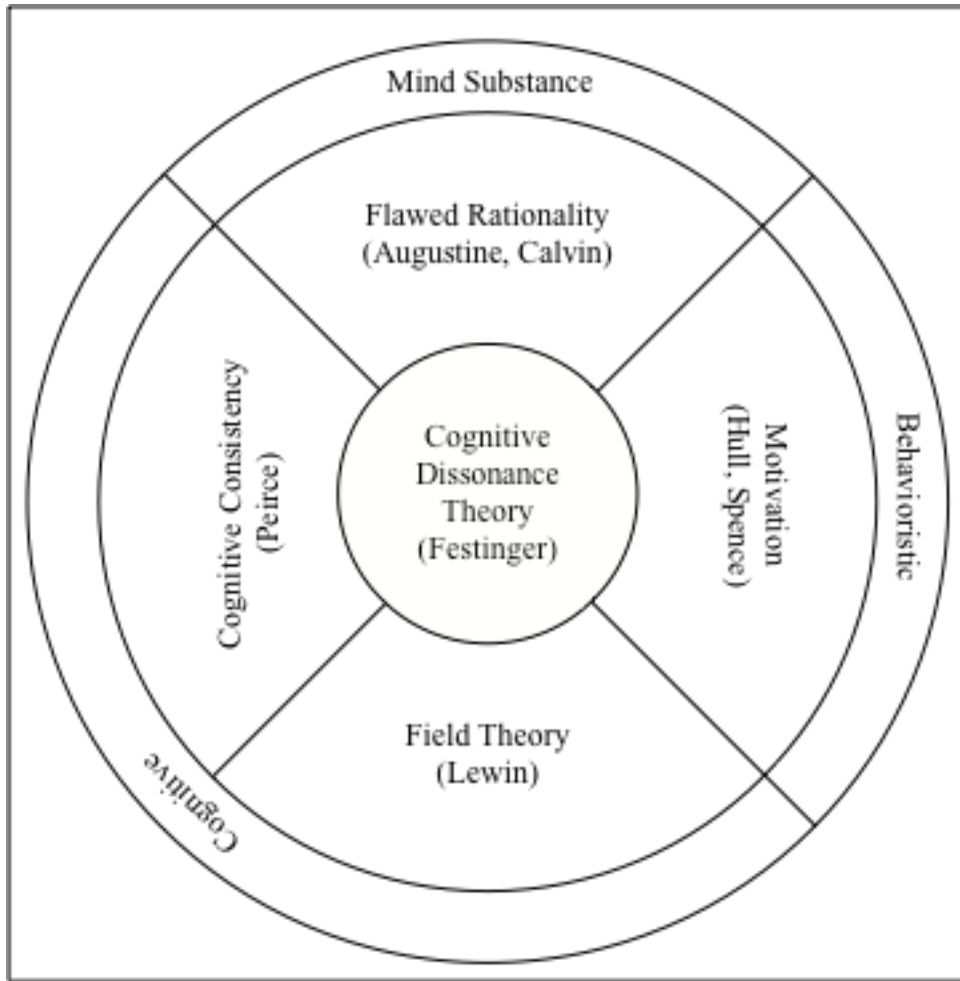


Figure 3. Influences from learning theories on modified Cognitive Dissonance Theory

Corrective to CDT's Status as a Drive

Cognitive Dissonance Theory is described as a motivating drive by Festinger²¹⁰ causing both psychological discomfort and physiological arousal.²¹¹ Wicklund and Brehm review the cognitive dissonance literature and concur with

²¹⁰Festinger, *A Theory of Cognitive Dissonance*, 276-77.

²¹¹Andrew J. Elliot and Patricia G. Devine, "On the Motivational Nature of Cognitive Dissonance: Dissonance as Psychological Discomfort," *Journal of Personality and Social Psychology* 67 (1994): 382.

Festinger's description;²¹² not all researchers agree. For example, in another review of the literature, Gotz-Marchand and colleagues find challenges to the concept that cognitive dissonance is a primary motivating drive—like hunger, thirst, and sex—because it does not behave in the same way as these drives.²¹³ However, as Berkowitz points out, “no one supposed drive state can serve as an entirely satisfactory model for other drives.”²¹⁴

Excitation of each of these drives has a single solution, while cognitive dissonance can be reduced in a number of ways. For the present research, it is suggested that cognitive dissonance behaves more like the homeostatic drive thermoregulation.

As homeothermic creatures, humans are created to maintain a body temperature within a very narrow margin regardless of the environment in which they exist. Thermoregulation is described as a variable set point with proportional control. The set point is the target temperature, which is achieved by balancing heat production with heat loss. This set point can vary due to internal and external factors. Around the set point, there is a range of temperatures that elicits no response, but variance past this interthreshold range causes a cascade of autonomic nervous system and endocrine responses that are proportional to the temperature discrepancy. While mild variances are excitatory, severe temperature changes interrupt homeostasis. What is not known is the exact mechanism by which the actual temperature is compared to the set point in order to elicit a balancing response. Despite the lack of clarity on this point, the existing model of

²¹²Wicklund and Brehm, *Perspectives on Cognitive Dissonance*, 96-97.

²¹³B. Gotz-Marchand, J. Gotz, and M. Irle, “Preference of Dissonance Reduction Modes as a Function of Their Order, Familiarity, and Reversibility,” *European Journal of Social Psychology* 4 (1974): 201–28.

²¹⁴Leonard Berkowitz, “The Motivational Status of Cognitive Consistency Theorizing,” in *Theories of Cognitive Consistency: A Sourcebook*, ed. Robert P. Abelson et al. (Chicago: Rand McNally,

thermoregulation adequately describes reality.²¹⁵

At each of these points, Cognitive Dissonance Theory mirrors thermoregulation. For example, the set point for the drive described by Festinger is cognitive consonance. Balance is maintained by the four mechanisms described by Festinger so that either side of the discrepancy is subject to correction.²¹⁶ The set point can vary based on internal and external factors.²¹⁷ Festinger describes the drive as being toward consonance rather than complete consonance, so that some interthreshold range exists wherein some dissonance is tolerated without response. Activation causes both autonomic nervous system and endocrine responses; the responses are proportional to the magnitude of the discrepancy between cognitions.²¹⁸ Mild discrepancies are excitatory, while severe discrepancies inhibit normal function.²¹⁹ As with thermoregulation, one of the least understood components is the comparison process between set point and discrepant cognition. Although the comparison is poorly understood, the model proposed by Festinger remains an adequate description of reality.

Research Purpose

In summary, the drive toward consonance, described by Festinger and supported by a substantial body of research, is innate to humans. The mechanisms of

1968), 304.

²¹⁵Danny R. Bowen, "Intraoperative Thermoregulation," in *Nurse Anesthesia*, 2nd ed., ed. John J. Nagelhout and Karen L. Zaglaniczy (Philadelphia: W.B. Saunders, 2001), 397-402.

²¹⁶Festinger, *A Theory of Cognitive Dissonance*, 2-3, 18-21.

²¹⁷See, for example, "Arousal of dissonance" section on p. 45.

²¹⁸Festinger, *A Theory of Cognitive Dissonance*, 2-3, 263.

²¹⁹See, for example, "Learning" section on p. 66.

exciting the drive as well as the means of reduction of the ensuing cognitive dissonance are well described by the research. Hard sciences support the existence of the drive as described by Festinger. Soft sciences indirectly support Cognitive Dissonance Theory by describing related phenomena that demonstrate the cognitive mechanisms involved. Even pedagogical practice through the millennia adds support to the veracity of social science observations that result from cognitive discrepancies.

However, throughout the corpus of literature, only naturalistic origins are proposed for the innate drive. Those naturalistic theories lack an explanation for the underlying purpose of the drive. Hunger, thirst, sex, and even thermoregulation have a clear purpose. However, the drive toward consonance, which closely resembles thermoregulation, is currently a drive with no known purpose.

With an anthropology built on a biblical-theological foundation, the origin and purpose may be inferred. With a proposed purpose, observations made by social psychologists may be reinterpreted in order to improve the descriptive fidelity and to extend the prescriptive facility of Cognitive Dissonance Theory to Christian pedagogy.

CHAPTER 3

METHODOLOGICAL DESIGN

Scripture contains God’s self-revelation to humanity. In the Bible, interactions are recorded between people as well as between God and humanity. As an accurate record of such interactions, choices made and reactions to those choices are portrayed. It is in those reactions that symptoms of cognitive dissonance can be discovered. Cognitive dissonance is a post-commitment-to-choice motivating drive that occurs when any pair of cognitions—elements of knowledge—about cognitive, affective, or behavioral elements are in conflict. The theory of cognitive dissonance has been widely researched and the result has been an accurate description and prediction of non-intuitive responses to dissonant cognitions. Despite the quantity and quality of research, there is no agreement regarding the purpose of the drive. Additionally, although the Bible is the only God-inspired record of history, no work has been found that attempts to examine the innate phenomenon of cognitive dissonance throughout Scripture.

This chapter describes the methodologies and procedures that were used in this research study. This study was designed to examine, in a systematic and comprehensive way, the phenomenon of cognitive dissonance found in Scripture in order to discern the purpose of the drive triggered by cognitive dissonance. Evidences that were used to identify the presence of cognitive dissonance in Scripture are those observed by researchers in the field of Cognitive Dissonance Theory.

The individual pericopes were examined in the context of the storyline of

Scripture. Making inferences from the texts in their context is a strength of the content analysis research method.¹ Neuendorf defines content analysis as “the systematic, objective, quantitative analysis of message characteristics.”² The inferences drawn are abductive, in contrast to inferences that are deductive or inductive. Krippendorff describes abductive inferences as “proceeding across logically distinct domains, from particulars of one kind to particulars of another kind,” and argues against the centrality of deduction and induction to the content analysis method.³ For the purposes of this research, the particulars of evidences of cognitive dissonance in Scripture were used to infer the purpose of the innate drive toward dissonance reduction. The subtlety of the hypotheses to be tested are arguably unperceivable by any other research method and, as such, support the use of the content analysis method.⁴ Six research questions were considered in this study.

Purpose Statement

The purpose of this content analysis research was to develop a biblical-theological model of Cognitive Dissonance Theory applicable to pedagogy. Evidence of cognitive dissonance found in Scripture was used to infer a purpose for the innate drive toward consonance. This inferred purpose is incorporated into a model of pedagogy that advocates extrinsic activation of intrinsic motivators to learn.

¹Klaus Krippendorff, *Content Analysis: An Introduction to Its Methodology* (Thousand Oaks, CA: Sage Publications, 2004), 18.

²Kimberly A. Neuendorf, *The Content Analysis Guidebook* (Thousand Oaks, CA: Sage Publications, 2002), 1.

³Krippendorff, *Content Analysis*, 36.

⁴Nathan C. Leites and Ithiel de Sola Pool, “On Content Analysis,” in *Content Analysis*, ed. Roberto Franzosi (Los Angeles: Sage Publications, 2008), 156.

Research Question Synopsis

1. To what degree, if any, are the evidences of Cognitive Dissonance Theory found in Scripture?
2. How, if present, is dissonance induced in Scripture?
3. What mechanisms of dissonance reduction, if any, are evidenced in Scripture?
4. What, if any, are the consequences of dissonance reduction mechanisms evidenced in Scripture?
5. How does cognitive dissonance, if present, connect to the biblical metanarrative?
6. How does the drive toward dissonance reduction, if present, connect to wisdom in Scripture?

Research Design Overview

Qualitative content analysis provides a way to make inferences about texts in their context.⁵ This research study was designed to discern the purpose of the phenomenon described by social-psychologists as cognitive dissonance. While the exact procedure will be described in a later section, for the purpose of overview, the following steps were used.

In Phase 1, the primary researcher

1. Developed an initial coding scheme based on cognitive dissonance literature
2. Divided the Bible into individual cases to be coded

In Phase 2, the primary researcher

3. Coded the individual cases

In Phase 3, the primary researcher

4. Finalized a code book with instructions for outside coders
5. Assembled and trained an outside coding team of original language experts

⁵Krippendorff, *Content Analysis*, xiii.

6. Selected a sample of coded stories for coding by the outside coders
The outside coders
7. Coded the provided cases using the instructions and code book
The primary researcher
8. Determined the intercoder reliability
In Phase 4, the primary researcher
9. Analyzed the data
10. Evaluated the results
In Phase 5, the primary researcher
11. Developed a pedagogical model in light of the findings
12. Wrote the research report

Coding Criteria

In the first phase, individual cases were isolated from the corpus of the New American Standard Bible.⁶ The exact procedure is detailed in a following section. Briefly described, the primary researcher examined every verb in Scripture and selected passages of Scripture in which cognitive dissonance could be present.⁷

In the second phase, the individual cases isolated in Phase 1 were coded by the primary researcher from Scripture using a code table that divided Scripture in a number of ways.⁸ The first division was the metanarrative focus of the passage. Next was the

⁶Gordon D. Fee and Mark L. Strauss, *How to Choose a Translation for All Its Worth: A Guide to Understanding and Using Bible Versions* (Grand Rapids: Zondervan, 2007), 147. The New American Standard Bible will be used because it is widely noted to be an accurate formal equivalent translation. The Lockman Foundation has provided both permission and a digital copy of the translation.

⁷See Table A1 in Appendix 1 for the code table used in the first phase.

⁸See Table A2 in Appendix 1 for the code table used in the second and third phases.

certainty of the presence of a choice between alternatives and the certainty of the commitment to the choice made. These certainty measures allowed observations to be weighted based on intercoder correlation of each. The two dissonant elements were categorized and rated for the certainty of their presence. The dissonance reduction mechanisms as well as the primary and secondary consequences of the dissonance reduction were categorized and rated for their certainty.

In the third phase, the individual cases isolated in Phase 1 were coded by six outside coders—three Hebrew and three Greek experts—from the original languages using coding criteria from Phase 1. In a second stage of Phase 3, a number of cases were re-coded by a portion of the outside coders from an English translation of Scripture.⁹

Population

The population consisted of the text of the sixty-six books of the Christian canon.

Sample and Delimitations

The content was exhaustively coded. Since the entire canon of the Christian Bible was examined, this study was a census study and, therefore, required no sampling.¹⁰ The sample that was provided for the outside coders to ensure reliability was a stratified, random sample of biblical stories where evidence of cognitive dissonance was likely to be reported.

⁹This second stage used a simplified coding scheme wherein the dissonance reduction mechanism and the commitment to choice were suggested and the outside coders identified the dissonant elements and the consequences of dissonance reduction.

¹⁰Krippendorff, *Content Analysis*, 120.

Definitions for terms related to cognitive dissonance were those used by Leon Festinger and were distinguished from closely related terms from other researchers.

Evidence for cognitive dissonance in Scripture was the identification of verb-subject pairs that described the presence of dissonance similar to previous research findings or the presumption by a trained observer of the presence of dissonance in the context of a passage.

Limitations of Generalization

This study was a true census study since it involved coding the entire canon of the Christian Bible. Since a census study contains the entire population, no inferential statistical analysis was necessary to relate a sample to the population.¹¹ With the biblical-theological foundations presented, the findings may not be generalizable to non-conservative Christian contexts. Although additional coders were employed to ensure reliability of the primary researcher's code assignments, subjective interpolation and interpretation may have been introduced. Therefore, the findings may not be generalizable to the field of pedagogy at-large.

Research Method and Instrumentation

The researcher pursued an abductive inferential research methodology which required the use of qualitative content analysis software for organization, codification, analysis, and hypothesis testing of the massive data set. The first phase isolated the individual cases for further study. In the second phase, the primary researcher coded the cases isolated in Phase 1. The third phase required outside coders to manually code the

¹¹Neuendorff, *The Content Analysis Guidebook*, 168.

subset of data and then required the primary researcher to calculate an intercoder reliability. The fourth phase required extensive analysis and hypothesis testing. Because of the unique features offered, especially in hypothesis testing of the data, the application HyperRESEARCH™ by ResearchWare, Inc. was selected as the software of choice. IBM® SPSS® Statistics was used for calculating the intercoder reliability in Phase 3 and for cross-tabulation in Phase 4. The final phase required reporting the results.

Ethics Committee Process

Since the study consisted of content analysis of the canon of the Christian Bible, the research process did not involve interaction with human subjects. Permission was obtained from the Lockman Foundation for use of the text of the New American Standard Bible for the purpose of this research.

Research Procedures

Following Neuendorf's design for qualitative content analysis, the rationale for the study was established.¹² For internal validity, the unit of study was described, the variables were listed, and the exhaustive and mutually exclusive list of measurement of the variables were detailed. Methods of coding and methods used to ensure reliability were explained. The sampling technique was described and the training of the outside coders was explained. Finally, the methods for calculating final reliability, analyzing, and reporting were described.

Rationale

The preliminary work on this study resulted in research questions and a

¹²Ibid., 50-51.

research design suited to answering those questions. Extensive review found a massive body of literature that describes the intricacies of Cognitive Dissonance Theory as well as a few examples of attempts to apply the theory to various disciplines within Christianity. Despite the description and use, no satisfactory purpose for the innate drive toward consonance was found. Without a known purpose, the description and use remain descriptive rather than prescriptive. With the assumption that an innate drive was designed by the Creator, and in an attempt to discover the purpose for the drive, the evidences of cognitive dissonance and mechanisms of reducing dissonance found in the literature were used to examine the only God-inspired record of history available—the Bible.

Phase 1: Isolation of Cases

Cases are the unit of study in the qualitative research method. The first phase isolated the individual cases from the corpus of Scripture. From the plain text file of the New American Standard Bible provided by Lockman Foundation, Scripture was divided into individual books and the unaltered text was saved as rich text files compatible with the HyperRESEARCH™ software. The individual files were labeled with the canonical book order and the files were locked in the computer operating system to prevent changes to the source files. Then, the source files were imported as “sources” into HyperRESEARCH™.

Unit of study. Each source file was coded by its location within Old or New Testament, narrative storyline division used by Hamilton,¹³ and biblical division—Torah,

¹³James M. Hamilton, Jr., *God's Glory in Salvation through Judgment: A Biblical Theology*

former prophets, latter prophets, etc.—and then by book. Additional coding included the canonical order, as it occurs in the NASB, as well as the biblical book name.

Each verb in Scripture was examined. For those verbs with both a human subject¹⁴ and a possible association with any of the steps related to cognitive dissonance,¹⁵ the immediate context in which these verbs appear were identified as cases for further study. This resulted in a total of 2,164 cases for Phase 2.

Phase 2: Coding by Primary Researcher

In Phase 2, the 2,164 cases identified in Phase 1 were re-examined and variables were coded.

Variables. Variables that were examined include the metanarrative focus, that is, the location on the redemptive timeline, with possible nominal measurements being: creation, fall, redemption, or consummation.

Evidences of cognitive dissonance are seen following the commitment to a decision and the decision's inherent conflict.¹⁶ In examining individual stories within Scripture, evidences of a decision and commitment to that decision were sought. The ordinal variables of certainty of the coder in observing both a decision and commitment were measured as clear, presumed, or unknown.

(Wheaton, IL: Crossway, 2010), 61, 64.

¹⁴Since the present research concerns cognitive dissonance in humans, only verbs related to human subjects were considered. It is presumed that God experiences no dissonance since, in his perfection, all his cognitions are consonant. Other non-human subjects are irrelevant to the current research.

¹⁵Since cognitive dissonance is a post-commitment-to-decision phenomenon, the context was assessed for the presence of conflict, decision, commitment to a decision, cognitive dissonance, or dissonance reduction mechanisms.

¹⁶Leon Festinger, *A Theory of Cognitive Dissonance* (Evanston, IL: Row, Peterson and Co., 1957), 47.

Following a commitment to a decision, if dissonance is present, the subject will be motivated to reduce that dissonance.¹⁷ The mechanism of dissonance reduction was the next nominal variable and the individual stories were examined for evidence of one of these four possible dissonance reduction mechanisms: (1) changing one of the dissonant elements, (2) adding a new consonant element, (3) changing the importance of one of the dissonant elements, and (4) ignoring reality.¹⁸ A fifth value allowed identification of the absence of a dissonance reduction mechanism.

Where dissonance reduction was present, identification of the two dissonant elements, the next two nominal variables, was attempted and the certainty of the coder in identifying those dissonant elements was measured as clear or presumed. The dissonant elements were nominally measured as related to cognition, affect, behavior, or none.

Likewise, up to two consequences of the dissonance reduction were ascertained, where possible, and nominally measured as a change in either cognition, affect, or behavior related to God, self, others, or creation. Another value allowed identification of cases where no consequence of dissonance reduction could be ascertained from the context. Again, the certainty of the coder in observing these consequences were measured as clear or presumed.

The final variable examined was the historicity of the episode. This variable was measured as actual in cases where the record indicates an historical record, hypothetical in cases where there was a conditional account without a suggestion of the historicity of the encounter, or command in cases where the conditional nature of the

¹⁷Ibid.

¹⁸Ibid., 18-21.

episode provided clear instruction for future action.

Coding. To maintain the status as a census study, every case isolated in Phase 1 was re-examined by the primary researcher. Sixty-two cases were either consolidated into adjoining pericopes or excluded from further analysis because they failed to demonstrate any possibility of evidencing cognitive dissonance. The resulting 2,102 cases were coded by the primary researcher using the variables identified above. Of these, 296 were identified as cases where cognitive dissonance was present.

Phase 3: Reliability

To ensure reliability, outside coders independently coded a fraction of the cases and statistical measurement was conducted to determine the degree of consistency with the codes assigned by the primary researcher.

Coding by outside coders. The cases identified as containing cognitive dissonance were randomly sampled and stratified by their place in the biblical storyline. Sixty-one (20.6%) of the 296 cognitive dissonance cases were selected and an additional thirty-nine cases without cognitive dissonance were included as a control. The total of one hundred cases was divided between Old Testament (54 cases) and New Testament (46 cases). Outside coders—doctoral-level original language experts from the School of Theology of The Southern Baptist Theological Seminary—independently coded the cases after training.¹⁹ Training consisted of a two-hour meeting between the outside coders and

¹⁹Limits were set in the stratified, random sample. If only one or two cases were identified in any of the divisions of the biblical storyline, the outside coders were presented with 100 percent of the cases within that division. If more than two cases were identified within a biblical division, then 20 percent of those cases were presented with a minimum of 2 and a maximum of 10 cases within each division. These limits were set to make the outside coding as extensive as possible without over-burdening the outside

the primary researcher. A codebook was provided along with detailed instructions.²⁰ Practice, using samples outside those provided in the stratified, random sample, was accomplished and discussed until uniformity in results was accomplished. Individual coders were then given ample time to code the pericopes provided and return the results to the primary researcher.

Reliability measurement. Intercoder reliability was measured using Krippendorff's α , a statistic that "takes into account chance agreement and, in addition, the magnitude of the misses, adjusting for whether the variable is measured as nominal, ordinal, interval, or ratio."²¹ Additionally, Krippendorff's α is one of only two popular intercoder reliability coefficients that accommodates for more than two coders at a time.²² The calculator for Krippendorff's α is provided as a free macro for use in IBM® SPSS® Statistics software. Three levels of correlation have been proposed in the literature. Certainty is gained at $\alpha \geq .90$; customary agreement is at $\alpha \geq .80$; and tentative acceptance is at $\alpha \geq .667$.²³

Additional reliability measurement. Intercoder reliability was established for the presence of cognitive dissonance (Krippendorff's $\alpha \geq .81$), the commitment that led to dissonance (Krippendorff's $\alpha \geq .85$), and the means of cognitive dissonance reduction

coders.

²⁰Appendix 2 contains the instructions provided the outside coders. Appendix 3 contains a sample case presented to the outside coders. These cases were presented two to a page.

²¹Neuendorf, *The Content Analysis Guidebook*, 161.

²²Ibid., 148.

²³Klaus Krippendorff, "Reliability in Content Analysis: Some Common Misconceptions and Recommendations," in *Content Analysis*, ed. Roberto Franzosi (Los Angeles: Sage Publications, 2008), 282-83.

(Krippendorff's $\alpha \geq .77$). However, low reliability statistics related to the domains involved in triggering cognitive dissonance (Krippendorff's $\alpha = .53$) and the domains and targets of dissonance reduction (Krippendorff's $\alpha = .42$) demonstrated the degree of subjectivity of such measures.

The research committee approved a second attempt at establishing reliability using a simplified model based on outside coder feedback. In this model, the commitment and dissonance reduction mechanism confirmed in the initial reliability measures were again presented to the outside coders.²⁴ Because of unanimous agreement among the original language coders that, for the purpose of this study, the original language was unlikely to yield answers significantly different from a reliable English translation, each coder was asked to re-code, from a reliable English translation, twenty-five passages drawn from the Old and New Testaments.²⁵ The outside coders who were available for this second data collection were asked to confirm the presence of dissonance in the passage and then identify the verse or verses in which the dissonant elements and the consequences of dissonance reduction were described in the context. Rather than the boundaries being established for the coders as in the first attempt, the coders were free to look beyond the original context in order to answer the questions. However, even this change revealed a significant subjectivity to the methodology used. Krippendorff's α for the dissonant elements was $\alpha = .06$ and for the consequences of dissonance reduction was $\alpha = .13$.

²⁴The additional instructions and an example of the modified reliability case model appear in Appendix 4.

²⁵Recommended English translations for the recoding work were ESV, NASB, or NIV.

Phase 4: Analysis

Analysis was a two-step process using HyperRESEARCH™. The first step was the examination for “interesting and useful patterns in the data.”²⁶ For this purpose, HyperRESEARCH™ contains a robust set of proximity functions combined with Boolean operators to find relationships between codes within cases. Analysis focused on relationships between codes sufficient to answer the six research questions. The relationships found suggested theoretical models to account for the relationship.

This initial analysis suggested the presence of a second type of cognitive tension recorded in Scripture—one without a documented commitment to a decision. Therefore, an additional 281 cases were added to the second analysis stage bringing the total to 577 cases in which cognitive tension could be examined.

The theoretical models were then tested in the second step. Support of assumptions and inferences about the model were ascertained and applied as additional codes to the individual cases. Where patterns were found and theories were confirmed using HyperRESEARCH™, cross-tabulation calculations were conducted in IBM® SPSS® Statistics to confirm the strength of relationships between variables.

From this two-step analysis, it was determined that a purpose for the innate drive toward dissonance reduction can be inferred from Scripture. Abductive inferences from the examination of the stories in their immediate contexts, their storyline divisional contexts, and their biblical metanarrative contexts were used to propose both a purpose for the drive and a model of activating that drive that could be relevant to educators.

²⁶ResearchWare, Inc., *HyperRESEARCH User Guide: Software for Qualitative Data Analysis*, v. 3.0 (Randolph, MA: ResearchWare, Inc, 2010), 31.

Phase 5: Reporting

Finally, the findings were reported. Since a purpose for cognitive dissonance was inferred from Scripture, a model that could allow educators to trigger the innate drive was developed and reported.

CHAPTER 4

ANALYSIS OF FINDINGS

The purpose of this content analysis research was to develop a biblical-theological model of Cognitive Dissonance Theory applicable to pedagogy. To reach this purpose through answering the research questions, the researcher conducted a census study in the form of a qualitative content analysis of the text of the entire Bible. The primary researcher used the New American Standard Bible; the outside coders verified a portion of the research from original language texts. In the study, evidence of cognitive dissonance was sought and inferences were drawn regarding the purpose for the innate drive toward cognitive consonance. The resulting data are presented, organized around the six research questions.

Compilation Protocol

Compilation began with an examination of the entire canon of Scripture. Then, cases were isolated and coded systematically in order to answer the six research questions. Outside coders were employed to confirm reliability of the primary researcher's coding. This compilation occurred in three phases.

Phase 1

In the first phase, the individual cases for study were isolated from Scripture. The plain text file of the New American Standard Bible provided by Lockman Foundation was divided into individual books and saved as rich text files. The individual

files were labeled with the canonical book order and the files were locked in the computer operating system to prevent changes to the source files. Then, the files were imported into HyperRESEARCH™.

Each source file was coded by its location within Old or New Testament, narrative storyline division used by Hamilton,¹ and biblical division—Torah, former prophets, latter prophets, etc.—and then by book. Additional coding included the canonical order as well as the biblical book name.

Each verb in Scripture was examined. For those verbs with both a human subject² and a possible association with any of the steps related to cognitive dissonance,³ the immediate context in which these verbs appear were identified as cases for further study.

When the presence of cognitive dissonance in a passage was speculative, the case was marked for inclusion in the study. This choice was made to decrease the potential for overlooking an example of cognitive dissonance. In the additional coding phases, those cases without clear evidence for cognitive dissonance were excluded from further analysis. Altogether, 2,164 cases were identified for compilation in Phase 2.

¹James M. Hamilton, Jr., *God's Glory in Salvation through Judgment: A Biblical Theology* (Wheaton, IL: Crossway, 2010), 61, 64. Hamilton, among others, finds continuity in the storyline of Scripture. The storyline begins with creation, which God declares to be very good (Gen 1). It proceeds to the fall of humanity when Adam and Eve sin in the Garden of Eden (Gen 3). The bulk of the remainder of Scripture describes God's redemption of fallen creation. In the consummation at the end of the age, God recreates the heavens and earth (Rev 21), removing the effects of the fall. The storyline is summarized as creation—fall—redemption—consummation.

²Since the present research concerns cognitive dissonance in humans, only verbs related to human subjects were considered. It is presumed that God experiences no dissonance since, in his perfection, all his cognitions are consonant. Other non-human subjects are irrelevant to the current research.

³Since cognitive dissonance is a post-commitment-to-decision phenomenon, the context was assessed for the presence of conflict, decision, commitment to a decision, cognitive dissonance, or dissonance reduction mechanisms.

Phase 2

In Phase 2, the 2,164 cases isolated in Phase 1 were re-examined and manually coded by the primary researcher. The variables examined were the metanarrative focus of the passage along with evidences of cognitive dissonance gleaned from the extensive body of research on Festinger's Cognitive Dissonance Theory. These dissonance-related variables include the presence of choice, commitment to that choice, dissonant elements related to the choice, presence of dissonant reduction mechanisms, and the consequences of dissonance reduction. Finally, the historicity of the episode was coded.⁴ The full list of variables are listed in Table A2 in Appendix 1.

During this phase, 94 cases were either consolidated into adjoining pericopes or excluded from further analysis because they failed to demonstrate any possibility of evidencing cognitive dissonance. This refinement resulted in reducing the potential cases to 2,070 with 240 identified as reflecting cognitive dissonance.

In the initial analysis a phenomenon similar to cognitive dissonance was seen. The major difference between the observation of those cases with cognitive dissonance and cases that resembled cognitive dissonance was the presence of a preceding commitment. Festinger's Cognitive Dissonance Theory requires a commitment to a decision for the combination of physiological and psychological arousal.⁵ This commitment and accompanying arousal distinguishes dissonance in Festinger's theory

⁴Coding the historicity divided cases into those that were actual events in history from those that were not. Cases that were not historical events were divided between those that described hypothetical situations—either parables or other situations that might or might not occur—and those that described commands—situations that were anticipated to occur because of the imperative nature of the case. It was presumed that historical records were more likely to reflect signs of the arousal associated with cognitive dissonance than cases that described hypothetical conditions under which dissonance might be aroused.

⁵Leon Festinger, *Conflict, Decision, and Dissonance* (Stanford, CA: Stanford University Press,

from the disequilibrium in Piaget’s cognitive development theory or the dialectic described by Hegel.⁶ The choice was made to examine and compare the two types of cognitive tension; with the addition of 337 cases of cognitive tension without a commitment, the total number of cases was increased to 577.

Phase 3

Phase 3 was conducted to ensure reliability of the primary researcher’s coding of the variables. A stratified, random sample of twenty percent of the cases examined by the primary researcher was presented to six outside coders—three Hebrew scholars who worked with fifty-four cases in the Old Testament and three Greek scholars who worked with forty-six cases in the New Testament.⁷

Detailed instructions and training were provided using cases not included in the reliability sample. When consistency in the results was achieved in training, the outside coders worked independently on the same list of cases, divided by Testament. A full list of cases examined by the outside coders is presented in Table A4 in Appendix 6. The code table was the same used by the primary researcher in Phase 1 (Appendix 1, Table A2). The instructions provided are presented in Figure A1 in Appendix 3. A sample case is presented in Figure A2 in Appendix 3. Intercoder reliability was measured using Krippendorff’s α , a statistic that “takes into account chance agreement and, in addition, the magnitude of the misses, adjusting for whether the variable is measured as

1964), 156.

⁶Jean Piaget, *The Development of Thought: Equilibration of Cognitive Structures*, trans. Arnold Rosin (New York: Viking Press, 1977), 40; Georg W. F. Hegel, *The Phenomenology of Spirit (The Phenomenology of Mind)* (Lawrence, KS: Digireads.com Publishing, 2010), 7087.

⁷Stratification of the sample occurred on both the storyline division—earlier narrative, commentary, latter narrative—and the metanarrative focus—creation, fall, redemption, consummation.

nominal, ordinal, interval, or ratio.”⁸ Krippendorff’s α is one of only two popular intercoder reliability coefficients that accommodates for more than two coders at a time.⁹ The calculator for Krippendorff’s α is provided as a free macro for use in IBM® SPSS® Statistics software.

Intercoder reliability was established for the presence of cognitive dissonance, the commitment that led to dissonance, and the means of cognitive dissonance reduction.¹⁰ However, reliability statistics related to the domains involved in triggering cognitive dissonance and the domains and targets of dissonance reduction demonstrated the degree of subjectivity of such measures. Krippendorff’s α was $\alpha = .53$ for the domain of the dissonant elements. Krippendorff’s α was $\alpha = .42$ for the domain affected by dissonance reduction. Krippendorff’s α was $\alpha = .53$ for the target of the consequence of dissonance reduction. Each of these reflects low reliability.

Because of the apparent subjectivity, the research committee approved a second attempt at establishing reliability using a simplified model based on outside coder feedback. In this model, the commitment and dissonance reduction mechanism confirmed in the initial reliability measures were again presented to the outside coders. There was

⁸Kimberly A. Neuendorf, *The Content Analysis Guidebook* (Thousand Oaks, CA: Sage Publications, 2002), 151.

⁹Ibid., 148, 151. The two reliability coefficients that accommodate more than two coders at a time are Krippendorff’s α and Cohen’s κ . While Cohen’s κ was an improvement over previous reliability measures, Krippendorff’s α was used because it takes into account chance agreement, the magnitude of misses, and adjusts for the type of variables measured—nominal, ordinal, interval, or ratio. In the past Krippendorff’s α was not used frequently because of the tedium of its calculations. With modern computer hardware, software, and the availability of an accurate macro to manage the calculation, use of Krippendorff’s α was feasible for the present research.

¹⁰Krippendorff’s α was $\alpha \geq .81$ for the presence of cognitive dissonance. Krippendorff’s α was $\alpha \geq .85$ for the presence of a commitment to a decision. Krippendorff’s α for dissonance reduction mechanism was $\alpha \geq .77$. The first two reflect customary agreement; the third reflects tentative acceptance. See Data Analysis section below for the full discussion.

unanimous agreement among the original language coders that, for the purpose of this study, the original language was unlikely to yield answers significantly different from a reliable English translation. Therefore, each coder was asked to re-code, from a reliable English translation, twenty-five passages drawn from the Old and New Testaments. The three outside coders who were available for this second data collection were asked to confirm the presence of dissonance in the passage and then identify the verse or verses in which the dissonant elements and the consequences of dissonance reduction were described in the context. Rather than the boundaries being established for the coders as in the first attempt, the coders were free to look beyond the original context in order to answer the questions (see Appendix 4 for the additional instructions and an example of the modified reliability case model).

Data Analysis Protocol

Analysis was a two-step process using HyperRESEARCH™. The first step was the examination for “interesting and useful patterns in the data.”¹¹ For this purpose, HyperRESEARCH™ contains a robust set of proximity functions combined with Boolean operators to find relationships between codes within cases. Analysis focused on relationships between codes sufficient to answer the six research questions. The relationships found suggested theoretical models to account for the relationship.

This initial analysis suggested the presence of a second type of cognitive tension recorded in Scripture—one without a documented commitment to a decision. Therefore, an additional 337 cases were added to the second analysis stage bringing the

¹¹ResearchWare, Inc., *HyperRESEARCH User Guide: Software for Qualitative Data Analysis*, v. 3.0 (Randolph, MA: ResearchWare, Inc, 2010), 31.

total to 577 cases (Appendix 5, Table A3) in which cognitive tension could be examined.¹²

Theoretical models were then tested in the second step. Support of assumptions and inferences about the model were ascertained and applied as additional codes to the individual cases. Where patterns were found and theories were confirmed using HyperRESEARCH™, cross-tabulation calculations were conducted in IBM® SPSS® Statistics to confirm the strength of relationships between variables.¹³

Intercoder reliability was measured using Krippendorff's α . Three levels of correlation have been proposed in the literature. Certainty is gained at $\alpha \geq .90$; customary agreement is at $\alpha \geq .80$; and tentative acceptance is at $\alpha \geq .667$.¹⁴

Cross-tabulations calculations used the Fisher's exact test. Fisher's exact test is a non-parametric measure of the relatedness of ordinal or nominal variables, such as

¹²The final, total case count was 2,102 (see pp. 99-100). Of these, 296 demonstrated cognitive tension consistent with Cognitive Dissonance Theory, that is, cognitive tension following a commitment to a decision. Another 281 cases showed a similar cognitive tension but lacked a preceding commitment. The total number of cases of cognitive tension—with or without commitment—was 577 (see pp. 100-01).

¹³HyperRESEARCH™ considers a theory any logical condition that might be met. This could be as simple as a code or word being present in a case or as complicated as an extensive boolean operation on combinations of codes, words, and phrases. HyperRESEARCH's™ theory builder allows multi-step analysis in a single theory. With the text of each biblical book imported as a source, sections were highlighted and tagged (coded) using the code tables listed in Appendix 1. Beyond the original codes, combinations were added as individual codes. The combination of the two dissonant elements was coded as a single variable that reflected the two elements present (e.g., COG-COG for 2 cognitive elements that were dissonant, COG-AFF for dissonance between one cognitive element and one affective element). More complex theories were tested and codes were assigned to the cases for the presence of cognitive tension, evidenced by the presence of a combination of dissonant elements and a dissonance reduction mechanism. Cognitive tension cases were distinguished between those with a commitment to a decision and those without such a commitment and appropriate codes were added to the cases to simplify further analysis. Finally, cases that revealed cognitive tension and appeared in one of the wisdom books of the Bible were coded. With these codes applied, the cases and codes were filtered in dozens of ways and reports of the various counts were viewed to discern patterns within the cases. When the work in HyperRESEARCH™ seemed to show a pattern, the patterns were measured statistically to verify their level of significance.

¹⁴Klaus Krippendorff, "Reliability in Content Analysis: Some Common Misconceptions and Recommendations," in *Content Analysis*, ed. Roberto Franzosi (Los Angeles: Sage Publications, 2008), 282-83.

those used in the present research. Like the related chi-square (χ^2), the Fisher's exact indicates whether or not there is a statistically significant relationship between two variables without indicating the degree of significance. Fisher's exact test was chosen because it is more accurate in the presence of the relatively small sample size compared to that required for chi-square (χ^2).¹⁵

Each Fisher's exact calculation is reported as the statistical significance using the probability value (e.g., $p < .05$)—the probability of rejecting a null hypothesis when it is actually true (Type I error). It is customary to interpret $p \leq .05$ as statistically significant. With the Fisher's exact test, this means that a statistically significant relationship exists between the variables at $p \leq .05$. Fisher's exact tests with $p > .05$ are interpreted as not representing a statistically significant relationship between the variables.¹⁶

Distributions and Data Summary

In the preliminary phase, 2,070 cases were identified as potentially containing evidence of cognitive dissonance. In the second phase, 240 (11.6%) of those cases were found to actually contain evidence of cognitive dissonance. In Phase 3, an additional 377 cases were added to the analysis.

Findings and Displays by Research Question

For each research question, the relevant findings as well as the Krippendorff's α relevant to the specific variables will be presented.

¹⁵George A. Morgan et al., *IBM SPSS for Introductory Statistics: Use and Interpretation*, 5th ed. (New York: Routledge, 2013), 136.

¹⁶*Ibid.*, 100.

Research Question 1

In order to determine the degree to which evidences of Cognitive Dissonance Theory are found in Scripture, the number of cases initially identified as well as the number of cases found to contain such evidences were counted.¹⁷ Initial analysis revealed cognitive tension resembling cognitive dissonance but without an apparent commitment to a decision. These cases were added to the subsequent analysis.

Table 1 presents the total number of cases initially identified in Phase 1 as adjusted in Phase 2. Table 1 also presents the number of cases that revealed the presence of cognitive tension in Phase 2, grouped by division in the narrative storyline and the

Table 1. Identified cases by division of the narrative storyline and commitment

Biblical Division	Total Cases	Cases with Cognitive Tension and Commitment	Cases with Cognitive Tension without Commitment
<i>Old Testament Narrative Storyline – Earlier</i>			
Torah	130	36	0
Former Prophets	238	21	1
<i>Old Testament Commentary</i>			
Latter Prophets	232	19	4
The Book of Truth	418	37	6
The Small Scrolls	90	0	1
<i>Old Testament Narrative Storyline – Latter</i>			
Other Sacred Writings	90	11	1
Total - OT	1,198	124	13
<i>New Testament Narrative Storyline – Earlier</i>			
Gospel & Acts	564	106	125
<i>New Testament Commentary</i>			
Letters	269	5	194
<i>New Testament Narrative Storyline – Latter</i>			
Revelation	39	5	5
Total - NT	872	116	324
Total – OT + NT	2,070	240	337

¹⁷Research Question 1 was, “To what degree, if any, are the evidences of Cognitive Dissonance Theory found in Scripture?”

presence or absence of commitment to a decision. The inter-rater reliability for the presence of cognitive dissonance, as measured by Krippendorff's α , was $\alpha \geq .81$, which represents customary agreement for reliability. The inter-rater reliability for the presence of commitment to a decision, as measured by Krippendorff's α , was $\alpha \geq .85$, which represents customary agreement for reliability.

From this initial examination, it is clear that evidences of cognitive dissonance are recorded in Scripture, supporting the need for further analysis. Although the Old Testament is considerably longer than the New Testament, the appearance of cognitive dissonance is approximately equally divided between the two. In the Old Testament, cognitive dissonance is found in all three sections of the narrative storyline—earlier narrative, commentary, and latter narrative. With the exception of the Small Scrolls, each Old Testament biblical division contains evidences of cognitive dissonance. In the New Testament, cognitive dissonance is found in all sections of the narrative storyline with the majority (91%) occurring in the earlier narrative.

Because of the differences observed between Old and New Testaments, the data were tabulated by testament and presence of a commitment to a decision (see Table 2). Cross tabulation calculations using a Fisher's Exact Test showed a significant difference ($p < .001$).

Table 2. Cases by testament and commitment

Testament	Commitment	No Commitment	Total
Old Testament	124	13	137
New Testament	116	324	440
Total	240	337	577

Noteworthy is the finding that a cognitive tension similar to dissonance appears that does not involve a commitment to a decision, a necessary element in Cognitive Dissonance Theory. These cases are overwhelmingly (96%) a New Testament phenomenon. They occur throughout the narrative storyline in both Testaments, but the majority occur in a combination of the New Testament earlier narrative (37%) and New Testament commentary (58%) sections of the storyline. The differences between the two types of cognitive tension are highlighted in the following sections as inferences are drawn from the observations.

Research Question 2

Having found cognitive dissonance in the first research question, the second examines the induction of dissonance.¹⁸ To determine the means of inducing dissonance in Scripture three analyses were made. The first was a comparison between the various combinations of domains identified in the dissonant elements separated by the presence of a commitment to a decision. These counts are presented in Table 3. Cross tabulation calculations using a Fisher’s Exact Test showed a significant difference ($p < .001$).

Table 3. Combination of dissonant elements

	Cognitive	Affective	Behavioral	Total
Cognitive	372	30	161	563
Affective		0	9	9
Behavioral			5	5
Total	372	30	175	577 ¹⁹

¹⁸Research Question 2 was, “How, if present, is dissonance induced in Scripture?”

¹⁹Each combination of dissonant elements is reported only once in the table. The total of 577 cases represents all cases with cognitive tension, that is, those cases with a commitment to a decision and those without a commitment.

Examining every case that includes a dissonance-like tension reveals that the majority (64%) are triggered by a discrepancy between two cognitive elements. A combination of cognitive and behavioral elements accounts for another significant portion (28%). The remaining 8% are divided between other combinations of cognitive, affective, and behavioral elements.

To determine the trigger for the drive toward consonance, the combinations of dissonant elements were compared and separated by presence of a commitment to a decision (Table 4). Cross tabulation calculations using a Fisher's Exact Test showed a significant difference ($p < .001$).

Separating the cases between those with a commitment to a decision consistent with Cognitive Dissonance Theory and those without such a commitment reveals a significant difference between the means of inducing cognitive tension. In cases with a commitment to a decision, the majority (62%) reveal dissonance between cognitive and behavioral elements. Only 24% are induced by dissonance between two cognitive elements. In contrast, in cases without a commitment, the majority (93%) reveal dissonance between cognitive elements and in only 4% of the cases is dissonance induced by a combination of cognitive and behavioral elements. Described another way, 92% of cases involving both cognitive and behavioral elements occur in the presence of a commitment to a decision; 85% of cases involving only cognitive elements occur in the absence of a commitment to a decision.

A third analysis involved the examination of situations in which at least one of the elements that triggered dissonance was included in the description of the commitment to a decision. These counts are presented in Table 5.

Table 4. Counts of dissonant element combinations separated by presence of commitment

Domains	Commitment	No Commitment	Total
Cognitive – Cognitive	57	315	372
Cognitive – Affective	23	7	30
Cognitive – Behavioral	148	13	161
Affective – Affective	0	0	0
Affective – Behavioral	8	1	9
Behavioral – Behavioral	4	1	5
Total	240	337	577

Table 5. Dissonant elements coinciding with evidence of a commitment

Cognitive	25
Affective	12
Behavioral	132
Total	169

In the second attempt at reliability measurement, the outside coders identified the verse or verses that contained the dissonant elements responsible for eliciting a dissonance reduction mechanism. There was collective agreement of 52% with the primary coder. The inter-rater reliability for identification of the dissonant elements, as measured by Krippendorff’s α , was $\alpha = .06$, which represents a low reliability.

Research Question 3

To determine the mechanisms of cognitive dissonance reduction represented in Scripture, the frequency of each mechanism was measured.²⁰ These counts are presented

²⁰Research Question 3 was, “What mechanisms of dissonance reduction, if any, are evidenced in Scripture?” According to Leon Festinger, *A Theory of Cognitive Dissonance* (Evanston, IL: Row, Peterson and Co., 1957), 18-21, there are four means by which dissonance may be reduced: (1) Change one of the cognitions, (2) add new cognitive elements, (3) change the importance of one of the elements, and

in Table 6. Cross tabulation calculations using a Fisher’s Exact Test showed a significant difference ($p = .009$). The inter-rater reliability for this set of data, as measured by Krippendorff’s α , was $\alpha \geq .77$, which represents a tentative level of acceptance.

When cognitive tension between dissonant elements is present in Scripture, the tension is reduced by adding an element of knowledge in the vast majority of cases

Table 6. Counts of dissonance reduction mechanisms

Mechanism of Dissonance Reduction	Commitment	No Commitment	Total
Change 1 Element	2	2	4
Add a New Element	234	335	569
Change Importance of 1 of the Elements	1	0	1
Ignore Reality	3	0	3
Total	240	337	577

(99%). This prevalence exists in cases with a commitment to a decision as well as those without such a commitment. Each of the other means of dissonance reduction described by Festinger—changing one element, changing the importance of one of the discrepant elements, and ignoring reality—are present, but in an insignificant number (1%) of cases.

Research Question 4

To determine the consequences of dissonance reduction mechanisms evidenced in Scripture,²¹ the combinations of domains and targets were separated, based

(4) ignore reality.

²¹Research Question 4 was, “What, if any, are the consequences of dissonance reduction mechanisms evidenced in Scripture?” When dissonance is reduced, there are consequent changes in relationships. For this research, the domains of the changes—cognitive, affective, and behavioral—and the targets of those changed domains—God, self, others, creation—were coded.

on the presence of a commitment, and then tabulated (see Table 7).²² Cross tabulation calculations using a Fisher's Exact Test showed a significant difference ($p = .003$).

Table 7. Consequences of dissonance reduction by commitment

Domain – Target	Commitment	No Commitment	Total
Cognitive – God	127	148	275
Cognitive – Self	39	67	106
Cognitive – Other(s)	50	58	108
Cognitive – Creation	7	3	10
Affective – God	56	47	103
Affective – Self	3	1	4
Affective – Other(s)	15	20	35
Affective – Creation	0	0	0
Behavioral – God	30	31	61
Behavioral – Self	2	9	11
Behavioral – Other(s)	37	90	127
Behavioral – Creation	0	1	1
Unknown Consequence	10	13	23
Total	376	488	864

The combinations of domains and targets were also separated based on the type of dissonance reduction mechanism employed (see Table 8).²³ Cross tabulation calculations using a Fisher's Exact Test showed an insignificant difference ($p = .772$).

The targets of dissonance reduction mechanisms were compared to the presence of a commitment to a decision (see Table 9).²⁴ Cross tabulation calculations using a Fisher's Exact Test showed a significant difference ($p = .015$).

²²The total number of consequences is larger than the total number of cases because 289 cases had a second consequence.

²³The total number of consequences is larger than the total number of cases because 289 cases had a second consequence.

²⁴The total number of consequences is larger than the total number of cases because 289 cases

The domains of dissonance reduction mechanisms were compared to the presence of a commitment to a decision (see Table 10).²⁵ Cross tabulation calculations using a Fisher's Exact Test showed a significant difference ($p = .011$).

Table 8. Consequences of dissonance reduction by mechanism of dissonance reduction

Domain – Target	Change One Element	Add New Element	Change Importance	Ignore Reality	Total
Cognitive – God	2	270	0	3	275
Cognitive – Self	0	106	0	0	106
Cognitive – Other(s)	2	105	1	0	108
Cognitive – Creation	0	10	0	0	10
Affective – God	0	100	1	2	103
Affective – Self	0	4	0	0	4
Affective – Other(s)	0	35	0	0	35
Affective – Creation	0	0	0	0	0
Behavioral – God	0	61	0	0	61
Behavioral – Self	0	11	0	0	11
Behavioral – Other(s)	1	126	0	0	127
Behavioral – Creation	0	1	0	0	1
Unknown Consequence	0	23	0	0	23
Total	5	852	2	5	864

had a second consequence.

²⁵The total number of consequences is larger than the total number of cases because 289 cases had a second consequence.

Table 9. Consequence target by commitment

Target	Commitment	No Commitment	Total
God	213	226	439
Self	44	77	121
Other(s)	102	168	270
Creation	7	4	11
Unknown Consequence	10	13	23
Total	376	488	864

Table 10. Consequence domain by commitment

Domain	Commitment	No Commitment	Total
Cognitive	223	276	499
Affective	74	68	142
Behavioral	69	131	200
Unknown Consequence	10	13	23
Total	376	488	864

In the second attempt at reliability measurement, the outside coders identified the verse or verses that contained the consequences of dissonance reduction. There was collective agreement of 62.7% with the primary coder. The inter-rater reliability for the presence of commitment to a decision, as measured by Krippendorff's α , was $\alpha = .13$, which represents a low reliability.

When dissonance reduction mechanisms are employed, the consequences occur in cognitive, affective, or behavioral domains and are targeted at God, self, others, or other aspects of creation. The only noteworthy difference between those cases of cognitive tension in the presence of a commitment to a decision and those without a commitment is that the latter demonstrate a greater change in behavior toward others.

Most changes relate to God (51%) and occur in the cognitive domain (58%).

Change toward others is reported in a smaller number (31%), toward self in even smaller numbers (14%), and toward creation very infrequently (1%). The affective domain accounts for 16% of the consequences and the behavioral domain accounts for 23%. There is a slight difference between the presence of commitment and the affective domain with those cases with a commitment demonstrating a slightly greater proportion than expected relative to cases without a commitment. The other two domains—cognitive and behavioral—are proportionally represented.

Research Question 5

To determine the connection between cognitive dissonance and the biblical metanarrative, the data for each of the previous research questions were compared to each stage of the biblical metanarrative.²⁶

Presence of Commitment

Frequencies of cases with both cognitive tension and a commitment to a decision are presented in Table 11. Cross tabulation calculations of cases with a commitment using a Fisher's Exact Test showed a significant difference ($p < .001$). Cases with cognitive tension without a commitment to a decision are presented in Table 12. Cross tabulation calculations of cases without a commitment using a Fisher's Exact Test showed a significant difference ($p < .001$).

²⁶Research Question 5 was, "How does cognitive dissonance, if present, connect to the biblical metanarrative?"

Table 11. Cases with commitment by metanarrative focus

Biblical Division	Creation	Fall	Redemption	Consummation	Total
<i>Old Testament Narrative Storyline - Earlier</i>					
Torah	0	16	20	0	36
Former Prophets	0	0	21	0	21
<i>Old Testament Commentary</i>					
Latter Prophets	0	0	19	0	19
The Book of Truth	0	0	37	0	37
The Small Scrolls	0	0	0	0	0
<i>Old Testament Narrative Storyline – Latter</i>					
Other Sacred Writings	0	0	11	0	11
Total - OT	0	16	108	0	124
<i>New Testament Narrative Storyline – Earlier</i>					
Gospel & Acts	0	0	106	0	106
<i>New Testament Commentary</i>					
Letters	0	0	5	0	5
<i>New Testament Narrative Storyline – Latter</i>					
Revelation	0	0	5	0	5
Total - NT	0	0	116	0	116
Total – OT + NT	0	16	224	0	240

Table 12. Cases without commitment by metanarrative focus

Biblical Division	Creation	Fall	Redemption	Consummation	Total
<i>Old Testament Narrative Storyline - Earlier</i>					
Torah	0	0	0	0	0
Former Prophets	0	0	1	0	1
<i>Old Testament Commentary</i>					
Latter Prophets	0	0	5	0	5
The Book of Truth	0	0	6	0	6
The Small Scrolls	0	0	1	0	1
<i>Old Testament Narrative Storyline – Latter</i>					
Other Sacred Writings	0	0	1	0	1
Total - OT	0	0	14	0	14
<i>New Testament Narrative Storyline – Earlier</i>					
Gospel & Acts	0	0	125	0	125
<i>New Testament Commentary</i>					
Letters	0	0	193	0	193
<i>New Testament Narrative Storyline – Latter</i>					
Revelation	0	0	1	4	5
Total - NT	0	0	319	4	323
Total – OT + NT	0	0	333	4	337

Within both testaments, the majority (97%) of the cases are within the redemptive phase of the biblical metanarrative. Focusing on the redemptive phase, these cases are compared between those with and those without a commitment to a decision in Table 13. Cross tabulation calculations of cases without a commitment using a Fisher's Exact Test showed a significant difference ($p < .001$).

Table 13. Cases in redemptive metanarrative focus by biblical division

Biblical Division	Commitment	No Commitment	Total
<i>Old Testament Narrative Storyline - Earlier</i>			
Torah	20	0	20
Former Prophets	21	1	22
<i>Old Testament Commentary</i>			
Latter Prophets	19	5	24
The Book of Truth	37	6	43
The Small Scrolls	0	1	1
<i>Old Testament Narrative Storyline - Latter</i>			
Other Sacred Writings	11	1	12
Total - OT	108	14	122
<i>New Testament Narrative Storyline - Earlier</i>			
Gospel & Acts	106	125	231
<i>New Testament Commentary</i>			
Letters	5	193	198
<i>New Testament Narrative Storyline - Latter</i>			
Revelation	5	1	6
Total - NT	116	319	435
Total - OT + NT	224	333	557

Cognitive tension with a commitment is evenly distributed between the testaments and proportionately represented across biblical divisions. As described with Research Question 1, the presence of cognitive tension without a commitment to a decision is predominantly a New Testament phenomenon.

Dissonance Induction

To examine the means of inducing dissonance in the various stages of the biblical metanarrative, a number of analyses were made. First, to determine the trigger for the drive toward consonance, the dissonant element combinations were compared for each stage of the biblical metanarrative. Cases in which a commitment to a decision is present are presented in Table 14. Cross tabulation calculations using a Fisher's Exact Test showed an insignificant difference ($p = .591$).

Cases without a commitment to a decision are presented in Table 15. Cross tabulation calculations using a Fisher's Exact Test showed an insignificant difference ($p = 1.000$).

Table 14. Dissonant elements with commitment by metanarrative focus

Domains	Creation	Fall	Redemption	Consummation	Total
Cognitive – Cognitive	0	2	55	0	57
Cognitive – Affective	0	2	21	0	23
Cognitive – Behavioral	0	11	137	0	148
Affective – Affective	0	0	0	0	0
Affective – Behavioral	0	1	7	0	8
Behavioral – Behavioral	0	0	4	0	4
Total	0	16	224	0	240

Table 15. Dissonant elements without commitment by metanarrative focus

Domains	Creation	Fall	Redemption	Consummation	Total
Cognitive – Cognitive	0	0	311	4	315
Cognitive – Affective	0	0	7	0	7
Cognitive – Behavioral	0	0	13	0	13
Affective – Affective	0	0	0	0	0
Affective – Behavioral	0	0	1	0	1
Behavioral – Behavioral	0	0	1	0	1
Total	0	0	333	4	337

Just as with the distribution of cognitive tension, the combinations of dissonant elements that trigger dissonance reduction are proportionately distributed across the biblical metanarrative.

Because most cases are within the redemptive phase of the biblical metanarrative, the cases are compared within the redemptive phase between those with and those without a commitment to a decision (Table 16). Cross tabulation calculations of cases without a commitment using a Fisher’s Exact Test showed a significant difference ($p < .001$).

Table 16. Cases in redemptive metanarrative focus by commitment

Domains	Commitment	No Commitment	Total
Cognitive – Cognitive	55	311	366
Cognitive – Affective	21	7	28
Cognitive – Behavioral	137	13	150
Affective – Affective	0	0	0
Affective – Behavioral	7	1	8
Behavioral – Behavioral	4	1	5
Total	224	333	557

Dissonance Reduction

To determine the mechanisms of cognitive dissonance represented in each stage of the biblical metanarrative, the number of each mechanism was counted. Frequencies of the various dissonance reduction mechanisms in the presence of a commitment to a decision are presented in Table 17. Cross tabulation calculations using a Fisher’s Exact Test showed an insignificant difference ($p = 1.000$). The inter-rater reliability for the combined data with and without a commitment, as measured by Krippendorff’s α , was $\alpha \geq .77$ which represents a tentative level of acceptance.

Table 17. Dissonance reduction mechanisms with commitment by metanarrative focus

Domains	Creation	Fall	Redemption	Consummation	Total
Change 1 Element	0	0	2	0	2
Add a New Element	0	16	218	0	234
Change Importance of 1 of the Element	0	0	1	0	1
Ignore Reality	0	0	3	0	3
Total	0	16	224	0	240

Frequencies of the various dissonance reduction mechanisms in the absence of a commitment to a decision are presented in Table 18. Cross tabulation calculations using a Fisher's Exact Test showed an insignificant difference ($p = 1.000$).

Table 18. Dissonance reduction mechanisms without commitment by metanarrative focus

Mechanism	Creation	Fall	Redemption	Consummation	Total
Change 1 Element	0	0	2	0	2
Add a New Element	0	0	331	4	335
Change Importance of 1 of the Element	0	0	0	0	0
Ignore Reality	0	0	0	0	0
Total	0	0	333	4	337

Again, although the actual counts vary widely, the mechanisms employed to reduce cognitive tension are proportionately distributed across the biblical metanarrative.

Consequences of Dissonance Reduction

To determine the consequences of dissonance reduction mechanisms evidenced across the biblical metanarrative, the type of change and the object of the change were tabulated. Frequencies of the various combinations of domain and target in

the presence of a commitment to a decision are presented in Table 19. Cross tabulation calculations using a Fisher's Exact Test showed an insignificant difference ($p = .611$).

Table 19. Consequences of dissonance reduction with commitment by metanarrative focus

Domain – Target	Creation	Fall	Redemption	Consummation	Total
Cognitive – God	0	9	118	0	127
Cognitive – Self	0	4	35	0	39
Cognitive – Other(s)	0	5	45	0	50
Cognitive – Creation	0	0	7	0	7
Affective – God	0	2	54	0	56
Affective – Self	0	0	3	0	3
Affective – Other(s)	0	2	13	0	15
Affective – Creation	0	0	0	0	0
Behavioral – God	0	0	30	0	30
Behavioral – Self	0	0	2	0	2
Behavioral – Other(s)	0	2	35	0	37
Behavioral – Creation	0	0	0	0	0
Unknown Consequence	0	1	9	0	10
Total	0	25	351	0	376

Frequencies of the various combinations of domain and target in the absence of a commitment to a decision are presented in Table 20. Cross tabulation calculations using a Fisher's Exact Test showed an insignificant difference ($p = .247$).

With most cases occurring in the redemptive metanarrative focus, these cases are compared between those with and those without a commitment to a decision in Table 21. Cross tabulation calculations of cases without a commitment using a Fisher's Exact Test showed a significant difference ($p = .002$).

Table 20. Consequences of dissonance reduction without commitment by metanarrative focus

Domain – Target	Creation	Fall	Redemption	Consummation	Total
Cognitive – God	0	0	146	2	148
Cognitive – Self	0	0	67	0	67
Cognitive – Other(s)	0	0	56	2	58
Cognitive – Creation	0	0	3	0	3
Affective – God	0	0	47	0	47
Affective – Self	0	0	1	0	1
Affective – Other(s)	0	0	20	0	20
Affective – Creation	0	0	0	0	0
Behavioral – God	0	0	31	0	31
Behavioral – Self	0	0	9	0	9
Behavioral – Other(s)	0	0	90	0	90
Behavioral – Creation	0	0	1	0	1
Unknown Consequence	0	0	12	1	13
Total	0	0	483	5	488

Table 21. Consequences of dissonance reduction in the redemptive metanarrative focus with and without a commitment

Domain – Target	Commitment	No Commitment	Total
Cognitive – God	118	146	264
Cognitive – Self	35	67	102
Cognitive – Other(s)	45	56	101
Cognitive – Creation	7	3	10
Affective – God	54	47	101
Affective – Self	3	1	4
Affective – Other(s)	13	20	33
Affective – Creation	0	0	0
Behavioral – God	30	31	61
Behavioral – Self	2	9	11
Behavioral – Other(s)	35	90	125
Behavioral – Creation	0	1	1
Unknown Consequence	9	12	21
Total	351	483	834

The consequences of dissonance reduction also appear to be proportionately distributed across the biblical metanarrative.

Research Question 6

To determine the connection between the drive toward dissonance reduction and wisdom in Scripture, the dissonant elements, mechanism of dissonance reduction, and consequences of dissonance reduction were tabulated.²⁷

Presence of Commitment

In Table 22 are the frequencies of the presence of cognitive tension in the wisdom books and a comparison of the sum of the non-wisdom books, separated by presence of commitment to a decision. Cross tabulation calculations using a Fisher's Exact Test showed a significant difference ($p < .001$).

Table 22. Cognitive tension in wisdom books separated by presence of commitment

Book	Commitment	No Commitment	Total
Psalms	16	6	22
Proverbs	1	0	1
Job	20	0	20
Ecclesiastes	0	0	0
Song of Songs	0	0	0
James	0	15	15
Total in Wisdom Books	37	21	58
Total in Non-Wisdom Books	203	316	519
Total	240	337	577

Examination of the presence of cognitive tension within the wisdom books of Scripture revealed the distribution between cases with and without commitment to a decision were unevenly divided. All of the cases with a commitment in the wisdom

²⁷Research Question 6 was, "How does the drive toward dissonance reduction, if present, connect to wisdom in Scripture?"

literature occurred in the Old Testament, almost exclusively within Job and Psalms; most (71%) of the cases without a commitment in the wisdom literature occurred in the New Testament book of James.

Table 23 presents the frequencies of occurrence of cognitive tension in the wisdom books divided by testament and commitment. Cross tabulation calculations using a Fisher’s Exact Test showed a significant difference ($p < .001$).

Table 23. Cognitive tension in wisdom books separated by testament

Testament	Commitment	No Commitment	Total
Old Testament Wisdom Books	37	6	43
New Testament Wisdom Books	0	15	15
Total	37	21	58

Dissonance Induction

To examine the means of inducing dissonance in wisdom literature, Table 24 presents the dissonant elements divided by testament and by wisdom or non-wisdom category. Cross tabulation calculations using a Fisher’s Exact Test showed a significant difference ($p < .001$).

Table 24. Dissonant elements by wisdom literature

Domains	OT Wisdom	NT Wisdom	Non-Wisdom	Total
Cognitive – Cognitive	16	15	341	372
Cognitive – Affective	6	0	24	30
Cognitive – Behavioral	18	0	143	161
Affective – Affective	0	0	0	0
Affective – Behavioral	1	0	8	9
Behavioral – Behavioral	2	0	3	5
Total	43	15	519	577

There were also differences between the testaments in the dissonant elements in tension. In the Old Testament, the majority are a combination of cognitive and behavioral (42%) or two cognitive elements (37%). In the New Testament, all cases in the wisdom literature were triggered by dissonance between two cognitive elements.

Dissonance Reduction

To determine the mechanisms of cognitive dissonance represented in the wisdom books, the number of each mechanism was counted. Frequencies of the various dissonance reduction mechanisms are presented in Table 25. Cross tabulation calculations using a Fisher’s Exact Test showed a significant difference ($p = .030$).

Table 25. Dissonance reduction mechanisms by wisdom literature

Mechanism of Dissonance Reduction	OT Wisdom	NT Wisdom	Non-Wisdom	Total
Change 1 Element	0	0	4	4
Add a New Element	42	15	512	569
Change Importance of 1 of the	1	0	0	1
Ignore Reality	0	0	3	3
Total	43	15	519	577

As with the cases at-large, those in the wisdom literature reduced dissonance by adding a new element (98%).

Consequences of Dissonance Reduction

To determine the consequences of dissonance reduction mechanisms evidenced by wisdom literature, the type of change and the object of the change were tabulated. Frequencies of the various combinations of domain and target are presented in Table 26. Cross tabulation calculations using a Fisher’s Exact Test showed a significant

difference ($p < .001$).

Table 26. Consequences of dissonance reduction by wisdom literature

Domain – Target	OT Wisdom	NT Wisdom	Non-Wisdom	Total
Cognitive – God	20	1	254	275
Cognitive – Self	3	1	102	106
Cognitive – Other(s)	10	0	98	108
Cognitive – Creation	0	0	10	10
Affective – God	19	4	80	103
Affective – Self	2	0	2	4
Affective – Other(s)	2	0	33	35
Affective – Creation	0	0	0	0
Behavioral – God	10	4	47	61
Behavioral – Self	0	0	11	11
Behavioral – Other(s)	0	11	116	127
Behavioral – Creation	0	0	1	1
Unknown Consequence	2	0	21	23
Total	68	21	775	864

Dividing the consequences into the domain and target of the consequences, frequencies were tabulated for the domain (see Table 27). Cross tabulation calculations using a Fisher’s Exact Test showed a significant difference ($p < .001$).

Table 27. Domains of consequences by wisdom literature

Domain	OT Wisdom	NT Wisdom	Non-Wisdom	Total
Cognitive	33	2	464	499
Affective	23	4	115	142
Behavioral	10	15	175	200
Unknown Consequence	2	0	21	23
Total	68	21	775	864

The frequencies were tabulated for the target (see Table 28). Cross tabulation calculations using a Fisher’s Exact Test showed a significant difference ($p = .017$).

Table 28. Targets of consequences by wisdom literature

Target	OT Wisdom	NT Wisdom	Non-Wisdom	Total
God	49	9	381	439
Self	5	1	115	121
Other(s)	12	11	247	270
Creation	0	0	11	11
Unknown Consequence	2	0	21	23
Total	68	21	775	864

The majority of the consequences of dissonance reduction in Old Testament wisdom literature were in the cognitive (49%) and affective (34%) domains; the majority of consequences in the New Testament wisdom literature were in the behavioral domain (71%). The target of dissonance reduction in the Old Testament was usually God (72%); the target of dissonance reduction in the New Testament was split between God (43%) and others (52%).

Evaluation of the Research Design

This content analysis study was the first known of its kind in examining Scripture to understand the social-psychological phenomenon, Cognitive Dissonance Theory. Both, the strengths and weaknesses, of the research design are presented.

Strengths of the Research Design

The strongest element of the research design was the decision to perform a census study. While increasing the overall workload in the research, this philosophy of initial inclusion optimized the chance for an exhaustive study that allowed finding the differences between the Testaments, especially in the understanding of cognitive tension in the wisdom literature.

Another strength of the design was the use of multiple outside coders to

reexamine the primary researcher's work. This allowed strong findings in locating cognitive dissonance, the occurrence of a closely related cognitive tension, and the presence or absence of a commitment to a decision that distinguished the two. Use of outside coders also confirmed the typical dissonance reduction mechanism represented in Scripture.

A third strength of the design was the content analysis method of qualitative research. This method allowed the flexibility to adapt the study based on initial findings. The software employed helped the researcher test many hypotheses in an attempt to understand the phenomenon under investigation. The findings in the qualitative research software suggested the need for corroboration with statistical analysis to provide objective verification of subjective findings.

Weaknesses of the Research Design

Even with these strengths, the research design had weaknesses. The major weakness was the method of corroborating both the trigger and the result of cognitive dissonance. These elements are fundamental to understanding the origin and purpose of cognitive dissonance. Although the literature is clear that cognitive dissonance involved cognitive, affective, and behavioral domains in correcting discrepant elements of knowledge about reality, a cursory identification of these domains was inadequate for the purpose of the research.

A closely related weakness was the use of outside coders who had no previous experience with Festinger's Cognitive Dissonance Theory. It was apparent that the type and amount of training was inadequate to allow non-initiates to examine nuances of the theory, despite their skill in identifying the presence of the phenomenon of cognitive

dissonance. This shortcoming could have corrected either by employing outside coders who had previous familiarity with Cognitive Dissonance Theory or by providing key resources and substantial training to acquaint the outside coders with the theory.

CHAPTER 5

CONCLUSIONS

Cognitive Dissonance Theory, proposed by social psychologist Leon Festinger, describes an innate, post-decisional, psychological and physiological need to reduce discrepancies between elements of knowledge in cognitive, affective, or behavioral domains.¹ The canon of Christian Scripture was examined for evidences of this drive using descriptions of evidences from the social psychology literature base. This chapter reviews the findings related to the six research questions, offers relevant conclusions, implications and applications, lists limitations of the research method, and suggests recommendations for further research.

Research Purpose

The purpose of this content analysis research was to develop a biblical-theological model of Cognitive Dissonance Theory applicable to pedagogy. Evidence of cognitive dissonance found in Scripture was used to infer a purpose for the innate drive toward consonance. This inferred purpose was incorporated into the model and informs the implications and applications of the model.

Research Questions

The following six questions were answered by this study:

¹Leon Festinger, *A Theory of Cognitive Dissonance* (Evanston, IL: Row, Peterson and Co., 1957).

1. To what degree, if any, are the evidences of Cognitive Dissonance Theory found in Scripture?
2. How, if present, is dissonance induced in Scripture?
3. What mechanisms of dissonance reduction, if any, are evidenced in Scripture?
4. What, if any, are the consequences of dissonance reduction mechanisms evidenced in Scripture?
5. How does cognitive dissonance, if present, connect to the biblical metanarrative?
6. How does the drive toward dissonance reduction, if present, connect to wisdom in Scripture?

Conclusions of the Research

Using these six research questions as the structure, the current research connected to the cognitive dissonance literature base including corroborating work in the hard sciences, soft sciences, and pedagogical practices reviewed.

Research Question 1

The first research question asked about the degree to which cognitive dissonance was found in Scripture. Cognitive dissonance was present in Scripture as evidenced by the existence of conditions consistent with Festinger's three core statements.² Evidences of one or more of these core statements were found in over two thousand places in Scripture. Within these, 240 were found to include a description of a commitment to a decision, which Festinger found was a characteristic of the drive toward

²Festinger, *A Theory of Cognitive Dissonance*, 31. Festinger summarized the core of Cognitive Dissonance Theory in three statements: (1) "There may exist dissonant or 'nonfitting' relations among cognitive elements," (2) "The existence of dissonance gives rise to pressures to reduce the dissonance and to avoid increases in dissonance," and (3) "Manifestations of the operation of these pressures include behavior changes, changes of cognition, and circumspect exposure to new information and new opinions."

consonance described in Cognitive Dissonance Theory.³

Commitment distinguishes cognitive dissonance from closely related cognitive tensions described by Georg W. F. Hegel's dialectic and Jean Piaget's disequilibrium.⁴ In addition to the instances of cognitive dissonance, 337 cases were found to contain cognitive tension consistent with either Hegel's or Piaget's theories, that is, cognitive tension without a preceding commitment to a decision.⁵ Because of the similarity of the appearance of each of these in the narrative of Scripture, which was not written to address these theories, all occurrences of cognitive tension that included potential descriptors of cognitive dissonance were studied collectively and separately.⁶ While cognitive dissonance was equally distributed between the Old and New Testaments, cognitive tension without a documented preceding commitment to a decision was, in the vast majority of instances, a New Testament phenomenon.⁷

³Leon Festinger, *Conflict, Decision, and Dissonance* (Stanford, CA: Stanford University Press, 1964). In a series of ten experiments, Festinger and colleagues examined the decision making process and found that evaluation before a decision was more objective than the evaluation after a decision. When a person makes a decision, the world has changed, even if only slightly, and dissonance can arise if the commitment or consequences of the commitment are dissonant with any other cognition.

⁴Georg W. F. Hegel, *The Phenomenology of Spirit (The Phenomenology of Mind)*, trans. J.B. Baillie (Lawrence, KS: Digireads.com Publishing, 2010), Kindle Electronic ed.; Jean Piaget, *Equilibration of Cognitive Structures: The Central Problem of Intellectual Development*, trans. Terrance Brown and Kishore Julian Thampy (Chicago: University of Chicago Press, 1985).

⁵One of the differences between Hegel's and Piaget's theories is the domain(s) in which they operate. As an epistemology, Hegel's theory describes cognitive development limited to the cognitive domain. As a developmental theory, Piaget describes an interaction between cognitive and behavioral domains. This distinction is covered in more detail in later sections of this chapter.

⁶Besides cognitive tension, which may be pre- or post-decisional, a description of dissonant cognitive elements, an obvious means of dissonance reduction, and/or consequences of dissonance reduction were clues sought to determine the presence of cognitive dissonance.

⁷Cognitive tension consistent with cognitive dissonance, that is, cognitive tension with an associated commitment to a decision, was found 124 times in the Old Testament and 116 times in the New Testament. Cognitive tension with a commitment was found 13 times in the Old Testament and 324 times in the New Testament. See Table 1 in chap. 4 for a full breakdown.

Cognitive dissonance—cognitive tension accompanied by a commitment to a decision—was approximately equally divided between the Old and New Testaments. Within each Testament, cases of cognitive dissonance were distributed through all three sections of the narrative storyline—earlier narrative, commentary, and latter narrative (see Appendix 1, Table A1).⁸ In the New Testament, the majority of the instances of cognitive dissonance (91%) were found in the earlier narrative. Because cognitive dissonance was evident in Scripture, the remaining research questions were answered in an attempt to infer an origin and purpose for the drive toward consonance.

Research Question 2

Having found that cognitive dissonance was present, the second question addressed the means of inducing dissonance.⁹ Arousal of dissonance occurs in the presence of dissonant elements of cognition. A cognition, in Festinger’s terminology, is “any knowledge, opinion, or belief about the environment, about oneself, or about one’s behavior.”¹⁰ Festinger described the content of the elements of cognition as a map of physical, social, or psychological reality. The relationship between any two elements can be irrelevant or relevant. Irrelevant cognitions have nothing to do with one another, that is, they imply nothing about each other. Relevant cognitions are related as either consonant or dissonant. Cognitions are consonant if one follows from the other. Relevant

⁸James M. Hamilton, Jr., *God’s Glory in Salvation through Judgment: A Biblical Theology* (Wheaton, IL: Crossway, 2010), 61, 64.

⁹The strength of the findings for Research Question 2 were mitigated by the low reliability measurement when comparing outside coders to the primary researcher. A discussion is presented in the Limitations section as well as in chap. 4.

¹⁰Festinger, *A Theory of Cognitive Dissonance*, 3.

cognitions are dissonant if one follows from the obverse of the other.¹¹ For each case in the present study, a pair of dissonant elements was sought.

In cases with a commitment to a decision consistent with Festinger's Cognitive Dissonance Theory, most (62%) dissonance was aroused by a discrepancy between a cognitive and a behavioral element. In the majority of these, the behavioral element was seen as evidence of the commitment to a decision. Approximately one-third as many instances of cognitive dissonance were aroused by a discrepancy between two cognitive elements. Other combinations of cognitive, affective, and behavioral elements were seen much less frequently and there were no cases in which two affective elements were the cause of dissonance.

Noteworthy is the fact that affect was represented much less frequently than anticipated by Festinger's theory, which was found in previous research to be central to the theory. As discussed by one team of researchers, affect is difficult to assess because it is not directly observable.¹² Instead, indirect measures must be used. Another team of researchers developed such a method to measure affect.¹³ However, Scripture is not an experimental laboratory and observers must rely on the content presented with only

¹¹Ibid., 3, 10, 360-61.

¹²Eddie Harmon-Jones et al., "Left Frontal Cortical Activation and Spreading of Alternatives: Tests of the Action-Based Model of Dissonance," *Journal of Personality and Social Psychology* 94 (2008): 1-15.

¹³Andrew J. Elliot and Patricia G. Devine, "On the Motivational Nature of Cognitive Dissonance: Dissonance as Psychological Discomfort," *Journal of Personality and Social Psychology* 67 (1994): 382-94. While most previous research on the arousal experienced with cognitive dissonance was focused on the physiological arousal, these researchers examined the psychological arousal that causes cognitive dissonance to be motivational. They manipulated dissonance induction in induced-compliance experiments and obtained self-reports of affect and attitude at various points during the experiment. Their intentional placement of the measurement of affect revealed the psychological arousal that accompanies or follows the physiological arousal.

reasonable inferences being drawn as part of the content analysis methodology.¹⁴ This same narrative limitation was experienced by Festinger's early work and drove the researchers first to real-time observation¹⁵ and then to manipulation under experimental conditions.¹⁶

While most of the cases in the present study in which dissonance was aroused by a combination of cognitive and behavioral elements also included a commitment to a decision (92%), most of the cases in which only cognitive elements were involved in the arousal (85%) did not coincide with a commitment. As mentioned, these cases without a commitment are consistent with the cognitive theories in either Hegel's dialectic or Piaget's disequilibrium.

Research Question 3

Once aroused, dissonance of sufficient magnitude¹⁷ must be reduced for the

¹⁴Klaus Krippendorff, *Content Analysis: An Introduction to Its Methodology* (Thousand Oaks, CA: Sage Publications, 2004), 18.

¹⁵Leon Festinger, Henry W. Riecken, and Stanley Schachter, *When Prophecy Fails* (New York: Harper & Row, 1956), 3. Festinger and colleagues had attempted to explain what they described as "increased fervor following the disconfirmation of a belief." Using Scripture, they attempted to theorize why Christianity spread after the crucifixion of Jesus, who was believed to be Messiah. The researchers' presupposition was that the crucifixion had disconfirmed the messianic beliefs of Jesus' followers because Jesus had died and could not, therefore, serve as the head of Christianity. Their presupposition was based on a minority opinion that Jesus had not taught his disciples about his upcoming death and resurrection. While the researchers admitted that their theory would not explain the increased proselytizing after Jesus' death if his death was anticipated, they were able to test their theory in a cult that had predicted a specific date for the end of the world.

¹⁶E. g., Festinger, *Conflict, Decision, and Dissonance*. Following the publication of their Cognitive Dissonance Theory, Festinger and colleagues began conducting experiments to test and to refine the theory. Other researchers followed this experimental model, which had been proposed by Kurt Lewin, Festinger's predecessor in social psychology.

¹⁷Joel Cooper, *Cognitive Dissonance: Fifty Years of a Classic Theory* (Los Angeles: Sage, 2007), 26. Cooper discusses magnitude as a distinguishing characteristic of Festinger's Cognitive Dissonance Theory. Magnitude is a function of the perceived value of the elements involved as well as the number of elements involved in each discrepant pair.

person to function normally. Research Question 3 addressed the mechanisms of dissonance reduction.

The motivational force inherent to Festinger's theory was incorporated from the work of empirical psychology researchers Clark Hull and Kenneth Spence.¹⁸ Hull theorized a motivational drive that provides the energy to meet four needs—hunger, thirst, sex, and the avoidance of pain.¹⁹ Spence found similar basic needs grouping hunger, thirst, and sex into the term “appetitional needs,” and expanding avoidance of pain to “emotional needs.”²⁰ Festinger likened the drive toward consonance to these basic motivational drives. Only those cases where dissonance was sufficient to cause a response were identified in Scripture.

Instances of dissonance insufficient to elicit a response may be identified in experimental conditions, but the present study was an examination of historical records rather than an active experiment. Additionally, the presence of dissonance reduction was one of the clues used to identify cases of cognitive tension, with or without a commitment to a decision. Therefore, all of the cases identified exhibited some means of dissonance reduction.

Festinger proposed four means by which dissonance may be reduced: (1) Change one of the cognitions, (2) add new cognitive elements, (3) change the importance

¹⁸Hazel Markus and R. B. Zajonc, “The Cognitive Perspective in Social Psychology,” in *Handbook of Social Psychology*, 3rd ed., vol. 1, ed. Gardner Lindzey and Elliot Aronson (New York: Random House, 1985), 137, 201.

¹⁹Edward L Deci and Richard M. Ryan, *Intrinsic Motivation and Self-Determination in Human Behavior* (New York: Plenum Press, 1985), 4.

²⁰Kenneth W. Spence, *Behavior Theory and Conditioning* (New Haven, CT: Yale University Press, 1956), 165-66.

of one of the elements, and (4) ignore reality.²¹ While research conditions can elicit all four mechanisms, in almost every case in Scripture, the means of reducing dissonance, with or without a commitment to a decision, was adding a new cognitive element. To the educator, adding a new cognitive element—learning—is a key to transformation of the student. The ubiquitous presence of learning as a means to reduce dissonance provides strong evidence for the pedagogical value, if not purpose, of the drive described in Cognitive Dissonance Theory.

Festinger described factors that affect the means and success of dissonance reduction. For example, dissonance reduction is affected by the availability of additional cognitive elements consonant with an existing cognition. Adding consonant cognitions can reduce dissonance without changing either of the original dissonant cognitions. In the many cases in Scripture in which a new cognitive element was introduced, the source of the new cognition varied. Occasionally, the subject sought new information; more often, new information was imposed. Frequently, this imposition of new knowledge originated with God or from another person who had apparently discovered a teachable moment.

From the educator's viewpoint, it is important to recognize that the source of new information may vary. It is possible that the source of new cognition for the student is the educator. It is also possible that the learner may seek new information from an available source. A third possibility for the source of new information is that God will add a new cognition so that the learner is transformed.

Additionally, dissonance reduction is affected by the degree of resistance to change of the elements. For example, a cognition about behavior is difficult to change,

²¹Festinger, *A Theory of Cognitive Dissonance*, 18-21.

whereas attitude about that behavior typically is easier to change. In the four cases identified as changing one of the elements, none changed the behavior as a means to reduce dissonance, although in one case (Gen 37:29-36) a change in subsequent behavior resulted from the dissonance reduction.

A third factor that affects the means and success of dissonance reduction is the relationship between the cognitive elements and reality. Elements most resistant to change are those that most closely approximate reality. The corollary is that those elements most disparate with reality are the most likely to be changed. The differing resistances should encourage the educator who desires not only coherence among learners' understandings, but also desires correspondence of understanding with objective reality. If cognitive dissonance is a pedagogical drive, it is built for correspondence with reality.

The science teachers described in chapter 2 who attempted to use Cognitive Dissonance Theory to teach evolutionary principles found that some students resisted adoption of the teachers' naturalistic presupposition.²² From a creationist's viewpoint, the difficulty the teachers experienced could be accounted for by the lack of correspondence between their understanding of naturalistic evolution as "the backbone, the beautiful and efficient explanation for why organisms today are different from organisms in the past and why there is such an amazing diversity of fascinating biological organisms with awe inspiring lifestyles and body plans"²³ and the reality expressed in the creation accounts in Scripture.

²²Eric C. Lovely and Linda C. Kondrick, "Teaching Evolution: Challenging Religious Preconceptions," *Integrative and Comparative Biology* 48, no. 2 (2008): 164-65.

Research Question 4

The previous questions addressed the presence, induction, and reduction of cognitive dissonance. Research Question 4 addressed the consequences of the dissonance reduction mechanisms. To social psychologists, motivation is manifested in cognitive, affective, and behavioral domains.²⁴ These are the same domains in which Festinger theorizes the need for balance in the dissonance arousal portion of his Cognitive Dissonance Theory.

Consequences in all three domains were evident in Scripture. These occurred in the same relative proportions as the dissonant elements that aroused the dissonance—cognitive had the greatest representation (58%), behavioral had the next greatest (23%), and the affective domain had the least (16%).²⁵ As discussed above, the lack of observing affect as central to the findings may be explained by the difficulty in measuring affect.

Although affect was not found as often as might be predicted, affect remains central to Festinger's theory as well as other cognitive consistency theories—congruity theory, psycho-logic, and balance theory.²⁶ All four of these cognitive consistency theories derive from Charles Peirce's work on the formation of belief. Peirce recognized that humans are rational creatures, and from this rationality come beliefs, which “guide

²³Ibid.

²⁴John A. Bargh, Peter M. Gollwitzer, and Gabrielle Oettingen, “Motivation,” in *Handbook of Social Psychology*, 5th ed., ed. Susan T. Fiske, Daniel T. Gilbert, and Gardner Lindzey (Hoboken, NJ: Wiley, 2010), 268.

²⁵The remaining 3% of cases had an unknown consequence.

²⁶Percy H. Tannenbaum, “The Congruity Principle: Retrospective and Recent Research,” in *Theories of Cognitive Consistency: A Sourcebook*, ed. Robert P. Abelson et al. (Chicago: Rand McNally, 1968), 54-55; Robert P. Abelson, “Psychological Implication,” in *Theories of Cognitive Consistency: A Sourcebook*, ed. Robert P. Abelson et al. (Chicago: Rand McNally, 1968), 114-15; Fritz Heider, *The Psychology of Interpersonal Relations* (New York: John Wiley & Sons, 1958), 174.

our desires and shape our actions.”²⁷ Beliefs, according to Peirce, are part of the cognitive realm and influence the affective and behavioral realms. Even though the later cognitive theorists relied on Peirce’s work, they all dissented from Peirce by positing that affect was central as a motivator to change.

The centrality of affect has been confirmed a number of ways, as discussed in chapter 2. That centrality has been incorporated into the model of Cognitive Dissonance Theory proposed later in this chapter. However, the missing piece has remained the purpose of the drive. Other drives have a known goal—hunger for nourishment, thirst for hydration, sex for procreation; cognitive dissonance has no such clear purpose apart from some need for consonance—the absence of dissonance. This deficiency is also addressed in a later section of this chapter.

Research Question 5

Having looked at the entire sequence of events involved with cognitive dissonance in the first four questions, Research Question 5 reexamined each of those steps through the biblical metanarrative—creation, fall, redemption, and consummation.

Progression of types of tension. A pattern was revealed in the progression of the presence and the types of cognitive tension seen as the biblical metanarrative unfolds. In the limited number of cases where cognitive tension could appear in the creation stories, none was present. With the fall of humanity into sin, cognitive tension resembling Festinger’s Cognitive Dissonance Theory emerged. In the redemptive phase of the metanarrative, cognitive tension with and without commitment to a decision was seen. In

²⁷Charles S. Peirce, “The Fixation of Belief,” *Popular Science Monthly* 12 (November 1877):

the Old Testament, this tension was mostly (89%) in a form consistent with Festinger's understanding of cognitive dissonance, that is, cognitive tension after a commitment to a decision. In the New Testament, before Pentecost—before the arrival of the Holy Spirit to indwell Christ's followers²⁸—the two types of tension were present in approximately equal numbers. Then, after Pentecost, the overwhelming majority of cases (97%) demonstrated cognitive tension without a commitment to a decision. During the process leading to the consummation reported in Revelation, only cognitive tension without a commitment was seen.

The progression could be explained as a result of the differences in the genre of literature, which is used to communicate the author's intention to the reader.²⁹ For

1-15.

²⁸The term "Christ-followers" is used in this study to distinguish those who have been regenerated by the Holy Spirit with a concomitant faith in the substitutionary death of Jesus Christ as the only means of reconciliation between God and humanity from those who might identify themselves as "Christian" because of a cultural association with Christ's church.

²⁹Grant R. Osborne, "Historical Narrative and Truth in the Bible," *Journal of the Evangelical Theological Society* 48 (2005): 680. Osborne explains that genre "coordinates the enactment of the author's intent, the engagement with the word, and the encounter with the addressee. Thus genre communicates to the reader a set of conventions that controls the understanding of the whole intention." Roy B. Zuck, *Basic Bible Interpretation: A Practical Guide to Discovering Biblical Truth* (Colorado Springs: Victor, 1991), 126-35. Zuck explains that genre is a literary type and "distinguishing the various genres in Scripture helps us interpret the Bible more accurately." He identifies several of the genres in the Bible. The first genre is legal, which includes the first five books of the Bible—Genesis, Exodus, Leviticus, Numbers, and Deuteronomy. A second genre is narrative, which Zuck divides into six kinds—tragedy, epic, romance, heroic, satire, and polemic. Poetry is the third genre, which includes Job, Psalms, Proverbs, Ecclesiastes, and the Song of Solomon along with poetic sections of several of books in both testaments. A fourth genre is wisdom literature, which Zuck divides between proverbial literature describing general truths and reflective literature discussing the mysteries in life. Zuck distinguishes the Gospels from other narrative literature. The Gospels, he says, include biographical information on the life of Jesus Christ, but also include doctrine and narrative "presented to set forth information on the person of Jesus Christ. Jesus' teachings in parables and in direct discourse interspersed with the records of his miracles and encounters with individuals." Zuck summarizes the purpose of the Gospels as explaining and praising the person and work of Jesus. The letters of the New Testament are identified as being of the logical discourse genre in the form of letters written to individuals or local groups of believers. These letters typically contain both expository discourse, "which expounds certain truths or doctrines, often with logical support for those truths" and hortatory discourse, "which includes exhortations to follow certain courses of action or to develop certain characteristics in light of the truths presented in the expository discourse material." The seventh genre is the prophetic literature. "Prophetic literature is material that includes predictions of the future at the time of the writing of the material with injunctions often included that those who hear the

example, the book of Jonah ends in a way that prompts a response from the reader. Stuart explains the final chapter of Jonah:

Repeated verbatim and clearly pivotal for the chapter as well as the entire book is Yahweh's question: "What right do you have to be angry?" This question constitutes the rhetorical conclusion to the first section, in v 4. As the narrator has constructed the passage, the audience is invited to keep that question in mind, while the narrator "flashes back" to the event he has chosen as a coda to conclude the book, the story of the gourd. In this sense the second section (vv 5–11) may be understood as a kind of expansion on that question. It, too, contains the same question ("What right have you to be angry . . .,") now applied specifically to Jonah's anger about the gourd's demise. Jonah's answer, "(I) have the right!" and his following protestation of being angry enough to die, are his final words in the book. By this arrangement the audience is left with a choice: to copy Jonah's "embarrassing and ridiculous" hatred of his enemies, or to see the world as God sees it, a world greatly in need of mercy.³⁰

Genre differences could influence the perceived progression. For example, the book of Proverbs in the Old Testament and the proverbial wisdom book of James in the New Testament showed little or no cognitive tension with a commitment to a decision. The Old Testament has a large number of prophetic books; the New Testament has none. The Old Testament has no books that correspond to the New Testament letters written to individuals and congregations. The Old Testament includes song books; the New Testament has no equivalent. Perhaps some of these genre are more likely than others to document evidences of cognitive dissonance.

If the differences in genre account for the progression of the cognitive tension

prophecy adjust their lives in light of the predictions." Within the prophetic genre is the apocalyptic material, "which focuses specifically on the end times, while presenting the material in symbolic form." In each genre, the reader anticipates different elements. For example, the letters of the New Testament present truths and applications in a way that differs from the prophets of the Old Testament by referencing general truths rather than specific predictions of future events. Because of the nature of each genre, evidences of Festinger's theory would not be expected to be seen in the same ways or degrees between genre. Therefore, the differences observed in the present study could be attributed to the genre-specific differences.

³⁰Douglas Stuart, *Hosea-Jonah*, Word Biblical Commentary, vol. 31 (Dallas: Word Books, 1987): 500-01.

perceived, then it is possible that every case of cognitive tension in Scripture is accompanied by a commitment to a decision consistent with Festinger's theory. Some cases, because of genre, would include an overt description of the commitment as a historical fact. Other cases, because of genre, might imply a commitment from the reader as the author's intent.

However, differences in genre, alone, may not explain the observations. For example, both Testaments have narrative books and there was a significant difference between the types of cognitive tension seen in them. The prophetic books were written to correct God's people, Israel; the letters were written to correct God's people, the church. The difference between the prophets and the letters was significant; the cognitive tension in the prophets was accompanied by a commitment to a decision in the majority of cases (87%) while cognitive tension in the letters was overwhelmingly (97%) without such a commitment. The same distinction was seen between the Old Testament book of Daniel and the related New Testament book of Revelation.

Since most of the Bible describes the redemptive phase of the biblical metanarrative, the relative dearth of cases within the creation, fall and consummation cases might account for a perceived, yet nonexistent pattern. However, the abundance of cases within the redemptive phase mirrored the pattern perceived for the canon as a whole.

The effects of the *imago Dei*. Another finding in the biblical metanarrative emerged as a biblical-theological anthropology was compared to the naturalistic anthropology, characteristic of social psychology. According to a biblical-theological

view, the effects of the *imago Dei*³¹ are expressed teleologically, substantively, relationally, and functionally.³² These effects impact the relationship of the image-bearer to God, self, others, and all of creation in what Gentry and Wellum see as a servant king relationship to creation and a sonship relationship to God.³³

Teleologically, according to the Westminster catechism, humanity was created to glorify God in an eternal relationship with him. Because of the fall, this purpose has become impossible to live out without radical change of the person. Therefore, transformation became necessary at the fall. This transformation is carried out in the life of believers through the work of the Holy Spirit through the process of sanctification (e.g., Eph 2:8-10; Titus 3:4-7), which will not be completed until the consummation. Sanctification transforms the person cognitively, affectively, and behaviorally so that relationships with God, self, others, and all of creation are conformed to the purpose for which God created humanity.

A naturalistic explanation also sees transformation in the cognitive, affective, and behavioral domains but with an incomplete teleology. Like the biblical-theological view, a naturalistic view understands that transformation adapts the person to function

³¹Peter J. Gentry and Stephen J. Wellum, *Kingdom through Covenant: A Biblical-Theological Understanding of the Covenants* (Wheaton, IL: Crossway, 2012), 190-203. The *imago Dei*—the image of God—is described in the creation account in Gen 1:26, wherein, “God said, ‘Let us make man in our image, according to our likeness; and let them rule over the fish of the sea and over the birds of the sky and over the cattle and over all the earth, and over every creeping thing that creeps on the earth.’” In Gen 1:27-28, God’s plan is inaugurated as human beings are distinguished as male and female so that they may populate the earth and identified as the divine image so that they may have dominion as vice-regents under God.

³²James R. Estep, Jr., Michael J. Anthony, and Gregg R. Allison, *A Theology for Christian Education* (Nashville: B&H Academic, 2008), Kindle Electronic ed., 179-80. Wayne A. Grudem, *Systematic Theology: An Introduction to Biblical Doctrine* (Grand Rapids: Zondervan, 1994), 443-50.

³³Gentry and Wellum, *Kingdom through Covenant*, 196-97.

successfully in the world in which the person lives. However, the transformation, believed by naturalists to have evolved through natural selection, has as its goal an anthropocentric improvement of personhood, which could be seen as a glorification of the image-bearer rather than God in whose image humans were created.³⁴

In its conclusions, the naturalistic explanation does not get the answer completely wrong, instead it falls short of the full explanation by ignoring God. The naturalistic explanation fails to account for the progression of appearance, change, and disappearance of cognitive dissonance in the canon of Scripture while a biblical-theological explanation accounts for the pattern observed.

Substantively, both the biblical-theological and naturalistic views attribute rationality to the human being. The naturalistic view sees rationality improving through the evolutionary process, albeit with retained discrepancies.³⁵ The biblical-theological view understands that the flaw in rationality resulted from the fall, is being restored in believers (e.g., Rom 12:2), and will be completely restored at the consummation.

The naturalistic view could explain the improvement in rationality seen in the progressive decrease in reliance on cognitive dissonance for learning seen in the redemptive phase of the biblical metanarrative, but it fails to explain the absence of cognitive dissonance before the fall and in the consummation. A biblical-theological view

³⁴E.g., Albert Bandura, *Social Foundations of Thought and Action: A Social Cognitive Theory* (Upper Saddle River, NJ: Prentice Hall, 1986), 18-21. For these researchers, the ultimate purpose for relationality as “inclusive fitness” of the self. Fitness occurs in concentric domains beginning with the self at the center and progressively extending to the culture.

³⁵E.g., Ryan T. McKay and Daniel C. Dennett, “The Evolution of Misbelief,” *Behavioral and Brain Sciences* 32 (2009): 509. These researchers describe an error in evolution that allows adaptive misbelief—like religious belief—which fails to correspond to reality, yet is somehow beneficial to the person.

can explain the progression (see Research Question 6 below) and is key to the model proposed in a later section.

Relationally, community is necessary to the human according to both a biblical-theological and a naturalistic view. The naturalistic view, though, is anthropocentric while a biblical-theological view is theocentric.³⁶ The biblical-theological view can account for the prevalence of the consequences of dissonance reduction focusing on God, primarily, and others, secondarily, in the redemptive phase of the biblical metanarrative. The biblical-theological view can also account for the paucity of consequences related to the self. With the self at the center and God excluded from consideration, the naturalistic view cannot explain the findings in Scripture.

Relationality is related to the covenant between God and humanity established in creation. According to Gentry and Wellum, central to this covenant are faithfulness and loyalty in love, which were rejected by Adam and Eve at the fall.³⁷ Both central requirements of the covenant will be possible to keep in the consummation. During the redemptive phase of the biblical metanarrative, there is an increasing ability to conform to the requirements of the covenant. If that ability is related to the influence of the Holy Spirit and is connected to the drive toward consonance, then the biblical-theological

³⁶E.g., compare Larry C. Bernard et al., “An Evolutionary Theory of Human Motivation,” *Genetic, Social, and General Psychology Monographs* 131, no. 2 (2005): 129-30 to the Gospel of Matthew. In Matt 22:35-40, Jesus discussed the primacy of God in relationality. When asked about the greatest commandment, Jesus summarized all the commandments in two: “One of them, a lawyer, asked [Jesus] a question, testing Him, ‘Teacher, which is the great commandment in the Law?’ And He said to him, ‘You shall love the Lord your God with all your heart, and with all your soul, and with all your mind. This is the great and foremost commandment. The second is like it, You shall love your neighbor as yourself. On these two commandments depend the whole Law and the Prophets.’” From this theocentric beginning, relationships with others proceed and extend to creation.

³⁷Gentry and Wellum, *Kingdom through Covenant*, 141.

model could provide an explanation for the progression of types of cognitive tension through the metanarrative phases (see Research Question 6 below).

Functionally, the dominion for which humanity was created was disrupted at the fall (e.g., Gen 3:17-19; John 12:31; 14:30; 16:11; Eph 2:2), is being restored by the presence of the kingdom of God (e.g., Matt 3:2; 4:17; 10:7; 12:28; Mark 1:15; 9:1; Luke 4:43; 8:1; 9:22, 27; 10:9, 11; 11:20; 17:21; 21:31), and will be completely restored to humanity in the consummation.³⁸ This effect of the *imago Dei* is not prevalent in Scripture. Only eleven cases—all within the redemptive phase of the biblical metanarrative—demonstrated any consequence of dissonance reduction related to creation. This rareness could be explained by the understanding that the Bible is God’s revelation of himself rather than a text on ecology. Nonetheless, the presence of some effect on creation supports both the naturalistic and biblical-theological inclusion of the environment/creation as a domain of influence for humanity.

Research Question 6

The progression of cognitive tension through the biblical metanarrative in Research Question 5 was prominent in an examination of the wisdom literature. The connection between the drive toward consonance and biblical wisdom was the subject of Research Question 6.

Old Testament wisdom. Biblical wisdom is practical knowledge of applied

³⁸In Luke 1:33 and Rev 11:15, Jesus Christ is anticipated to reign forever. In 2 Tim 2:12, believers who endure to the end are promised to reign with Christ. In Rev 20:6, believers will reign in the millennium and in Rev 22:5, they will reign forever. Rev 5:10 makes clear that this reign will be on the earth.

truth.³⁹ In the Old Testament, “wisdom was intensely practical, resulted in successful living, and applied to the heart.”⁴⁰ Wisdom is expressed in cognitive, affective, and behavioral domains and when expressed rightly they are orthodoxy—propositional wisdom, orthopathy—dispositional wisdom, and orthopraxy—enacted wisdom, respectively. The connection between wisdom and the heart is explained by Gentry and Wellum, “In Hebrew, the word ‘heart’ refers to the core of who you are, the center of each person. It refers, in particular, to the place where we feel, where we think, and where we make decisions and plans. . . . The heart is the center of one’s being and the place where emotions, mind, and will operate in harmony and union.”⁴¹ Disharmony is consistent with Festinger’s understanding of cognitive dissonance.

The purpose of dissonance was revealed by an examination of biblical wisdom literature. In the Old Testament wisdom literature, dissonance was aroused by discrepancies between cognitive and behavioral elements and between two cognitive elements. The result of dissonance reduction most often was a change toward God in the cognitive or affective domains. A detailed look at the Old Testament books of Job, Psalms, and Proverbs demonstrates these changes.

The book of Job describes an escalating dissonance as Job longs for a right understanding of his seemingly undeserved suffering. In his appeal for wisdom from God, Job is moved toward orthodoxy, orthopathy, and orthopraxy. In the first two

³⁹David Powlison, *Seeing with New Eyes: Counseling and the Human Condition through the Lens of Scripture* (Phillipsburg, NJ: P&R Publishing, 2003), 4.

⁴⁰Robert W. Pazmiño, *Foundational Issues in Christian Education: An Introduction in Evangelical Perspective*, 3rd ed. (Grand Rapids: Baker Academic, 2008), 32.

⁴¹Gentry and Wellum, *Kingdom through Covenant*, 368-69.

episodes in which Job had an opportunity for dissonance, none is recorded. In the first (Job 1:20-22), Job reacts by worshipping God; in the second (Job 2:9-10), Job reacts by rejecting his wife's sinful reaction.⁴² But, as Job is repeatedly exposed to the human wisdom of three of his friends, dissonance builds. Job's dissonance is aroused by the discrepancy between his perception of his wrongful suffering and his worldview that is characterized by a retribution principle.⁴³ When God answers Job at the end of the book, it is not to explain the cause of Job's suffering,⁴⁴ but to correct his misperception of reality.⁴⁵

The instrument of Job's suffering was Satan (Job 1:6-12; 2:1-7), but the authority derived for Satan's work was from God (Job 1:12; 2:6).⁴⁶ God's purpose in allowing Job's suffering seems pedagogical and the means seems to have been the dissonance that drove Job to seek an audience with God. By the end of his interaction with God, Job's rationality and theology became coherent. This pedagogical purpose is consistent with Clines' understanding of wisdom literature, which has as its purpose deliberate didactic instruction in orthodoxy and orthopraxy.⁴⁷ As God corrects Job's

⁴²Roy B. Zuck, ed., *A Biblical Theology of the Old Testament* (Chicago: Moody Press, 1991), 219.

⁴³John H. Walton, Victor H. Matthews, and Mark W. Chavalas, *The IVP Bible Background Commentary: Old Testament* (Downers Grove, IL: InterVarsity Press, 2000), 832.

⁴⁴Edward M. Curtis, "Learning Truth From the Sages," *Christian Education Journal* 2, no. 1 (2005): 118.

⁴⁵Gary V. Smith, "Is There a Place for Job's Wisdom in Old Testament Theology?," *Trinity Journal* 13, no. 1 (1992): 14.

⁴⁶Sydney H. T. Page, "Satan: God's Servant," *Journal of the Evangelical Theological Society* 50 (2007): 451-52.

⁴⁷David J. A. Clines, *Job 1-20*, Word Biblical Commentary, vol. 17 (Dallas: Word Books, 1989), xxxviii, lx.

knowledge,⁴⁸ Job's affect changes from accusation of God⁴⁹ to repentance toward God (Job 42:1-6). As a result, Job's behavior is rightly aligned as he offers sacrifices to God on behalf of his friends (Job 42:7-9).

Job describes a single, escalating form of dissonance; the Psalms⁵⁰ demonstrate dissonance in many forms. The Psalms have evidence of cognitive tension with and without a commitment to a decision. In the Psalms without a commitment (Pss 3, 22, 102, 109, 116), the reader is shown various responses to God. The dissonance in the Psalms with a preceding commitment instructs the reader in the right responses to God in face of such diverse life circumstances as serious illness (Pss 6, 38), false accusations (Ps 7), sin (Pss 32, 143), fear (Ps 56), suffering at the hands of adversaries (Pss 58, 59, 69, 71, 83), and catastrophe (Ps 79). The Psalms reflect thankfulness for a changed heart (Ps 73), evidences of God's providence (Ps 107), and salvation (Ps 118), all in response to dissonance. Psalm 2 calls the nations to honor and fear God and Psalm 86:11 begs God, "Teach me your way, O Lord; I will walk in Your truth; unite my heart to fear Your name." Fear of God, in the Psalms is "the beginning of wisdom" (Ps 111:10).

A third Old Testament wisdom book—Proverbs—begins the same way, "The

⁴⁸Curtis, "Learning Truth From the Sages," 118.

⁴⁹Zuck, *A Biblical Theology of the Old Testament*, 219-20.

⁵⁰Greg Goswell, "The Books in the Greek Old Testament," *JETS* 52 (2009): 458. The Psalms are included in the current research as wisdom literature even though many argue against such characterization. Goswell argues, "The Psalms, by its placement between Job and Proverbs in the English Bible (conforming to the order in the Vulgate), is designated a wisdom book, and this classification is supported by the wisdom psalms sprinkled through it (e.g., Psalms 1, 32, 34, 37, 49, 112, 128) and by the various other psalms that show a wisdom influence (e.g., Psalms 25, 31, 39, 40, 62, 78, 92, 94, 111, 119, 127). This setting makes Psalms a wisdom book. . . ." The findings of the current research are only minimally influenced by this inclusion of the Psalms as wisdom literature. Excluding the Psalms from the examination of wisdom accentuates the difference in the types of cognitive tension seen in the wisdom books. That is, without inclusion of the Psalms, all of the cases of cognitive tension without a commitment to a decision are found in the New Testament.

fear of the Lord is the beginning of knowledge; fools despise wisdom and instruction” (Prov 1:7). In the one clear case of dissonance in Proverbs (Prov 1:20-33), wisdom is personified as a woman who makes herself available to anyone who would respond; she mocks those who would reject wisdom. In her appeal, she contrasts the consonance that the two experience. Garrett explains, “The security and freedom from fear that the wise enjoy contrasts with the idle indifference of the foolish. The wise are at ease because they have genuine security; the foolish are at ease out of carelessness.”⁵¹ This difference is similar to the challenge put to the Socratic method. Socrates believed that coherence yields correspondence to reality. The challenge to Socrates is that faulty observations or faulty conclusions could result in coherence without a correspondence to reality.⁵² The foolish are arguably at peace due to faulty conclusions.

Personified wisdom in Proverbs is indistinguishable from God. Comparing the prophetic beginning of the passage to the sapiential end, Murphy points out, “An astonishing feature of Wisdom’s speeches in chaps. 1–9 is that she speaks like the Lord, no less. . . . What was referred to God is now referred to her. It is she who feels rebuffed, and who threatens those who refuse to listen. She has divine authority, and she hands out reward and punishment. She does not mention the Lord; she does not urge conversion to God, but to herself!”⁵³ However, Garrett cautions that wisdom in this passage “is a personification and not a person or a goddess.” Still, Garrett summarizes, “Wisdom is not

⁵¹Duane A. Garrett, *Proverbs, Ecclesiastes, Song of Songs*, The New American Commentary, vol. 14 (Nashville: Broadman & Holman, 1993), 73.

⁵²Kenneth Seeskin, *Dialogue and Discovery: A Study in Socratic Method* (New York: State University of New York Press, 1987), 23.

⁵³Roland E. Murphy, *Proverbs*, Word Biblical Commentary, vol. 22 (Dallas: Word Books, 1998), 12.

abstract, secular, or academic but personal and theological. To reject wisdom is to reject God.”⁵⁴

New Testament wisdom. The same connection between God and wisdom occurs in the New Testament wisdom book of James.⁵⁵ However, the type of dissonance evidenced in James is different from the Old Testament wisdom literature. For example, the prevalence in the Old Testament of cognitive tension with a commitment to a decision is absent; instead, all of the cases in James reveal cognitive tension without a commitment and this represents 71% of all such cases within the wisdom literature as a whole. In the Old Testament, the dissonant elements involved in arousing dissonance were fairly evenly split between a combination of two cognitive elements and a combination of cognitive and behavioral elements. In James, all cases show dissonance arousal between discrepant cognitive elements. The consequences of dissonance reduction are also different. The Old Testament wisdom literature showed mostly changes in cognition (49%) or affect (34%) and most of these changes (72%) were related to God. In James, most of the changes (71%) affect behavior and are related to both God (43%) and others (52%). This finding is consistent with both Moo’s and Richardson’s descriptions of wisdom in both testaments.⁵⁶

Wisdom in James, like wisdom in the Old Testament, is practical—it results in

⁵⁴Garrett, *Proverbs, Ecclesiastes, Song of Songs*, 72-73.

⁵⁵Douglas J. Moo, *James: An Introduction and Commentary*, Tyndale New Testament Commentaries, vol. 16 (Downers Grove, IL: InterVarsity Press, 1985), 54.

⁵⁶Douglas J. Moo, *The Letter of James*, The Pillar New Testament Commentary (Grand Rapids: William B. Eerdmans, 2000), 33; Kurt A. Richardson, *James*, The New American Commentary, vol. 36 (Nashville: Broadman & Holman, 1997), 163.

a life of righteousness in obedience to God.⁵⁷ Righteousness is manifested in the behavioral domain, but behavior is controlled by the heart in the affective domain. The affective changes that accompany wisdom include purity and humility.⁵⁸ James describes this heavenly wisdom: “[T]he wisdom from above is first pure, then peaceable, gentle, reasonable, full of mercy and good fruits, unwavering, without hypocrisy. And the seed whose fruit is righteousness is sown in peace by those who make peace” (Jas 3:17-18). Wisdom also bolsters faith as the person is matured spiritually;⁵⁹ one of the means of this maturation is hardship in the form of trials.⁶⁰

The source of trials is the same as the source of wisdom—God.⁶¹ James instructs believers to ask God for wisdom in James 1:5 and describes true wisdom as from above (Jas 3:17). In the New Testament, wisdom is most closely associated with Christ.⁶²

The close association between godly wisdom and Christ is seen as evidence that the wisdom James is describing is only available to Christ-followers, that is, those who have faith in Christ.⁶³ Davids comes to the same exclusive conclusion through

⁵⁷Moo, *The Letter of James*, 170, 174.

⁵⁸Peter H. Davids, *The Epistle of James: A Commentary on the Greek Text*, The New International Greek Testament Commentary (Grand Rapids: William B. Eerdmans, 1982), 154.

⁵⁹Moo, *The Letter of James*, 66.

⁶⁰Richardson, *James*, 56-57.

⁶¹Immediately preceding his instruction to ask God for wisdom, James connects the sources when he writes, “Consider it all joy, my brethren, when you encounter various trials, knowing that the testing of your faith produces endurance. And let endurance have *its* perfect result, so that you may be perfect and complete, lacking in nothing” (Jas 1:2-4).

⁶²Davids, *The Epistle of James*, 137.

⁶³Richardson, *James*, 64.

James' addressing the readers as brothers. Davids continues his argument by demonstrating the difference between those who trust God and those whom James describes as double-minded—placing their faith in the world.⁶⁴ Even if wisdom is available to the world at-large, Pazmiño insists that God's grace is required for a full understanding.⁶⁵

In addition to the association between wisdom and Christ, some writers make an even closer association between wisdom, as described by James, and the Holy Spirit. For example, Davids writes, “[W]isdom functions for James in an analogous position to that which Holy Spirit occupies for Paul.” He understands personified wisdom “may actually replace the divine Spirit as the agent of activity.” At a minimum, Davids understands that wisdom “is the possession of the believer given by the Spirit that enables him to see history from the divine perspective.”⁶⁶ Moo sees a similar parallel in function and result between James' description of wisdom and Paul's description of the Holy Spirit.⁶⁷ Richardson sees the same parallel, but cautions, “What Paul meant by the fruit of the Spirit is not identical to what James meant by the fruit of wisdom ‘from heaven.’ James did not make thematic connections with the spirit of wisdom known from the Old Testament or from the writings of John and Paul.”⁶⁸

⁶⁴Davids, *The Epistle of James*, 67, 71.

⁶⁵Pazmiño, *Foundational Issues in Christian Education*, 33.

⁶⁶Davids, *The Epistle of James*, 52, 65, 72.

⁶⁷Moo, *James*, 34.

⁶⁸Richardson, *James*, 47.

Implications of the Research

The importance of wisdom is seen in a number of implications that arose from the current research. Some were abductive inferences, that is they were derived from “the systematic, objective, quantitative analysis of message characteristics” that are the strength of the content analysis method used.⁶⁹ Other implications were conclusions drawn from the research with a biblical-theological presupposition, in contrast to the naturalistic presupposition of most of the previous research.⁷⁰ Still other implications are surmised for the present context and will require confirmatory research, as detailed at the end of this chapter. The implications include the Holy Spirit, the role of suffering, the theocentricity of the biblical-theological model, the innateness of the drive and the centrality of the affective domain to the theory, and the means of dissonance reduction. All these implications contribute to an understanding of the origin and purpose of the drive toward consonance.

Holy Spirit

The most profound implication is that, although wisdom and the Holy Spirit are not equivalent, there appears to be an exclusivity to Christians for wisdom provided by the Holy Spirit. If this conclusion extends beyond the canonical record to modern life, then the drive described by Cognitive Dissonance Theory may become relatively unnecessary for mature believers; that is, the Holy Spirit may not need the homeostatic

⁶⁹Kimberly A. Neuendorf, *The Content Analysis Guidebook* (Thousand Oaks, CA: Sage Publications, 2002), 1.

⁷⁰The two presuppositions—biblical-theological and naturalistic—are contrasted in Chapter 2. The premise of this distinction is that beginning with different presuppositions, different conclusions can be reached from the same observations.

drive in order to effect transformation of the individual. This exclusivity is suggested by the differences between the types of cognitive tension present pre- and post-Pentecost. This suggestion is strengthened by the absence of any report of cognitive dissonance in Jesus' life and the report that believers are being conformed to his image as the perfect *imago Dei*. The suggestion was also strengthened by the absence of cognitive dissonance before the fall and after the consummation, unless the absence was due to the relative scarcity of writings about these periods.

Although the homeostatic drive may become unnecessary, it is also possible that the drive remains unchanged in its purpose. In this interpretation, the Holy Spirit restores proper function to a drive that experienced postlapsarian distortion. Supporting this view is the possibility that the post-Pentecost writings reflect the Spirit's work in the believer so that the letters written to believers assume a commitment in the believer consistent with Festinger's theory.

Peace and Suffering

A second implication is the goal of peace and the role suffering has in strengthening faith that results in peace. The Hebrew concept of peace is *shalom*, which is seen by some as a result of wholeness.⁷¹ Wholeness is brought about in the Christian life by God sanctifying the person, that is bringing the person into conformity with one's legal status with God.⁷² The effects of wholeness, or peace, are exhibited in the cognitive,

⁷¹Marion Snapper, "Motivation for Learning Faith-Knowledge," in *Christian Approaches to Learning Theory: A Symposium*, ed. Norman De Jong (Lanham, MD: University Press of America, 1984), 155.

⁷²Millard J. Erickson, *Christian Theology*, 2nd ed. (Grand Rapids: Baker Book House, 1998), 918. Erickson writes: "The traditional orthodox or evangelical position on salvation is correlated closely with the orthodox understanding of the human predicament. In this understanding, the relationship between

affective, and behavioral domains, the same three domains in which Festinger found dissonance arousal and satiation. Consonance, in Festinger's jargon, has a semantic range that includes the biblical concept of peace. Peace includes right relationships with God, self, others, and all of creation.

Jesus promised his followers peace in the same passage that he promised the Holy Spirit (John 14:26-27).⁷³ Paul wrote about peace with God to the church at Rome: "Therefore, having been justified by faith, we have peace with God through our Lord Jesus Christ, through whom also we have obtained our introduction by faith into this grace in which we stand; and we exult in hope of the glory of God (Rom 5:1-2). The Philippian church is told by Paul, "Be anxious for nothing, but in everything by prayer

the human being and God is the primary one. When that is not right, the other dimensions of life are adversely affected as well.

Evangelicals understand the Scriptures to indicate that there are two major aspects to the human problem of sin. First, sin is a broken relationship with God. The human has failed to fulfill divine expectations, whether by transgressing limitations that God's law has set or by failing to do what is positively commanded there. Deviation from the law results in a state of guilt or liability to punishment. Second, the very nature of the person is spoiled as a result of deviation from the law. Now there is an inclination toward evil, a propensity for sin. There is a bias, as it were, away from the good, so that the person tends by nature to do evil.

Usually termed corruption, this often shows itself in terms of internal disorientation and conflict as well. Beyond that, because we live in the context of a network of interpersonal relationships, the rupture in our relationship with God also results in a disturbance of our relationships with other persons. Sin even takes on collective dimensions: the whole structure of society inflicts hardships and wrongs upon individuals and minority groups.

Certain aspects of the doctrine of salvation relate to the matter of one's standing with God. The individual's legal status must be changed from guilty to not guilty. This is a matter of one's being declared just or righteous in God's sight, of being viewed as fully meeting the divine requirements. The theological term here is *justification*. One is justified by being brought into a legal union with Christ. More is necessary, however, than merely remission of guilt, because the warm intimacy that should characterize one's relationship with God has been lost. This problem is rectified by adoption, in which one is restored to favor with God and enabled to claim all the benefits provided by the loving Father.

In addition to the need to reestablish one's relationship with God, there is also a need to alter the condition of one's heart. The basic change in the direction of one's life from an inclination toward sin to a positive desire to live righteously is termed *regeneration* or, literally, new birth. An actual alteration of one's character is involved, an infusion of a positive spiritual energy. This, however, is merely the beginning of the spiritual life. The individual's spiritual condition is progressively altered; one actually becomes holier. This progressive subjective change is referred to as *sanctification* ("making holy")."

⁷³“But the Helper, the Holy Spirit, whom the Father will send in My name, He will teach you all things, and bring to your remembrance all that I said to you. Peace I leave with you; My peace I give to you; not as the world gives do I give to you. Do not let your heart be troubled, nor let it be fearful” (John

and supplication with thanksgiving let your requests be made known to God. And the peace of God, which surpasses all comprehension, will guard your hearts and your minds in Christ Jesus” (Phil 4:6-7). The author of Hebrews connects sanctification to peace with others: “Pursue peace with all men, and the sanctification without which no one will see the Lord” (Heb 12:14).

Suffering is one of the conditions most disruptive to peace. As Job’s story demonstrates, though, suffering can be a pedagogical tool to teach faith and to experience peace with God and others.⁷⁴ Suffering often involves trials. James tells his readers that, because trials can lead to wisdom, they should be accepted with joy: “Consider it all joy, my brethren, when you encounter various trials, knowing that the testing of your faith produces endurance. And let endurance have its perfect result, so that you may be perfect and complete, lacking in nothing. But if any of you lacks wisdom, let him ask of God, who gives to all generously and without reproach, and it will be given to him” (Jas 1:2-5). Demarest goes so far as to say that suffering may be one of the primary means God uses in the redemption of believers.⁷⁵

Theocentricity

If suffering and the drive toward consonance are used by God, then presupposing God’s use implies the focus of the drive, which is evident only with a theocentric focus. Because Scripture is God-breathed,⁷⁶ ultimately authored by God

14:26-27).

⁷⁴Clines, *Job 1-20*, 148.

⁷⁵Bruce Demarest, *Seasons of the Soul: Stages of Spiritual Development* (Downers Grove, IL: InterVarsity Press, 2009), 113.

⁷⁶“All Scripture is inspired by God and profitable for teaching, for reproof, for correction, for

himself⁷⁷ as a means of special revelation of himself for the purpose of rightly relating humans to himself,⁷⁸ it is not surprising that the Bible is theocentric, providing “both cognitive and affective knowledge of God.”⁷⁹ Humans were created by God as image-bearers—the *imago Dei*—of himself to populate the earth and serve as vice-regents under himself.⁸⁰ Effects of the *imago Dei* can be described teleologically, substantively, relationally, and functionally (see chapter 2).

In contrast to Scripture's theocentric effects on the human, including the drive actuated by cognitive dissonance, the naturalistic literature characteristic of much of

training in righteousness; so that the man of God may be adequate, equipped for every good work” (2 Tim 3:16-17).

⁷⁷Grudem, *Systematic Theology*, 50. Grudem explains that the words of Scripture “are still considered to be God’s own words, even though they are written down mostly by human beings and always in human language. Still, they are absolutely authoritative and absolutely true: to disobey them or disbelieve them is a serious sin and brings judgment from God.” He further explains the benefit of this means of communication: “Several benefits come from the writing down of God’s words. First, there is a much more accurate preservation of God’s words for subsequent generations. To depend on memory and the repeating of oral tradition is a less reliable method of preserving these words throughout history than is their recording in writing. Second, the opportunity for repeated inspection of words that are written down permits careful study and discussion, which leads to better understanding and more complete obedience. Third, God’s words in writing are accessible to many more people than they are when preserved merely through memory and oral repetition. They can be inspected at any time by any person and are not limited in accessibility to those who have memorized them or those who are able to be present when they are recited orally. Thus, the reliability, permanence, and accessibility of the form in which God’s words are preserved are all greatly enhanced when they are written down. Yet there is no indication that their authority or truthfulness is diminished.

⁷⁸Erickson, *Christian Theology*, 201-02. Special revelation is “God’s manifestation of himself to particular persons at definite times and places, enabling those persons to enter into a redemptive relationship with him.”

⁷⁹Ibid., 200.

⁸⁰“Then God said, ‘Let Us make man in Our image, according to Our likeness; and let them rule over the fish of the sea and over the birds of the sky and over the cattle and over all the earth, and over every creeping thing that creeps on the earth.’ God created man in His own image, in the image of God He created him; male and female He created them. God blessed them; and God said to them, ‘Be fruitful and multiply, and fill the earth, and subdue it; and rule over the fish of the sea and over the birds of the sky and over every living thing that moves on the earth.’ Then God said, ‘Behold, I have given you every plant yielding seed that is on the surface of all the earth, and every tree which has fruit yielding seed; it shall be food for you; and to every beast of the earth and to every bird of the sky and to every thing that moves on the earth which has life, I have given every green plant for food’; and it was so. God saw all that He had made, and behold, it was very good. And there was evening and there was morning, the sixth day” (Gen 1:26-31).

social psychology is anthropocentric. Both theocentric and anthropocentric views recognize holistic, ontological effects in humans manifested in the cognitive, affective, and behavioral domains; both views recognize material and immaterial aspects to humans.⁸¹ However, because the theological is theocentric and the naturalistic is anthropocentric, wisdom—the means of rightly relating in the world—described by each differs in source and outcome. James describes the difference when he writes,

Who among you is wise and understanding? Let him show by his good behavior his deeds in the gentleness of wisdom. But if you have bitter jealousy and selfish ambition in your heart, do not be arrogant and so lie against the truth. This wisdom is not that which comes down from above, but is earthly, natural, demonic. For where jealousy and selfish ambition exist, there is disorder and every evil thing. But the wisdom from above is first pure, then peaceable, gentle, reasonable, full of mercy and good fruits, unwavering, without hypocrisy. And the seed whose fruit is righteousness is sown in peace by those who make peace. (Jas 3:13-18)

Although biblical-theological and naturalistic views of cognitive dissonance observe an emphasis on right relationships as a result of dissonance reduction mechanisms, they do not agree on the purpose. The naturalistic view understands that the purpose of cognitive dissonance is to improve the chance of survivability of the individual or species.⁸² The biblical-theological view understands that the purpose of cognitive dissonance is to improve the relationship with God, primarily, and to improve relationships with others, secondarily.

⁸¹Jerry M. Suls, Abraham Tesser, and Richard B. Felson, "Introduction," in *Psychological Perspectives on Self and Identity*, ed. Abraham Tesser, Richard B. Felson, and Jerry M. Suls (Washington, DC: American Psychological Association, 2000), 6.

⁸²Lee Ross, Mark Lepper, and Andrew Ward, "History of Social Psychology: Insights, Challenges, and Contributions to Theory and Application," in *Handbook of Social Psychology*, 5th ed., ed. Susan T. Fiske, Daniel T. Gilbert, and Gardner Lindzey (Hoboken, NJ: Wiley, 2010), 34; Constantine Sedikides and John J. Showronski, "On the Evolutionary Functions of the Symbolic Self: The Emergence of Self-Evaluation Motives," in *Psychological Perspectives on Self and Identity*, ed. Abraham Tesser, Richard B. Felson, and Jerry M. Suls (Washington, DC: American Psychological Association, 2000), 95, 97.

Drive Innateness

If cognitive dissonance prompts right relationships between humanity and God and right relationships within humanity, then the drive must be innate to humans. The innateness of the drive is well documented (see chapter 2); however, the origin and purpose are not.

The present research documents evidences of the drive described in Cognitive Dissonance Theory throughout Scripture, but its presence is limited to the redemptive phase of the biblical metanarrative. As previously discussed, this finding may be related to the abundance of Scripture focused on the redemptive phase and the relative scarcity of Scripture focused on prelapsarian and post-consummation phases. As also discussed, the perception of a change in the type of cognitive tension may be attributable to the influence of the Holy Spirit on the believer with an assumed commitment consistent with Festinger's theory.

No matter which interpretation is preferred, a naturalistic presupposition is hard-pressed to account for the pattern seen. The naturalistic explanation of the source of the drive toward consonance is summarized by Tedeschi and colleagues. They suggest the drive is either genetic or socially acquired. If genetic, it is "some type of mysterious mechanism, like a gyroscope, that works in the fashion of a computing device automatically activated by any illogically formed cognition pair." Even if their description were accurate, they propose no origin for the genetic coding that results in cognitive dissonance. The same deficiency exists in their alternative explanation of cognitive tension being socially acquired.⁸³

⁸³James T. Tedeschi, Barry R. Schlenker, and Thomas V. Bonoma, "Cognitive Dissonance:

A biblical-theological interpretation, on the other hand, explains this in one of four ways. First, it may be a prelapsarian drive that was distorted by the fall so that it is now perceived as discomfort. Closely related to this explanation is the idea that the drive may have been present from the moment of creation in its observed form, but was not actualized until the fall. In both of these explanations, there is ontological continuity of the *imago Dei*, at least regarding the drive toward consonance. The difference between these is that, in the former, there is functional discontinuity of the drive, and in the latter, there is functional continuity.

The final two alternatives are postlapsarian explanations—one positive and one negative. These would suggest a degree of ontological discontinuity of the *imago Dei*. The positive postlapsarian explanation is that God provided the drive following the fall of humanity into sin in order to motivate people to seek right relationships so that the creation could retain a semblance of order. The negative postlapsarian explanation is that cognitive dissonance may be a negative consequence of the fall like the difficulties in growing food and birthing offspring explained in Genesis 3:16-19. With all four of these explanations, the source of the drive is God and the purpose of the drive is rightly relating to the world, that is rightly relating to God, self, others, and all of creation.

Affective Centrality

This innate drive is likely controlled by the hypothalamus, which is responsible for homeostasis (see chapter 2). The hypothalamus has two-way communication with the limbic system of the brain where affect seems to be centered and motivation seems to be

Private Ratiocination Or Public Spectacle?," *American Psychologist* 26 (1971): 689.

controlled.⁸⁴ The hypothalamus causes reactions in the sympathetic nervous system and the endocrine system, which motivates the person to satiate the drive—in the case of cognitive dissonance, this motivates the person to seek consonance in cognitions. The same limbic/hypothalamic interaction influences memory and is thought by some to be related to learning.

Because the same central nervous system structures are responsible for memory, learning, cognitive dissonance, and homeostasis, each of these effects may be closely related as part of a drive toward consonance. If true, then cognitive dissonance becomes a motivator for learning, the goal of which is wisdom—practical application of knowledge cohering and corresponding to reality (see model of CDT, below). This hypothesis is consistent with cognitive dissonance research that describes the goal in sapiential terms. This hypothesis is also consistent with Piaget’s theory of cognitive development wherein cognition is modified in order to assimilate and accommodate new cognitions into a mental map of reality and behavior within that reality. The hypothesis is also consistent with the epistemology described in Hegel’s dialectic, as discrepancies in cognition are resolved. It is consistent with the pedagogical Socratic method from which Hegel derived his dialectic. Lastly, the hypothesis is consistent with Mezirow’s transformative learning theory, which challenges the veracity of presuppositions.

The centrality of the affective domain was not prevalent in the present research perhaps because affect is not directly observable. Therefore, the proposed hypothesis is surmised rather than observed in the present research. The problematic nature of this

⁸⁴John Nolte, *The Human Brain: An Introduction to Its Functional Anatomy*, 6th ed. (Philadelphia: Mosby, 2008), Kindle Electronic ed., 18136-49.

limitation is mitigated by the methodology itself—content analysis research allows for abductive inferences. Deductive inferences, like the current hypothesis, are then derived from the abductive inferences and the presuppositions of the researcher.

Dissonance Reduction

While affective influences and results are not directly observable, the mechanisms of dissonance reduction employed as well as the results of those mechanisms are observable in the biblical metanarrative. Consistent with the pedagogical hypothesis, the means of dissonance reduction found most often in Scripture was learning—adding cognitive elements to reduce dissonance.

Learning occurs in a number of ways in Scripture, which is consistent with cognitive development theories and pedagogical practices. Piaget would argue that only self-directed learning efforts result in proper learning since he sees outside influences as unnecessary to maturation.⁸⁵ Other theorists understand that outside influences are often necessary for the transformation of the learner.⁸⁶ This need is corroborated by Scripture, in which God or others are often the instigators of the addition of cognitive elements. The need is also corroborated by current research that shows that the brain's default focus is social.⁸⁷ The need for relationality in learning supports the current hypothesis of the

⁸⁵Piaget, *Equilibration of Cognitive Structures*, 1985), 154; James C. Wilhoit, "Memory: An Area of Difference Between Piaget and Goldman," *Journal of Christian Education* 2, no. 2 (1982): 12.

⁸⁶E.g., Festinger, Riecken, and Schachter, *When Prophecy Fails*, 3. Festinger's early work was focused on the necessity of social support to his evolving theory. Hegel, *The Phenomenology of Spirit*, 6285. Hegel argues that rationality requires relationality since individuality—central to the Hegelian dialectic—can only be realized by association with others. Seeskin, *Dialogue and Discovery*, 23. Seeskin emphasizes the need in the Socratic method for social interaction to challenge one's commitment to an element of knowledge.

⁸⁷Matthew D. Lieberman, "Social Cognitive Neuroscience," in *Handbook of Social Psychology*, 5th ed., ed. Susan T. Fiske, Daniel T. Gilbert, and Gardner Lindzey (Hoboken, NJ: Wiley,

purpose for the drive toward consonance—peace in relationships with God, self, others, and all of creation.

Origin and Purpose: Summary

These implications can be summarized in a hypothesis to explain the origin and purpose of the drive so well documented in the cognitive dissonance literature. Scripture reveals the presence of cognitive dissonance as well as other forms of cognitive tension unaccompanied by obvious commitment. With a biblical-theological anthropology, the descriptive fidelity of Cognitive Dissonance Theory is improved.

The sapiential drive associated with cognitive tension has its origin in God, either as part of creation or as a postlapsarian accommodation of the fallen *imago Dei*. If the drive is prelapsarian, then it may continue through the consummation phase of the biblical metanarrative into eternity, albeit with a corrected function. In this view, the Holy Spirit begins the correction in Christ-followers during the redemptive phase so that the drive may appear to function without an overt commitment as reported post-Pentecost in the New Testament letters.

If, instead, the drive is postlapsarian, then it seems to be either a positive or negative consequence that disappears at the end of the redemptive phase of the biblical metanarrative. In this view, the drive serves a role in those not indwelt by the Holy Spirit similar to part of the Holy Spirit's role in Christ-followers, who are indwelt by the Spirit.

Regardless of the timing of its origin, the drive stimulated by cognitive dissonance prompts learning and application of learning. Therefore, the innate drive toward consonance seems designed for the purpose of seeking wisdom so that one may

2010), 176.

be rightly related in reality, including right relationships with God, self, others, and all of creation. Gentry and Wellum describe the relationship this way: “God is the center of the universe and we humans find our purpose in having a right relationship to God and to one another.”⁸⁸ As Garrett suggests, “Wisdom is not abstract, secular, or academic but personal and theological.”⁸⁹

Biblical-Theological Model of CDT

With this hypothetical origin and purpose, a biblical-theological model of Cognitive Dissonance Theory can be offered, beginning with a review of the potential connection between pedagogy and Festinger’s original theory. In pedagogy, educators attempt to transform students;⁹⁰ teaching-method books abound to tell them how. What has been unsuccessfully sought is a means of triggering the innate desire to learn, a drive that seems to be inherent to humanity.⁹¹ A social-psychologist, Leon Festinger, developed a theory that may allow educators to understand how to cause students to want to learn.⁹² However, despite accurate observations in over 1,200 research articles over a period of more than five decades,⁹³ no model of pedagogy has been offered to use Cognitive

⁸⁸Gentry and Wellum, *Kingdom through Covenant*, 139.

⁸⁹Garrett, *Proverbs, Ecclesiastes, Song of Songs*, 72.

⁹⁰John M. Dettoni, “On Being a Developmental Teacher,” in *Nurture That Is Christian: Developmental Perspectives on Christian Education*, ed. James C. Wilhoit and John M. Dettoni (Grand Rapids: Baker Academic, 1998), 262.

⁹¹William R. Yount, *Created to Learn: A Christian Teacher’s Introduction to Educational Psychology*, 2nd ed. (Nashville: B&H Academic, 2010).

⁹²Leon Festinger, *A Theory of Cognitive Dissonance* (Evanston, IL: Row, Peterson and Co., 1957).

⁹³Ralph W. Hood, Jr., “Where Prophecy Lives: Psychological and Sociological Studies of Cognitive Dissonance,” in *How Prophecy Lives*, ed. Diana G. Tumminia and William H. Swatos, Jr. (Boston: Brill, 2011), 28.

Dissonance prescriptively.⁹⁴

Festinger combined the work of three disciplines. Two cognitive theorists were influential. From Kurt Lewin's field theory, Festinger described the content of elements of knowledge as a map of physical, social, or psychological reality. From Charles Peirce's cognitive consistency theory, Festinger described the possible relationships between cognitive elements. Festinger also found the motivational drive nature of his theory in the work of behaviorists Clark Hull and Kenneth Spence.⁹⁵

Festinger's Cognitive Dissonance Theory describes an innate, post-decisional drive to reduce the discrepancy between elements of knowledge in cognition, affection, or behavior, which coincide with the three domains of learning. In the current research, two modifications have been made to the original theory. The first is a strengthening of the homeostatic nature of the drive toward consonance. The second is a replacement for the naturalistic presupposition that permeates the social-psychology literature. Instead of seeking naturalistic explanations, a biblical-theological presupposition adds a mind substance⁹⁶ learning theory influence that explains flawed rationality. In addition, the biblical-theological presupposition explains strained relationships, disrupted dominion,

⁹⁴Marion Snapper, "Motivation for Learning Faith-Knowledge," in *Christian Approaches to Learning Theory: A Symposium*, ed. Norman De Jong (Lanham, MD: University Press of America, 1984), 166. Snapper recommends using cognitive dissonance to motivate students, but he fails to offer a way to do that.

⁹⁵Kurt Lewin, *A Dynamic Theory of Personality: Selected Papers*, trans. Donald K. Adams and Karl E. Zener (New York: McGraw-Hill, 1935), Kindle Electronic ed., 1187; Charles S. Peirce, "The Fixation of Belief," *Popular Science Monthly* 12 (November 1877): 1–15; Clark L. Hull, *Principles of Behavior* (New York: Appleton-Century-Crofts, 1943); Kenneth W. Spence, *Behavior Theory and Conditioning* (New Haven, CT: Yale University Press, 1956).

⁹⁶Morris L. Bigge and Samuel S. Shermis, *Learning Theories for Teachers*, 6th ed. (Boston: Pearson, 2004), 8-9, 22. "Mind substance is a self-dependent, immaterial essence or genuine being, which parallels the physical nature of human beings; it is just as real as matter, has a nature of its own, and operates in its own distinctive fashion."

and the need for transformation that are all consequences of the fall of humanity into sin.

Working from the hypothesis that cognitive dissonance is a homeostatic mechanism induced by God to motivate sinful humanity to remedy relationship impairments with God, self, others, and creation, a model consistent with the present research is proffered.

While the model has not been tested, it derives from a census study of the canon of Christian Scripture using a content analysis methodology. The model incorporates corroborative work from soft sciences, hard sciences, and related pedagogical practices. This research was aimed at improving the descriptive fidelity and extending the prescriptive facility of Festinger's original theory.

The present research makes observations consistent with previous cognitive dissonance research. For example, following a commitment to a decision, dissonance between cognitive elements in any of three domains—cognitive, affective, or behavioral—causes an arousal that prompts the person to find a means to reduce the dissonance. Consequences of dissonance reduction allow the person to function better in perceived reality. Although the observations are the same, the replacement of the naturalistic, social-psychological anthropocentric presuppositions with a biblical-theological theocentric presupposition changes conclusions drawn from the observations. The biblical-theological conclusions extend to the nature, purpose, and control of the drive. These changes improve on previous theories and suggest a sapiential explanation.

Homeostatic Nature of the Drive

First, Festinger found a homeostatic drive actuated by the perception of discrepancies in elements of knowledge of cognition, affection, or behavior that

motivates a person to bring the discrepant elements into alignment with objective reality. Festinger proposed the drive nature of his theory, but the status as a drive has been challenged as Festinger's two-element theory has been compared to single-element drives such as hunger, thirst, and libido.⁹⁷ It has been argued that these simple drives have a single means of satiation, while Festinger's theory allows for multiple means of reducing cognitive dissonance.

By comparing Cognitive Dissonance Theory to a more complicated drive, like thermoregulation, instead of comparing the drive toward consonance with simple drives, the parallels support the veracity of Festinger's conclusion.⁹⁸ The drive appears to be homeostatic in its control by the hypothalamus and under the influence of the limbic

⁹⁷Festinger, *A Theory of Cognitive Dissonance*. Festinger theorized dissonance between a pair of cognitive, affective, or behavioral elements. Festinger proposed four means by which to reduce dissonance: change one of the elements, add a new cognitive element, change the importance of one of the elements, and ignore reality.

⁹⁸Danny R. Bowen, "Intraoperative Thermoregulation," in *Nurse Anesthesia*, 2nd ed., ed. John J. Nagelhout and Karen L. Zaglaniczny (Philadelphia: W.B. Saunders, 2001), 397-402; Leon Festinger, *A Theory of Cognitive Dissonance* (Evanston, IL: Row, Peterson and Co., 1957). For completeness, the following has been copied from chap. 2 of this dissertation. A comparison is drawn between thermoregulation and Festinger's theory: As homeothermic creatures, humans are created to maintain a body temperature within a very narrow margin regardless of the environment in which they exist. Thermoregulation is described as a variable set point with proportional control. The set point is the target temperature, which is achieved by balancing heat production with heat loss. This set point can vary due to internal and external factors. Around the set point, there is a range of temperatures that elicits no response, but variance past this interthreshold range causes a cascade of autonomic nervous system and endocrine responses that are proportional to the temperature discrepancy. While mild variances are excitatory, severe temperature changes interrupt homeostasis. What is not known is the exact mechanism by which the actual temperature is compared to the set point in order to elicit a balancing response. Despite the lack of clarity on this point, the existing model of thermoregulation adequately describes reality. At each of these points, Cognitive Dissonance Theory mirrors thermoregulation. For example, the set point for the drive described by Festinger is cognitive consonance. Balance is maintained by the four mechanisms described by Festinger so that either side of the discrepancy is subject to correction. The set point can vary based on internal and external factors. Festinger describes the drive as being toward consonance rather than complete consonance, so that some interthreshold range exists wherein some dissonance is tolerated without response. Activation causes both autonomic nervous system and endocrine responses; the responses are proportional to the magnitude of the discrepancy between cognitions. Mild discrepancies are excitatory, while severe discrepancies inhibit normal function. As with thermoregulation, one of the least understood components is the comparison process between set point and discrepant cognition. Although the comparison is poorly understood, the model proposed by Festinger remains an adequate description of reality.

system of the brain, the affective bridge between the hypothalamus, responsible for homeostasis, and the neocortex, responsible for voluntary behavior.⁹⁹ This drive is innate to the human. Its origin can be explained as either part of God’s creation of humanity, actuated at the fall, or as a gracious gift from God at the fall in order to motivate people into right relationships with God, self, others, and creation.

Purpose

The purpose of the homeostatic drive toward consonance appears to be sapiential. As a holistic drive, cognitive dissonance involves propositional wisdom—cognitive elements, dispositional wisdom— affective elements, and enacted wisdom—behavioral elements. These three are manifestations of holistic wisdom rather than independent types of wisdom. Therefore, Cognitive Dissonance Theory appears to be a drive toward wisdom. When corrected these three are demonstrated as orthodoxy, orthopathy, and orthopraxy. This wisdom is practical in that it improves the individual’s functioning within reality, a reality that includes God, self, others, and all of creation. This improved functioning has the affective domain at its center. This coincides with the Hebrew concept of “heart” as the center of one’s being in which emotions, mind, and will operate in harmony and union.¹⁰⁰

⁹⁹Within the limbic system, the hippocampus gives meaning to new information by comparing information received from the frontal lobe to the mental schema stored in long-term memory. The amygdala, another limbic structure, imbues new information received from the thalamus with emotional content derived from the homeostatic and hedonic center—the hypothalamus. For a more complete explanation, see chap. 2.

¹⁰⁰Peter J. Gentry and Stephen J. Wellum, *Kingdom through Covenant: A Biblical-Theological Understanding of the Covenants* (Wheaton, IL: Crossway, 2012), 368-69.

Moderator

Materially, moderation of wisdom seems connected to the interplay of the hypothalamic and limbic systems. However, humanity has an immaterial aspect that must be considered. Scripture is clear that for those who are indwelt by the Holy Spirit, it is the Spirit's influence that changes cognition, affection, and behavior. Through special revelation, he influences cognitive knowledge, especially of God.¹⁰¹ Through his direct

¹⁰¹Russell D. Moore, "Natural Revelation," in *A Theology for the Church*, ed. Daniel L. Akin (Nashville: B&H Academic, 2007), 104-11. "[N]ature is the revelation of God, and this revelation is always subverted by fallen humanity. This strikes against one of the most widely debated facets of Christian theology—what theologians call "general revelation" or "natural revelation." General revelation is the self-disclosure of God to all rational beings, a revelation that comes through the natural creation and through the makeup of the human creature. Natural theology is the attempt to build a theological structure on the basis of general revelation apart from God's witness in the Scriptures and in Jesus Christ. Biblical scholar C. John Collins contrasts general and special revelation by explaining that "general revelation comes to all people everywhere (hence it is 'general'), while special revelation is what God has specially revealed of himself in his covenant, made to his chosen people (Israel and the church)." The challenge in constructing a thoroughgoing evangelical theology of general revelation lies in maintaining this biblical tension between the reality and the limits of general revelation, between the clarity of God's disclosure and the distortion of it by fallen humanity. . . . The ultimate purpose of all revelation is Christ Jesus. General revelation is not to be abstracted from Christology. Wisdom and power are closely related in biblical descriptions of God's activities in creation and providence (Isa. 10:13). In the New Testament the "word" of God which forms the universe at the beginning and likewise the "wisdom" of God through which he designed it are revealed as the personal Logos of God, who is incarnate as Jesus of Nazareth. Through him, the Apostles John and Paul reveal, the creation was initiated, executed, and is now held together (John 1:1-10; Col. 1:16-17). This means that God's power and wisdom—which are perceived by all in the creation—are not impersonal forces but Jesus Christ, "the power of God and the wisdom of God" (1 Cor. 1:24). . . . The Scriptures maintain that general revelation points to the mystery of the universe, but it does not disclose the meaning of creation—a meaning unveiled in Christ (Eph. 1:10). Thus, even from the beginning, God's word was needed to interpret general revelation. . . . The limitations of general revelation . . . result in the necessity of God's address of the human race through the special revelation of Christ and the prophetic-apostolic Scripture. Moreover, these limitations result in the priority of Scripture over any claim to general revelation. This priority results in the Protestant Reformation principle of sola Scriptura. This principle does not evaporate insights from general revelation. But it maintains that special revelation provides the sole, final authority for all human thought. Charles Caldwell Ryrie, *Basic Theology: A Popular Systematic Guide to Understanding Biblical Truth* (Chicago: Moody Press, 1999), 31. Ryrie differentiates special revelation—revealed truth—from general revelation—observed truth. Both are God's revelation of himself to humanity. Wayne A. Grudem, *Systematic Theology: An Introduction to Biblical Doctrine* (Grand Rapids: Zondervan, 1994), 1242, 1254. Grudem defines each. Special revelation is "God's words addressed to specific people, including the words of the Bible." General revelation is "the knowledge of God's existence, character, and moral law that comes through creation to all humanity." David W. Diehi, "Evangelicalism and General Revelation: An Unfinished Agenda," *Journal of the Evangelical Theological Society* 30 (1987): 440-55. Diehi lists five propositions on which evangelicalism generally agrees: (1) General revelation is a revelation of God through his works of creation and providence in a natural, continuous, universal, indirect and nonpropositional mode; (2) general revelation gives a knowledge of God's general character and will; (3) the knowledge of God by general revelation has been darkened or

work on the human heart, he influences the affective desires. Through cognitive and affective changes along with occasional impositions, the Holy Spirit influences behavior.

In a restricted sense, cognitive dissonance describes similar effects from the drive toward consonance. From the present research it seems that general revelation can provide an influence on cognitive knowledge, again especially toward God. Through the homeostatic drive, it influences affective desires. Through these, cognitive dissonance affects behavior.

The exact relationship between the drive toward consonance and the influence of the Holy Spirit is indiscernible from the methodology used in the current research. Consistent with the findings is the possibility that the Holy Spirit makes the drive unnecessary for those who enter into a redemptive relationship with God through Christ. If this is correct, then the affective changes prompted by cognitive dissonance early in Scripture become the purview of the Holy Spirit in Christ-followers after Pentecost. In this view, one could expect to see a gradual change of influence from the innate drive to the indwelling Holy Spirit during the process of spiritual maturation.

Another possible conclusion consistent with the findings is the idea that the drive is being redeemed by the Holy Spirit in the spiritual maturation process. In this interpretation, the function of the innate drive is being restored in the *imago Dei* through the work of the Spirit so that the drive serves its original sapiential purpose of maintaining orthodoxy, orthopathy, and orthopraxy. Additional research may help clarify the role of the innate drive.

distorted by sin; (4) in spite of sin, general revelation is clear and objective and is therefore the basis for universal human guilt and a point of contact for the gospel; and (5) Scripture and the grace of the Holy Spirit are needed to enable us to understand properly the message of general revelation.

Improvements on Previous Theories

Even without a complete understanding of the phenomenon, the current model improves on previous models of Cognitive Dissonance Theory by explaining the observations in Scripture. This improvement is not at the cost of dismissing previous observational work.

For example, Festinger suggested that the drive was innate to the human. The current research supports that view and provides an explanation for its purpose and origin, which heretofore has been attributed to evolutionary changes necessary for survival of the individual or the species. Festinger also postulated that dissonance has magnitude. The examination of the book of Job demonstrated an increasing magnitude until dissonance reduction mechanisms were reported. The key differentiation between Festinger and other cognitive consistency theorists is the necessity for a commitment to a decision.

If the change in the appearance of cognitive tension in Scripture is due to a change in the occurrence of a commitment to a decision, then the research suggests that the necessity of the commitment to a decision changes when one becomes a follower of Christ and is simultaneously indwelt by God's Spirit. If, instead, the change in the appearance of cognitive tension is related to differences in the genre of literature, then the research suggests a ubiquity for the commitment that leads to cognitive tension whether that commitment is obvious or not. This could recategorize Festinger's Cognitive Dissonance Theory as a metatheory that explains many, if not all, of the theories that have been influenced by Peirce's cognitive consistency work. That is, other cognitive consistency theories like Piaget and Hegel could be facets of the larger theory as incomplete descriptions of Festinger's complete theory.

The present research also accounts for the influences on Festinger's theory. Lewin's field theory connects the elements of knowledge to perceived reality. The changes seen in Scripture often involved aligning a person's cognition, affection, or behavior with perceived reality. Peirce's cognitive consistency is seen in the discrepant elements that caused arousal. Spence and Hull's motivation theories are supported by the employment of dissonance reduction mechanisms.

Popular alternatives to and modifications of Festinger's theory were presented in chapter 2. Because the current research was content analysis of historical records and lacked the experimental conditions necessary to distinguish between the subtle differences between theorists, the alternatives to Cognitive Dissonance Theory—self-perception theory and impression management theory—could not be examined.¹⁰² However, the weakness of these two alternatives remains their inability to account for the psychological and physiological arousal found by other researchers in the presence of cognitive dissonance.

The first three modifications to Festinger's theory presented in chapter 2—hypocrisy theory, self-affirmation theory, and self-standards theory—are consistent with the current research findings.¹⁰³ However, as with all naturalistic explanations, they are anthropocentric and, therefore, limited in their scope compared to the current theory,

¹⁰²Daryl J. Bem, "Self-Perception: An Alternative Interpretation of Cognitive Dissonance Phenomena," *Psychological Review* 76 (1967); James T. Tedeschi, Barry R. Schlenker, and Thomas V. Bonoma, "Cognitive Dissonance: Private Ratiocination or Public Spectacle?," *American Psychologist* 26 (1971): 685-95.

¹⁰³Elliot Aronson, "Dissonance Theory: Progress and Problems," in *Theories of Cognitive Consistency: A Sourcebook*, ed. Robert P. Abelson et al. (Chicago: Rand McNally, 1968), 23; Claude M. Steele, "The Psychology of Self-Affirmation: Sustaining the Integrity of the Self," in *Advances in Experimental Social Psychology*, vol. 21, ed. Leonard Berkowitz (New York: Academic Press, 1988); Jeff Stone and Joel Cooper, "A Self-Standards Model of Cognitive Dissonance," *Journal of Experimental Social Psychology* 37 (May 2001): 231.

which is theocentric with an anthropology that is biblically based. The “New Look,” the fourth modification of Cognitive Dissonance Theory presented in chapter 2 was not observable in Scripture for the same reason the alternatives were not observable, that is, there were no experimental conditions to examine evidences of internal processing of the arousal.

The present research also improves on other theorists. Hegel’s dialectic describes an epistemology that reconciles discrepant elements in the cognitive domain; the present research gives a cause for the need for synthesis. Piaget describes cognitive development as interplay between cognitive and behavioral domains; the present research demonstrates the value of relationality in the face of flawed rationality. The motivational theories of Spence and Hull describe a need to change behavior; the present research describes the motivation in terms of affective changes from cognitive dissonance and, for the Christ-follower, from the Holy Spirit.

In addition to the improvement on the cognitive theories, the present research improves on several pedagogical practices. The oldest is the Socratic method from which Hegel derived his dialectic.¹⁰⁴ Like Hegel, Socrates described an epistemology, a way of knowing. Socrates prompted dissonance through illuminating cognitive inconsistencies in his learners’ perceived reality, helping his learners come to proper conclusions. The present research endorses the method while providing correspondence to reality missing in the Socratic striving for coherence.¹⁰⁵ The present research also assumes the need for

¹⁰⁴Plato, *The Socratic Dialogues*, trans. Jowett, Benjamin (New York: Kaplan Publishing, 2009), Kindle Electronic ed.

¹⁰⁵Kenneth Seeskin, *Dialogue and Discovery: A Study in Socratic Method* (New York: State University of New York Press, 1987), 23.) and social interaction to challenge that commitment. (Kenneth Seeskin, *Dialogue and Discovery: A Study in Socratic Method* (New York: State University of New York

divine intervention in improving flawed rationality while Socrates believed that the process itself could provide the correction.

The Socratic method focuses on conclusions, while Mezirow's transformative learning focuses on the correction of presuppositions so that the adult may properly relate in the world.¹⁰⁶ Like cognitive dissonance, Mezirow understands the need for a disorienting dilemma as a trigger for critical reflection that motivates the person to modify presuppositions. The disorienting dilemmas in Scripture are consistent with Festinger at times by being associated with a commitment to a decision. At other times, the disorienting dilemma had no associated commitment. The progression of types of cognitive tension changed throughout the historical record in Scripture so that a commitment became less necessary after the heart-changing Holy Spirit began to indwell Christ-followers. Mezirow and Festinger reinforce the importance of the affective realm to motivate the change. The current research did not observe the centrality of affect, but, as discussed earlier, this may be because the evidences of affective changes are manifested in the other domains rather than observed directly.

Sapiential Sight

The improvements described above allow an understanding of the drive as sapiential sight. According to Festinger and others, humans are motivated to live in alignment with reality. When subjective reality differs from objective reality, the perception must change so that the subjective becomes aligned with the objective.

Press, 1987), 35.

¹⁰⁶Jack Mezirow, "Learning to Think Like an Adult: Core Concepts of Transformation Theory," in *Learning as Transformation: Critical Perspectives on a Theory in Progress*, ed. Jack Mezirow (San Francisco: Jossey-Bass, 2000), 16; Jack Mezirow, *Transformative Dimensions of Adult Learning* (San Francisco: Jossey-Bass Publishers, 1991), Kindle Electronic ed., 1819.

Festinger's Cognitive Dissonance Theory describes the conditions under which a person becomes motivated to alter perception of reality. Beginning with biblical-theological presuppositions, Festinger's theory can be used prescriptively as a model for teaching.

An analogy for this model would be the correction of visual refractive errors like myopia, hyperopia, presbyopia, and astigmatism. In each case, the lens of the eye is not shaped properly so that the person fails to see the world clearly. One solution to refractive errors is the use of corrective lenses that compensate for the natural lens' inability to focus light onto the retina at the back of the eye. Within a specific field of vision, a corrective lens can help the person see clearly. Education can serve as the corrective lens, providing, through transformation of the student, the corrective within cognitive, affective, and behavioral domains. The correction is necessary because of the effects of the fall on relationality, rationality, and function.

If education is the corrective lens, the teacher is the optometrist, who understands that clear vision is normal, understands the visual acuity examination, and can offer a prescriptive correction. Teachers who understand their student's needs and deficits can help the student correct misperceptions of reality. Marion Snapper recommended that cognitive dissonance be used in pedagogy by invoking or revealing dissonance within the student.¹⁰⁷

Although correction is possible, the person who has never had normal vision and who has never been tested for visual acuity may not realize the existence of a visual impairment. Until an examination is performed and correction is provided so that the person sees clearly, the need for perfect vision exists without any motivation to seek

¹⁰⁷Snapper, "Motivation for Learning Faith-Knowledge," 166.

correction. The result of the examination becomes the motivator toward better vision. Cognitive dissonance describes a motivator that serves like the visual examination. Cognitive dissonance reveals discrepancies between reality and perception. The discrepancy motivates a correction to the person's perception and previous commitment.

A person can function reasonably normally with corrective lenses so long as the lenses are worn. Better than corrective lenses is a cure to the deficient natural lens. An ophthalmologist can offer such a cure through surgical correction or replacement, the ophthalmologist can make permanent what lenses correct only temporarily. The Holy Spirit works as the divine ophthalmologist correcting the person's misperception of reality through a correction of cognitive, affection, and behavior. This work makes the examination—cognitive dissonance—unnecessary. However, the work is not completed until the consummation in the biblical metanarrative. Until then, the Holy Spirit uses cognitive dissonance and human teachers to examine and correct a person's perception so that it rightly aligns with reality.

This correction in perception results in orthodoxy—rightly aligned propositional wisdom, orthopathy—rightly aligned dispositional wisdom, and orthopraxy—rightly aligned enacted wisdom. Wisdom allows the person to function properly in reality being rightly related to God, self, others, and creation. Additionally, as the person begins to understand conditions in which vision may be impaired, correction is sought with a diminishing need for the examination.

However, the indwelling influence of the Holy Spirit is only for those who are Christ-followers. Apart from the Spirit's influence, corrective lenses are the only prescription available. The teacher must understand the difference between the two types of students—those who are Christ-followers and those who are not.

This concept of sapiential sight relates to John Calvin’s description of the *sensus divinitatis*—an innate awareness of God.¹⁰⁸ Both have as their primary goal a correct perception of God. Calvin describes the distortion of the *sensus* in terms of an impairment in comprehending God’s self-revelation in nature apart from God’s self-revelation in Scripture. Scripture, for Calvin, serves as spectacles for the eye blinded by the fall¹⁰⁹ and the Holy Spirit applies those spectacles.¹¹⁰ Jones finds in Calvin’s description a postlapsarian discontinuity in function of the *sensus divinitatis*¹¹¹ similar to the discontinuity proposed as one alternative in understanding the innate drive toward consonance. If the two are related, then perhaps sapiential sight describes the motivation to correctly interpret the *sensus*.

Applications of the Research

The improved descriptive fidelity of the biblical-theological model of Cognitive Dissonance Theory allows for prescriptive facility as the model is applied. The purpose of the present research was to develop a model of Cognitive Dissonance Theory from a biblical-theological presupposition that would be relevant for Christian educators and give relevance to pedagogical practice.

¹⁰⁸John Calvin, *Institutes of the Christian Religion*, 1.3.3, trans. Henry Beveridge (Orlando, FL: Signalman Publishing, 2009), Kindle Electronic ed.

¹⁰⁹*Ibid.*, 1.14.1.

¹¹⁰*Ibid.*, 3.1.4.

¹¹¹Timothy Paul Jones, “John Calvin and the Problem of Philosophical Apologetics,” *Perspectives in Religious Studies* 23 (1996): 394.

Primary Application: Creating the Teachable Moment

People are created to learn.¹¹² Therefore, the educator serves in the role of helping students to meet a need, ultimately a need for wisdom—rightly relating to God, self, others, and creation. Cognitive dissonance theory is centered on affect, which is the center of motivation for the person. Cognitive dissonance, then, should be able to be used as a motivator for learning with the goal being wisdom.

To that end, cognitive dissonance is the examination tool that reveals the student's misperceptions to both the learner and the educator. This is not a simple end-of-course assessment for a grade. Rather, it is an ongoing assessment to confirm what the teacher may intuit or observe in the learner.

Role of the Educator

While the postlapsarian impairment of rationality prevents anyone from having a completely accurate perception of reality, it is incumbent on the educator to have a more accurate perception than the learner in the learning encounter, at least regarding the subject matter being learned. The teacher must build a relationship sufficient to perceive the student's misperception of the subject matter. Cognitive dissonance is a social phenomenon, which implies a need for this relationality.

Having assessed the learner, the educator must develop a strategy to overcome the misperception. This may be by challenging presuppositions, conclusions, or the rationality that connects conclusions to presuppositions. The strategy must then be implemented in such a way that the individual learner is transformed. With different

¹¹²William R. Yount, *Created to Learn: A Christian Teacher's Introduction to Educational*

learning approaches and abilities, the teacher is again challenged to know the student well enough to adopt to the student's needs.

Role of the Learner

The learner is responsible for being responsive to the learning encounter. This begins with the relationship with the teacher in the social milieu of the learning environment. For transformation to occur, the student must be willing to be transformed. This willingness should translate into engagement with the learning process.

Role of the Assessment

Cognitive dissonance, the assessment tool in this model, reveals to the learner the discrepancy between perception of reality and reality, itself. The assessment is independent of the educator because the educator may share a degree of misperception. However, the educator is not independent of the assessment; the assessment reveals to the educator the discrepancy that exists.

Role of the Environment

The environment must be sufficient for the encounter. The learner should not be so under stimulated that transformation is perceived to be unnecessary; neither should the student be so over stimulated that transformation is impaired because of the stress. Cognitive dissonance has magnitude. As with any homeostatic drive, too large a discrepancy causes an impairment of normal function. The relationship between educator and learner should facilitate the balance.

Psychology, 2nd ed. (Nashville: B&H Academic, 2010).

Role of the Holy Spirit

The Holy Spirit is ultimately the teacher. During the redemptive phase of the biblical metanarrative, the Spirit often uses human teachers as instruments of transformation. It is the Holy Spirit who corrects flawed rationality, improves strained relationality, repairs disrupted function, and causes the transformation that became necessary because of the fall. For the Christian educator, reliance on the work of the Holy Spirit is critical. Prayer on behalf of the teacher, learner, and the learning encounter should be a matter of fact.

Conclusion

The teachable moment comes when the learner is caused to understand that correction of misperception of reality is both necessary and available. The teacher, under the guidance of the Holy Spirit, can use the teaching encounter, built through a relationship, to demonstrate both the need and the prescription for meeting the need. Cognitive dissonance can be used as this assessment tool so that the learner may seek and gain wisdom in order to rightly relate in the world, a world of relationships with God, self, others, and all of creation.

Additional Applications

This research has shown the presence of cognitive dissonance in Scripture. It has also revealed other types of cognitive tension that become more prevalent in the apparently diminishing role of cognitive dissonance after Pentecost. In each situation, learning has taken place; the person has become wiser by having a worldview that more closely coheres to and corresponds with reality. In addition to creating a teachable moment, there are other potential applications for the findings.

First, Cognitive Dissonance Theory has application for carrying out the Great Commission.¹¹³ As Parker recommended, cognitive dissonance can be used in the motivation for Christian, short-term mission trips, which have as their overall strategy the reaching strategy of the Great Commission.¹¹⁴ Additionally, it may be efficacious for other methods of evangelism as well as the teaching component of the Great Commission. In short, the theory may be a tool in restoring right relationships with God.

Second, an understanding of cognitive dissonance may assist in counseling. The counselor may be able to use knowledge of dissonance to ease the pain of suffering or to help the counselee find peace. Here, the theory is useful for restoring right relationships with self and others.

A third use is related to the dominion function of the *imago Dei*. In rightly relating to creation, humans are stewards over creation. Cognitive Dissonance Theory could be useful for keeping ecology in its proper perspective.

Limitations of the Research

Although there are several potential applications for a biblical-theological model of Cognitive Dissonance Theory, these applications are somewhat tenuous because of the low reliability measures with the outside coders. While there was significant inter-coder reliability in the actual presence of the types of cognitive tension seen—with

¹¹³“But the eleven disciples proceeded to Galilee, to the mountain which Jesus had designated. When they saw Him, they worshiped *Him*; but some were doubtful. And Jesus came up and spoke to them, saying, ‘All authority has been given to Me in heaven and on earth. Go therefore and make disciples of all the nations, baptizing them in the name of the Father and the Son and the Holy Spirit, teaching them to observe all that I commanded you; and lo, I am with you always, even to the end of the age’” (Matt 28:16-20).

¹¹⁴Shane Walton Parker, “Cognitive Dissonance and Adolescent Short-Term Mission Methodology” (Ph.D. diss., The Southern Baptist Theological Seminary, 2007).

and without a commitment to a decision—in Scripture and the means of reducing that tension, the dissonant elements and consequences are subject to criticism until further research can be done. The observations made by the primary researcher, though, were dramatic, so repeat work may strengthen the conclusions rather than weaken them. Additionally, the subjectivity of identifying the domains involved by the briefly-trained outside coders is countered by the objectivity of the large literature base that confirms that cognitive dissonance involves cognitive, affective, and behavioral domains.

The other major limitation of the study involves the paucity of Scripture describing the pre-fall and post-consummation nature of humans. While there was a distinct pattern of appearance of cognitive tension, a change in the type of tension after Pentecost, an absence of cognitive dissonance in Jesus' life, and disappearance of cognitive dissonance in the consummation passages, the pattern may be imposed on the record by arguing from an absence of the phenomenon.

Abductive inferences are just that—inferences. The subjectivity of the primary researcher may have influenced the results of the present study. If so, additional research should reveal the deficiency in objectivity.

Recommendations for Further Research

Because of the limitations of the research and the fact that this is the first known study that systematically examined cognitive dissonance in the canon of Scripture, additional research is recommended.

In conducting additional research, it is recommended that the research focus on native language translations of Scripture rather than original language documents. The six outside coders, who were original language experts in either biblical Hebrew or biblical

Greek, were unanimous in their conclusion that work in the original language was unlikely to result in different findings than work in a native language. Their argument was that the phenomenon was exhibited in the message of the pericopes rather than revealed in lexical, grammatical or syntactical nuances.

One additional research effort could attempt to duplicate the identification of the presence of cognitive dissonance, as well as other types of cognitive tension, in a census study of the Bible. This could confirm the passages on which future researchers should focus. It is recommended that at least three researchers collaborate on this effort so that the necessary reliability measures could be reported.

Another research effort could examine the means of dissonance arousal and consequences of dissonance reduction found in Scripture. This work should develop a more thorough means of examining the passages than the present research's simple identification of the domains involved in dissonance arousal and the consequences of dissonance reduction as well as the targets of those consequences.

A final research recommendation is to test the biblical-theological model of Cognitive Dissonance Theory. Experimental conditions like those used in much of the cognitive dissonance research base could be used. In this, one of the independent variables that needs to be included is an ordinal measure of spiritual maturity in those subjected to the experiment. Those who profess to be followers of Christ from those who do not would have to be separated by another independent variable. Here, the goal would be to discern the pattern suggested by the present research in the association of cognitive tension and the role of the Holy Spirit.

APPENDIX 1

CODE TABLES

Table A1. Phase 1 code table

Old Testament		New Testament	
Biblical Division	Book	Biblical Division	Book
<i>Narrative Storyline – Earlier</i>			
Torah	Gen, Exod, Lev, Num, Deut	Gospel and Acts	Matt, Mark, Luke, John, Acts
Former Prophets	Josh, Judg, 1 Sam, 2 Sam, 1 Kgs, 2 Kgs		
<i>Commentary</i>			
Latter Prophets	Isa, Jer, Ezek, Hos, Joel, Amos, Obad, Jonah, Mic, Nah, Hab, Zeph, Hag, Zech, Mal	Letters	Rom, 1 Cor, 2 Cor, Gal, Eph, Phil, Col, 1 Thess, 2 Thess, 1 Tim, 2 Tim, Titus, Phlm, Heb, Jas, 1 Pet, 2 Pet, 1 John, 2 John, 3 John, Jude
The Book of Truth	Ps, Prov, Job		
The Small Scrolls	Song of Sol, Ruth, Lam, Eccl, Esther		
<i>Narrative Storyline – Latter</i>			
Other Sacred Writings	(Esther) Dan, Ezra, Neh, 1 Chron, 2 Chron	Revelation	Rev

Adapted from James M. Hamilton, Jr., *God's Glory in Salvation through Judgment: A Biblical Theology* (Wheaton, IL: Crossway, 2010), 61, 64.

Table A2. Phases 2 and 3 code table

Variable	Code Options
Metanarrative Focus	Creation / Fall / Redemption / Consummation
Choice Certainty	Clear / Presumed / Unknown
Commitment to Choice Certainty	Clear / Presumed / Unknown
Dissonant Element 1	Cognition / Affect / Behavior / None
Dissonant Element 1 Certainty	Clear / Presumed
Dissonant Element 2	Cognition / Affect / Behavior / None
Dissonant Element 2 Certainty	Clear / Presumed
Dissonance Reduction Mechanism	Change 1 Element Add a New Element Change the Importance of 1 of the Elements Ignore Reality No Dissonance Reduction Present
Dissonance Reduction Certainty	Clear / Presumed
Primary Consequence of Dissonance Reduction	Change in Cognition about God / Self / Others / Creation Change in Affect about God / Self / Others / Creation Change in Behavior toward God / Self / Others / Creation Unknown
Primary Consequence Certainty	Clear / Presumed
Secondary Consequence of Dissonance Reduction	Change in Cognition about God / Self / Others / Creation Change in Affect about God / Self / Others / Creation Change in Behavior toward God / Self / Others / Creation Unknown
Secondary Consequence Certainty	Clear / Presumed
Situation	Actual / Hypothetical / Command

APPENDIX 2

INSTRUCTIONS FOR OUTSIDE CODERS

Welcome, and thank you again for agreeing to participate in this research. You have been recommended by the faculty as an expert in either biblical Hebrew or biblical Greek. Your expertise will make this research much stronger.

The research is examining the response to choices made as recorded in Scripture. The phenomenon that we are examining—cognitive dissonance—occurs only after a commitment to a choice has been made. It is distinguished from any tension caused by the conflict that leads to a choice or the tension in the choice, itself.

Work up to this point has included examining every verb-subject pair in Scripture and isolating pericopes in which cognitive dissonance could occur. These were identified as having either a clear choice, a clear commitment to a choice, or a response to a choice that indicated that dissonance may have been present.

A more detailed examination of each of those pericopes helped identify where evidence was strong for the presence of cognitive dissonance.

From the original language, you will be examining a combination of a portion of cases where dissonance seems to be present and a sampling of cases identified in the first phase that were excluded in the second phase as not demonstrating evidence of cognitive dissonance. In other words, you may or may not be able to answer all the questions in each of the passages you are examining today.

At the top of each coding page there are instructions to remind you of your task. Below these instructions there are two cases presented on each page. Let's walk through the instructions and the questions, then we will practice a few, and finally, we will discuss any questions that arise before you do your actual work.

The first instruction is to give the more likely answer. You are not being graded on these. Examine the passage and answer the question to the best of your ability.

The second instruction tells what to do if you have doubts about your response: "If your answer is at all speculative, indicate that by placing a question mark at the beginning of the answer." The certainty of your response will be coded along with the response. If you do not put a question mark, I will assume that you are fairly certain of your answer. If you put a question mark there, I will assume your answer involves some speculation.

If you cannot answer the question from the pericope or its immediate context, do not mark an answer. Instead, mark the question with only a question mark. Remember, a few of these questions are likely to be unanswerable. Don't fret, just mark it as so.

For each case/pericope, the text that you are to examine is identified. You may use the immediate context, if desired, to help answer the questions.

Some cases have more than one potential character to examine. If a specific character has already been identified, you will find that person or group named below the reference.

If you think there is some doubt as to which character is in mind and there is no character identified, please indicate which character you have examined in answering the questions.

Question 1: What choice has been made by the character in the text?

When a conflict arises, a choice must be made. If the choice is indicated in the text or can be reasonable inferred from the text, give a brief description of the choice. You do not have to give a lot of details. The question is here to see what you are thinking through as you go through the questions. Since an interview later would be difficult, any information you want to pass on should be included.

Question 2: What evidence is mentioned that shows a commitment to that choice?

If a choice has been made, has the person actually committed to the choice? If so, what is mentioned in the text that leads you to conclude the person committed to the decision. This may be evidence in the form of committing a sin, repenting, moving, etc.

Sometimes the commitment is clear, e.g., choosing to sin, but the alternatives from which the person chose are not present. You can still mark that a commitment to a choice is present even if you have to guess what the choice might have been.

Question 3: Does the commitment to the choice seem to cause tension within the character? If so, circle the domains likely to have caused the tension.

If there is tension, the tension must occur between two things. For example, if I have been instructed to do something, I know (cognitive domain) what I am to do. If, then, I choose to do something else (behavioral domain) and that disobedience causes tension, then I have tension between cognitive and behavioral domains.

Remember, if there is no tension present, mark the question with a question mark and do not circle any domain. If you think you have identified the domains involved but have some doubt about one or both, circle the domains and put question marks beside the response that is speculative.

It is possible that tension arises between two elements in the same domain. For example, I may know something to be true (cognitive) and then I am presented with information (cognitive) that contradicts what I "knew" to be true.

For questions on domains, we are using a Hebrew understanding of affect as related to the heart where desires exist and choices are made. This is a broader view of affect than merely emotion, although it may include emotion.

Question 4: What does the character do that is likely to be aimed at decreasing the tension?

When we are faced with tension, there is a natural desire to reduce that tension. In cognitive dissonance there are four means to reduce the tension.

The first means is to change one of the elements that caused the tension. If I “know” something and I am presented with conflicting information, I can change what I know. If I dislike someone and want to do them harm and I am faced with new information, e.g., Christ wants me to love them, I can change (or more properly, the Holy Spirit can change) my affect toward them so that my behavior toward them changes.

Another means to reduce the tension is to add another element. The classic example is the smoker who knows that smoking causes health problems but continues to smoke. To reduce the tension perceived, the smoker may add a cognition that the pleasure experienced is worth the risk. This would reduce the tension without changing either of the elements that caused the tension.

A third means to reduce post-commitment tension is to change the perceived importance of one of the elements. For the smoker, this could be an assessment that the risk of health problems is not *that* great, concluding, “It probably won’t happen to me.”

A fourth means to reduce tension is to ignore the reality of the situation. The smoker may decide that the surgeon general has presented false information gained from faulty research. The smoker knows many people who have no perceived health problems and concludes that the risk does not exist.

Obviously, it is sometimes a judgment call on which of these dissonance reduction mechanisms are employed. Mark the one that is most reasonable to you. If you have significant doubt, add a question mark to indicate that you are speculating an answer.

If there is no identified attempt to reduce the tension, mark option “e”.

Question 5: If there are results of the character’s attempt to decrease the tension, in which domain do the results occur and to whom are the results directed?

When the tension is reduced, a relationship is often improved. That relationship may be between the character and God, the character and self, the character and another person, or between the character and creation (animate or inanimate).

The improved relationship may be a new knowledge about the other (cognitive), an affection concerning the other (affective), or behavior toward the other (behavioral).

Mark the answers that are most reasonable in your mind. Add a question mark if you are speculating.

If there are no apparent changes, just mark with a question mark the item that is in doubt.

If there is more than one response to the reduced tension, e.g., a documented change in affect and a change in behavior, then repeat the procedure for the second change.

Question 6: Is the situation an actual situation that occurred or will occur OR is it a hypothetical situation used to make a point OR a command to be followed?

Because there are different genre of writings in Scripture, sometimes the author is presenting an historical narrative. This is something that actually occurred.

At other times, Scripture gives a teaching in an if-then format, if you do this, this other thing will follow. It is possible that hypothetical situations are reported, e.g., as proverbial wisdom, in which tension or tension reduction is anticipated if certain things are done or thought. This would be a hypothetical situation.

A third situation is a command to do something that may induce or relieve tension. This would be marked as a command.

Again, we are examining Scripture for a phenomenon known to occur in humans. The full pattern is:

conflict → decision → commitment → dissonance → results

Any or all of these elements may be present in the pericopes you are examining. Not every case will have every element. Use your expertise to identify when it is likely that these elements are present and when they are not. Remember, you are not being graded. We are just trying to see what Scripture may reveal about this phenomenon.

We will practice a few cases until you are comfortable with the process. When you begin doing your individual work, please do not consult others, especially the others coding the same material. We are trying to have several independent views represented. I will be available on campus until early afternoon if you need to get together for further clarification. You can contact me on my cell phone: [phone number provided] or by email: [email address provided]. Note: I do not have texting capability.

When you are done, put the coding booklet in the pre-addressed, postage-paid envelope I have provided you. Email me when you drop the packet in the mail and I will put your check in the mail.

Thank you, again,
Danny Bowen¹

¹These instructions are modified slightly from the original. The original instructions included a timetable for completion in a single day. One outside coder was present for the first day of training. After two hours of training and three hours of coding, the coder and the primary researcher agreed on a more realistic timetable. The instructions were modified verbally at the second training session to reflect the instructions presented above.

APPENDIX 3

SAMPLE CASE PRESENTED TO OUTSIDE CODERS

Text:

(Character to examine, if not clear from text):

1. What choice has been made by the character in the text?
2. What evidence is mentioned that shows a commitment to that choice?
3. Does the commitment to the choice seem to cause tension within the character? If so, circle the domains likely to have caused the tension.
Element 1: Cognitive Affective Behavioral
Element 2: Cognitive Affective Behavioral
4. What does the character do that is likely to be aimed at decreasing the tension? (circle a letter)
 - a. Change 1 of the elements that caused the tension
 - b. Add another element (cognitive, affective, or behavioral) to decrease the tension
 - c. Change the perceived importance of 1 of the elements
 - d. Ignore the reality of the situation
 - e. The character does not seem to do anything to reduce the perceived tension
5. If there are results of the character's attempt to decrease the tension, in which domain do the results occur and to whom are the results directed? (circle 1-2 of the most significant results and objects of the results)
Result 1 Domain: Cognitive Affective Behavioral
Primary target of result: God Self Another Person
 Something else in creation

Result 2 Domain: Cognitive Affective Behavioral
Primary target of result: God Self Another Person
 Something else in creation
6. Is the situation an actual situation that occurred or will occur OR is it a hypothetical situation used to make a point OR a command to be followed? (circle 1)
 Actual Hypothetical Command

APPENDIX 4

MODIFIED RELIABILITY INSTRUCTIONS AND TOOL SAMPLE

Thank you again for your feedback. I have made additional adjustments to the procedure. Now there are only three questions to answer for each of twenty-five pericopes.

Let me remind you that we are researching cognitive dissonance—one of the tensions felt when choices are made—is only present after a commitment to a choice. Any tension before the choice is related to making the decision rather than as a result of a commitment to a decision.

Dissonance is a tension between two elements that can include knowledge or thoughts (cognitive domain), emotion, volition, or belief (affective domain), and/or action (behavioral domain).

Consequences to dissonance reduction (attempts to relieve the tension) also occur in these three domains (cognitive, affective, and behavioral) and the consequences involve either God, self, another person(s), or something else in creation.

So, the whole process is:

conflict → decision → commitment to the decision → dissonance → dissonance reduction → consequence of the dissonance reduction

With those reminders, please take time to look at the following passages in an English translation of Scripture (preferably ESV, NASB, or NIV) and answer the questions that follow. Both Hebrew and Greek scholars are to complete the entire set rather than dividing into OT and NT as we did before.

Thanks again,
Danny Bowen

1) In **Genesis 19:6-8**, Lot offered his daughters to the men of the city in the place of his house guests in an attempt to reduce the dissonance he experienced.

Do you agree that dissonance is likely present in this passage? Yes No (underline 1)

Which verse(s) contain(s) the dissonant elements that resulted from the commitment to protect Lot's guests?

If offering his daughters in order to protect his guests led to a decrease in dissonance, which verse(s) contain(s) the results of that dissonance reduction?

APPENDIX 5

PHASE 3 CASE LIST

Table A3. Final case list for analysis

Gen 3:1-19	Num 13:25-14:45	Neh 1:1-2:8	Ps 38
Gen 4:1-16	Num 16:1-40	Neh 5:1-13	Ps 56
Gen 12:1-9	Num 20:2-13	Neh 13:23-30	Ps 58
Gen 12:7-13:1	Num 21:4-9	Esth 4:8-5:3	Ps 59
Gen 15:1-6	Num 22:15-35	Job 4:1-5:27	Ps 69
Gen 16:1-16	Num 23:13-26	Job 6:1-7:21	Ps 71
Gen 19:1-11	Josh 2:1-21	Job 8:1-22	Ps 73
Gen 26:34-27:40	Josh 9:1-27	Job 9:1-10:22	Ps 79
Gen 32:1-33:20	Judg 2:7-15	Job 11:1-20	Ps 83
Gen 34:27-35:15	Judg 3:1-11	Job 12:1-14:22	Ps 86
Gen 37:29-36	Judg 3:12-30	Job 15:1-35	Ps 102
Gen 38:1-26	Judg 4:1-9	Job 16:1-17:16	Ps 107
Gen 39:1-21	Judg 6:1-10	Job 18:1-21	Ps 109
Exod 1:15-22	1 Sam 5:1-7	Job 19:1-29	Ps 116
Exod 1:22-2:10	1 Sam 5:8-10	Job 20:1-29	Ps 118
Exod 2:11-15	1 Sam 8:5-10:1	Job 21:1-34	Ps 143
Exod 3:1-9	1 Sam 13:3-14	Job 22:1-30	Prov 1:20-33
Exod 3:10-22	1 Sam 15:11-25	Job 23:1-24:25	Isa 6:1-9
Exod 4:1-23	1 Sam 24:2-22	Job 25:1-6	Isa 31:4-9
Exod 8:1-15	2 Sam 7:1-16	Job 26:1-31:40	Isa 36:13-37:7
Exod 8:20-32	2 Sam 11:4-17	Job 32:1-37:24	Isa 37:8-38
Exod 9:13-35	2 Sam 11:26-12:14	Job 38:1-40:5	Isa 58:1-14
Exod 10:12-20	2 Sam 24:1-12	Job 40:6-42:6	Isa 59:13-21
Exod 14:1-31	1 Kgs 1:41-53	Job 42:7-9	Jer 1:6-10
Exod 16:13-30	1 Kgs 13:1-10	Ps 2	Jer 3:6-18
Exod 32:1-29	1 Kgs 17:17-24	Ps 3	Jer 14:1-10
Num 9:1-12	1 Kgs 19:9-18	Ps 6	Jer 15:10-21
Num 11:1-3	2 Kgs 18:13-19:37	Ps 7	Jer 17:5-18
Num 11:4-15	1 Chr 21:1-19	Ps 22	Jer 50:1-5
Num 12:1-15	2 Chr 32:24-26	Ps 32	Ezek 4:9-17

Table A3—Continued. Final case list for analysis

Dan 1:1-16	Matt 14:15-21	Mark 9:2-10	Luke 9:12-17
Dan 2:1-13	Matt 14:22-33	Mark 9:11-13	Luke 9:32-36
Dan 2:12-49	Matt 15:7-20	Mark 9:14-29	Luke 9:46-48
Dan 3:1-30	Matt 15:21-28	Mark 10:1-12	Luke 9:51-56
Dan 4:1-37	Matt 16:5-12	Mark 10:17-22	Luke 10:25-37
Dan 5:1-30	Matt 16:21-23	Mark 10:23-31	Luke 10:38-42
Dan 6:14-28	Matt 16:21-28	Mark 10:32-40	Luke 11:37-44
Hos 2:1-23	Matt 17:1-13	Mark 8:14-21	Luke 11:43-54
Hos 5:1-6:3	Matt 17:14-21	Mark 11:12-25	Luke 14:1-6
Hos 14:1-9	Matt 19:3-9	Mark 11:27-12:1	Luke 15:11-32
Joel 2:11-27	Matt 19:3-12	Mark 13:1-37	Luke 15:11-24
Amos 7:1-9	Matt 19:16-22	Mark 14:3-11	Luke 15:25-31
Amos 7:10-17	Matt 19:16-26	Mark 14:27-31	Luke 17:1-6
Jonah 1:1-2:9	Matt 19:20-30	Mark 14:47-52	Luke 18:1-8
Jonah 3:1-4:11	Matt 20:17-23	Mark 14:53-65	Luke 18:15-17
Mal 3:8-12	Matt 21:18-22	Mark 15:1-15	Luke 18:18-23
Mal 3:13-18	Matt 21:23-46	Mark 15:47-16:8	Luke 18:22-30
Matt 2:1-16	Matt 26:69-75	Luke 1:13-20	Luke 18:35-43
Matt 5:21-26	Matt 27:1-5	Luke 1:26-36	Luke 19:1-10
Matt 5:27-32	Matt 27:15-26	Luke 1:57-64	Luke 21:5-19
Matt 5:33-37	Matt 28:11-15	Luke 1:62-67	Luke 22:14-23
Matt 5:38-42	Matt 28:16-17	Luke 2:8-18	Luke 22:24-30
Matt 5:43-48	Mark 2:5-12	Luke 2:41-50	Luke 22:31-34
Matt 6:1-24	Mark 2:15-17	Luke 3:7-15	Luke 22:35-38
Matt 6:25-34	Mark 2:18-22	Luke 4:22-30	Luke 22:54-62
Matt 8:5-13	Mark 2:23-28	Luke 4:33-37	Luke 23:1-7
Matt 8:23-27	Mark 3:1-6	Luke 5:17-26	Luke 23:44-47
Matt 8:31-34	Mark 3:20-21	Luke 6:1-11	Luke 23:55-24:10
Matt 9:1-8	Mark 4:35-41	Luke 7:1-10	Luke 24:8-12
Matt 9:9-13	Mark 5:10-17	Luke 7:18-23	Luke 24:13-31
Matt 9:14-17	Mark 5:21-42	Luke 7:36-47	Luke 24:30-35
Matt 9:18-26	Mark 5:25-34	Luke 7:37-50	Luke 24:33-43
Matt 9:32-34	Mark 6:17-28	Luke 8:4-15	Luke 24:44-53
Matt 10:16-25	Mark 6:35-44	Luke 8:22-26	John 1:19-27
Matt 11:2-6	Mark 6:45-52	Luke 8:30-37	John 1:43-51
Matt 12:1-8	Mark 7:14-23	Luke 8:41-56	John 2:18-22
Matt 12:22-32	Mark 7:24-30	Luke 8:43-48	John 3:1-21
Matt 14:1-11	Mark 8:1-9	Luke 9:7-9	John 3:22-36

Table A3—Continued. Final case list for analysis

John 4:4-30	John 14:15-31	Acts 11:1-18	Rom 11:13-36
John 4:27-38	John 15:1-17	Acts 11:19-26	Rom 12:3-8
John 5:1-9	John 15:18-27	Acts 12:3-17	Rom 12:9-21
John 5:10-15	John 16:1-16	Acts 12:20-25	Rom 13:1-7
John 5:16-30	John 16:16-29	Acts 13:4-12	Rom 13:11-14
John 5:31-47	John 16:29-33	Acts 13:13-42	Rom 14:1-12
John 6:1-15	John 17:1-26	Acts 13:42-51	Rom 14:13-23
John 6:16-21	John 19:4-11	Acts 13:42-49	Rom 15:1-6
John 6:22-35	John 20:1-9	Acts 15:1-31	Rom 15:14-21
John 6:35-51	John 20:10-18	Acts 16:22-40	1 Cor 1:17-31
John 6:53-66	John 20:19-23	Acts 17:15-34	1 Cor 2:1-5
John 6:53-71	John 20:24-29	Acts 18:4-11	1 Cor 2:4-16
John 7:1-8	John 21:15-19	Acts 18:12-17	1 Cor 2:15-3:23
John 7:25-30	John 21:20-23	Acts 18:24-28	1 Cor 4:1-13
John 7:25-31	Acts 1:4-8	Acts 19:11-20	1 Cor 4:14-21
John 7:31-36	Acts 1:9-14	Acts 22:1-24	1 Cor 5:1-13
John 7:37-44	Acts 1:15-26	Acts 23:11-33	1 Cor 6:1-11
John 8:2-9	Acts 2:1-13	Acts 28:1-6	1 Cor 7:6-11
John 8:12-20	Acts 2:12-37	Acts 28:16-31	1 Cor 7:12-16
John 8:21-30	Acts 2:37-41	Rom 1:18-24	1 Cor 7:17-24
John 8:31-36	Acts 2:41-47	Rom 3:3-24	1 Cor 7:25-40
John 8:37-47	Acts 3:1-26	Rom 4:1-25	1 Cor 8:1-13
John 8:48-59	Acts 4:1-22	Rom 5:1-11	1 Cor 10:1-13
John 9:1-34	Acts 4:34-5:5	Rom 6:1-14	1 Cor 10:14-22
John 9:35-39	Acts 5:5-11	Rom 6:15-23	1 Cor 10:23-11:1
John 9:39-41	Acts 5:18-33	Rom 7:1-6	1 Cor 11:17-34
John 10:1-21	Acts 5:32-40	Rom 7:7-12	1 Cor 12:1-31
John 10:22-39	Acts 6:8-7:58	Rom 7:13-25	1 Cor 14:26-40
John 11:1-46	Acts 8:12-24	Rom 8:1-11	1 Cor 15:1-34
John 12:1-8	Acts 8:26-38	Rom 8:12-17	1 Cor 15:35-58
John 12:23-33	Acts 9:1-20	Rom 8:18-25	2 Cor 1:12-22
John 12:33-36	Acts 9:17-22	Rom 8:26-30	2 Cor 3:1-6
John 12:42-50	Acts 9:22-25	Rom 8:31-39	2 Cor 3:7-18
John 13:5-11	Acts 9:26-31	Rom 9:1-18	2 Cor 4:7-18
John 13:12-17	Acts 9:32-35	Rom 9:19-29	2 Cor 4:17-5:10
John 13:18-30	Acts 9:36-43	Rom 9:30-33	2 Cor 5:11-21
John 13:31-38	Acts 10:1-48	Rom 10:1-21	2 Cor 6:1-13
John 14:1-14	Acts 10:9-29	Rom 11:1-12	2 Cor 7:4-16

Table A3—Continued. Final case list for analysis

2 Cor 8:1-15	1 Thess 4:9-12	Heb 11:1-12:2	2 Pet 3:1-13
2 Cor 9:1-15	1 Thess 4:13-18	Heb 12:1-13	2 Pet 3:14-18
2 Cor 10:1-11	1 Thess 5:1-11	Heb 12:14-29	1 John 1:5-7
2 Cor 10:12-17	2 Thess 2:1-12	Heb 13:7	1 John 1:8-9
2 Cor 11:1-15	2 Thess 2:13-17	Heb 13:8-9	1 John 1:10-2:2
2 Cor 11:16-33	2 Thess 3:6-15	Heb 13:10-16	1 John 2:7-11
2 Cor 12:1-10	1 Tim 1:3-20	Heb 13:17	1 John 2:12-17
Gal 1:6-24	1 Tim 2:1-8	Jas 1:4-12	1 John 2:18-20
Gal 2:15-21	1 Tim 2:9-15	Jas 1:13-16	1 John 2:21-23
Gal 2:21-3:14	1 Tim 3:1-7	Jas 1:19-27	1 John 2:24-26
Gal 3:13-22	1 Tim 3:8-13	Jas 2:1-13	1 John 2:27-29
Gal 3:22-29	1 Tim 4:1-16	Jas 2:14-26	1 John 3:1-3
Gal 3:29-4:7	1 Tim 5:1-13	Jas 3:1-2	1 John 3:4-10
Gal 4:20-31	1 Tim 5:14-16	Jas 3:2-12	1 John 3:11-24
Gal 5:13-26	1 Tim 5:17-20	Jas 3:13-18	1 John 4:1-3
Gal 6:6-10	1 Tim 5:21-25	Jas 4:1-12	1 John 4:4-6
Gal 6:12-16	1 Tim 6:1-2	Jas 4:13-16	1 John 4:7-14
Eph 2:1-10	2 Tim 1:3-14	Jas 4:17	1 John 4:15-21
Eph 2:11-22	2 Tim 2:1-13	Jas 5:1-6	1 John 5:1-4
Eph 4:1-16	2 Tim 2:14-26	Jas 5:7-12	1 John 5:3-13
Eph 4:17-32	2 Tim 3:10-17	Jas 5:13-18	1 John 5:14-17
Eph 5:1-21	2 Tim 4:1-8	Jas 5:19-20	1 John 5:18-21
Eph 5:21-24	Titus 1:5-16	1 Pet 1:13-21	2 John 1:4-8
Eph 5:25-33	Titus 2:1-15	1 Pet 1:22-2:3	2 John 1:9-11
Eph 6:5-9	Titus 3:1-7	1 Pet 2:4-12	3 John 1:9-10
Eph 6:10-20	Titus 3:8-11	1 Pet 2:13-17	3 John 1:11
Phil 1:3-19	Phlm 1:8-22	1 Pet 2:18-25	Jude 1:5-16
Phil 2:1-11	Heb 2:1-4	1 Pet 3:1-6	Jude 1:17-23
Phil 3:1-21	Heb 3:1-6	1 Pet 3:7	Rev 1:9-20
Phil 4:10-20	Heb 3:12-19	1 Pet 3:8-14	Rev 2:1-7
Col 2:6-15	Heb 4:1-13	1 Pet 3:15-22	Rev 2:12-17
Col 2:16-23	Heb 4:14-5:10	1 Pet 4:1-6	Rev 2:18-29
Col 3:1-11	Heb 5:11-6:2	1 Pet 4:7-11	Rev 3:1-6
Col 3:12-17	Heb 6:1-12	1 Pet 4:12-19	Rev 3:14-22
Col 3:17-4:1	Heb 7:1-28	1 Pet 5:1-4	Rev 5:1-5
Col 4:2-6	Heb 8:1-13	1 Pet 5:5-11	Rev 6:9-11
1 Thess 2:17-3:13	Heb 10:1-18	2 Pet 1:2-11	Rev 6:12-17
1 Thess 4:1-8	Heb 10:19-39	2 Pet 1:16-21	Rev 7:9-17

Table A4. Cases presented to outside coders

Gen 2:18-20	Neh 13:23-30	Amos 5:21-27	Luke 20:1-19
Gen 2:21-24	Job 19:1-29	Amos 7:1-9	John 1:5-13
Gen 19:1-11	Job 23:1-24:25	Jonah 3:1-4:11	John 6:48-58
Gen 32:1-33:20	Job 26:1-31:40	Mal 3:13-18	Acts 9:10-20
Gen 34:27-35:15	Ps 30	Matt 4:1-4	Acts 15:35-41
Gen 37:2-36	Ps 31	Matt 5:33-37	Acts 17:1-4
Gen 45:25-46:7	Ps 34	Matt 9:1-8	Acts 19:1-9
Exod 2:11-15	Ps 64	Matt 17:1-13	Acts 22:30-23:11
Exod 9:13-35	Ps 80	Matt 19:3-12	Acts 27:1-44
Num 11:1-3	Ps 83	Matt 26:69-75	Rom 5:12-21
Num 11:4-15	Ps 107	Matt 27:57-60	1 Cor 6:12-20
Num 16:41-17:13	Prov 8:1-36	Mark 3:20-21	1 Cor 7:1-9
Judg 3:12-30	Prov 22:12	Mark 4:33-34	1 Cor 11:2-16
Judg 10:6-16	Eccl 2:22-23	Mark 5:25-34	2 Cor 1:23-2:11
1 Sam 5:1-7	Eccl 8:15	Mark 9:14-29	2 Thess 1:3-12
1 Sam 8:5-10:1	Isa 59:13-21	Mark 11:27-12:1	Heb 6:13-20
1 Sam 23:15-18	Jer 1:4-6	Mark 14:3-11	Heb 9:1-28
1 Sam 24:2-22	Jer 17:5-18	Mark 14:66-72	Jas 1:2-4
2 Sam 1:1-16	Jer 37:16-21	Luke 1:62-67	2 Pet 2:1-22
2 Sam 4:5-12	Jer 50:1-5	Luke 4:22-30	1 John 2:3-6
1 Kgs 18:3-16	Dan 1:1-9	Luke 8:22-26	3 John 1:5-8
1 Kgs 19:9-18	Dan 1:9-16	Luke 8:41-56	Rev 2:8-11
1 Chr 21:1-19	Dan 2:1-13	Luke 13:22-30	Rev 2:12-17
2 Chr 33:12-17	Hos 11:8-11	Luke 14:15-24	Rev 3:14-22
Ezra 4:1-24	Joel 3:16-21	Luke 16:1-9	Rev 21:1-5

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ABSTRACT

A BIBLICAL-THEOLOGICAL MODEL OF COGNITIVE DISSONANCE THEORY: RELEVANCE FOR CHRISTIAN EDUCATORS

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Chair: Dr. Michael S. Wilder

The purpose of this content analysis research was to develop a biblical-theological model of Cognitive Dissonance Theory applicable to pedagogy. Evidence of cognitive dissonance found in Scripture was used to infer a purpose for the innate drive toward consonance. This inferred purpose was incorporated into a model that improves the descriptive fidelity of previous research observations and extends the prescriptive facility of Cognitive Dissonance Theory.

The qualitative research design consisted of five phases. In the first phase, individual cases were identified by examining every verb in the New American Standard Bible for potential evidence of cognitive dissonance. In the second phase, the primary researcher examined every case isolated in Phase One for the elements of cognitive dissonance using criteria from the cognitive dissonance research literature. In the third phase, outside coders repeated coding of a stratified, random sample of cases, and intercoder reliability was established. In the fourth phase, the results were analyzed and evaluated. In the final phase, a biblical-theological model was proposed.

There was an apparent progression in the type of cognitive tension experienced by people in Scripture. In the Old Testament, most cases of cognitive tension included a

commitment to a decision consistent with Leon Festinger's description of cognitive dissonance. In the New Testament, particularly after Pentecost, the cognitive tension seems to have changed so that Christ-followers no longer demonstrated a commitment to a decision before experiencing cognitive tension. This change revealed cognitive tension consistent with both Piaget and Hegel. Alternatives were offered to explain the apparent progression in cognitive tension and a model was proposed that described Cognitive Dissonance Theory as a metatheory of cognitive tension that allows for subtypes of tension recognized by other researchers.

Cognitive tension in Scripture seemed to be related to a sapiential drive manifested as learning aimed at orthodoxy—rightly aligned propositional wisdom, orthopathy—rightly aligned dispositional wisdom, and orthopraxy—rightly aligned enacted wisdom. The implications and applications of these conclusions were discussed.

KEYWORDS: Cognitive Dissonance Theory, CDT, Festinger, Motivation, Intrinsic Motivator, Education, Learning, HyperRESEARCH™, Sapiential, Wisdom

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