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A Framework For Digital Wisdom in Higher Education

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By Michael J. Paulus, Jr., Bruce D. Baker, and Michael D. Langford

Introduction

Within the last 30 years new internet, social media, and mobile technologies have transformed the ways we interact with information, each other, and the world. But the speed with which these and related digital information and communication technologies (ICTs) have been created and adopted has left little time for critical reflection on them and how we may intentionally integrate them into our lives. Regardless of when we were born or the depth of our technological expertise, we are all of us digitally naïve. Individually and collectively, we are still learning how to design and use new and emerging ICTs well and wisely. Institutions of higher education have a crucial role and responsibility at this moment of technological change to form people who will flourish in our so-called digital age. In this essay, which focuses on Christian higher education, we present a framework that includes theological principles, cultural critiques, and formative practices that can help us—as both educators and learners—move from a position of digital naiveté toward one of digital wisdom.

In *Organizing Enlightenment: Information Overload and the Invention of the Modern Research University*, Chad Wellmon shows how the German university ideal emerged in the nineteenth century as a solution to problems caused by the

Institutions of higher education have a crucial role and responsibility at this moment of technological change to form people who will flourish in our so-called digital age. The speed with which digital information and communication technologies have permeated our lives has left little time for critical reflection on how we may intentionally integrate them into our lives. Regardless of when we were born or the depth of our technological expertise, we are all of us digitally naïve. Individually and collectively, we are still learning how to use new and emerging digital technologies well and wisely. This essay presents a framework that includes theological principles, cultural critiques, and formative practices that can help us—as both educators and learners—move from a position of digital naiveté toward one of digital wisdom. **Michael J. Paulus, Jr.**, is University Librarian, Assistant Provost for Educational Technology, and Director and Associate Professor of Information Studies; **Bruce D. Baker** is Associate Professor of Business Ethics; and **Michael D. Langford** is Associate Professor of Theology, Discipleship, and Ministry at Seattle Pacific University.

information and media environment of the Enlightenment. Critics of German intellectual life complained that a surfeit of printed material had resulted in too much "useless writing" and "mindless distraction." Concerned about the loss of authority and agency due to a "plague of books," university reformers sought to integrate these information and communication technologies into an institutional structure for forming people who would engage with knowledge in disciplined ways. By supplementing material technologies with formative technologies, including innovative pedagogical and scholarly practices, the modern research university became a new technology for cultivating individuals who embodied epistemic authority and ethical agency.[1]

In today's information and media environment, new digital media and networks have opened up new ways to discover and create information, connect and communicate with others, and construct new digital environments. But all the information and ICTs available to us exceed our attentional limits and exploit our susceptibility to distraction; our goals, values, and agency are regularly compromised.[2] Knowledge, relationships, and communities are fragmenting and we are "Uneasy in Digital Zion": we feel grateful, optimistic, and excited as well as addicted, embarrassed, and full of self-contempt.[3] Even those whom we might label digital natives, because of when they were born, are digitally naïve: technological understanding is often superficial; an "app mentality" limits expressions of identity, intimacy, and imagination; and online behavior is disconnected from offline values.[4] In our educational institutions, new personal and educational ICTs are common; but these are used by students, faculty, and administrators without much critical reflection on how they are being used, how they ought to be used, and their impact on us and the world.[5] Our current patterns of engaging with new ICTs suggest we are facing an epistemological and ethical crisis.

Education consultant Marc Prensky, who popularized the concept of digital natives at the beginning of this century, now focuses on the need for digital wisdom. For Prensky, digital wisdom consists of both "the considered use of digital enhancements" to complement innate abilities and the use of these enhancements "to facilitate wiser decision making" beyond our usual capacities.[6] Prensky's

[1]Chad Wellmon, *Organizing Enlightenment: Information Overload and the Invention of the Modern Research University* (Baltimore, MD: Johns Hopkins, 2015), 15, 101.

[2]For an explanation of how high-level goals collide with the brain's limited cognitive control abilities, see Adam Gazzaley and Larry D. Rosen, *The Distracted Mind: Ancient Brains in a High-Tech World* (Cambridge, MA: The MIT Press, 2016).

[3]Julia Ticona and Chad Wellmon, "Uneasy in Digital Zion," *The Hedgehog Review*, Spring 2015, 61-62.

[4]Danah Boyd, *It's Complicated: The Social Lives of Networked Teens* (New Haven, CT: Yale, 2014); Howard Gardner and Katie Davis, *The App Generation: How Today's Youth Navigate Identity, Intimacy, and Imagination* (New Haven, CT: Yale, 2014); Carrie James, *Disconnected: Youth, New Media, and the Ethics Gap* (Cambridge, MA: MIT, 2014).

[5]For a critique of the promises of educational technology in particular, see Neil Selwyn, *Is Technology Good for Education?* (Malden, MA: Polity Press, 2016).

[6]Marc Prensky, "From Digital Natives to Digital Wisdom," in *From Digital Natives to Digital Wisdom: Hopeful Essays for 21ˢᵗ Century Learning* (Thousand Oaks, CA: Corwin, 2012), 202, 204.

conception of digital wisdom emphasizes the importance of technical mastery of digital technologies for all of us, so that each of us may thrive in a digital age, but his use of the word "wisdom" suggests that competence is not enough. Questions about how, or whether, our technologies are enabling us to live well are moral questions. Shannon Vallor points out that "technologies invite or *afford* specific patterns of thought, behavior, and valuing; they open up new possibilities for human action and foreclose or obscure others." Our biggest challenge as we consider technological gains and losses, she argues, is "figuring out what we will *do* with [emerging] technologies once we have them, and what they will do with *us*."[7] Technology companies are beginning to think more about well-being, but wisdom—which, in the words of William Brown, "seeks understanding, feeds hope, discerns solutions, and inspires action"[8]—is needed if we are to use ICTs reflectively and ethically.

Institutions of higher education are hastily updating material technologies for digital education and digital scholarship, but our formative technologies—our practices for cultivating wisdom for a digital age—are most in need of an upgrade. This involves much more than digital skills and literacy, which like knowledge transfer is only part of what a college or university should be concerned with in our current information age. Indeed, in our informationally rich and complex world, understanding the nature and limits of our cognitive information processing abilities and helping students develop a metacognitive view of how our minds work is crucial.[9] The great challenge and opportunity before all of us in higher education concerns the epistemological and ethical formation of people who will have a certain type of relationship with ICTs. Within the context of Christian higher education, the need to integrate new ICTs into our individual and institutional lives well and wisely—as we consider what technologies are doing to us and what we will do with them—is of utmost significance if we are committed to the cultivation of competence, character, and wisdom.

Education and Digital Identity Formation

James K. A. Smith has inspired many to recall that "Christian education must be a formational as opposed to a merely informational enterprise."[10] Beginning with a biblical anthropology that reveals us to be "teleological creatures created to worship," Smith argues that we must be attentive to "cultural liturgies"—embodied "rituals of ultimate concern that are formative for identity and inculcate

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[7]Shannon Vallor, *Technology and the Virtues: A Philosophical Guide to a Future Worth Wanting* (New York: Oxford University Press, 2016), 2, 5, 254.
[8]William P. Brown, *The Seven Pillars of Creation: The Bible, Science, and the Ecology of Wonder* (Oxford: Oxford University Press, 2010), 8.
[9]See Gazzaley and Rosen, *The Distracted Mind*, 186, 238.
[10]Kenman Wong, Bruce Baker, and Randal Franz, "Reimagining Business Education as Character Formation," *Christian Scholar's Review* 45.1 (2015): 8.

particular visions of the good life."[11] In the essay "Reimagining Business Educa-tion as Character Formation," published in the fall 2015 issue of *Christian Scholar's Review*, one of us with our colleagues Kenman Wong and Randal Franz applied Smith's approach to the cultural formation of business students and explored how "liturgically informed learning" can be shaped by the "thick practices" of the church. While that essay focused on a "kingdom-oriented vision for busi-ness," it presented a framework that can be used to bring a Christian formational perspective to other disciplinary areas and associated curricular and co-curricular activities.[12] In what follows, we will apply elements of that framework to develop generalized concepts for the cultivation of digital wisdom within Christian higher education.

The first part of our framework concerns the shared goal or end of Chris-tian faith. This *telos* helps us situate all technologies—the ancient as well as the emerging—within the narrative of Scripture, and it draws our attention to God's creative, redemptive, and transformative work in the past, present, and future. The biblical narrative provides us with the foundation for identity formation as well as a critical perspective that informs the second part of our framework: cultural exegesis of our technological knowledge, dispositions, and liturgies. The third part of our framework explores counter-formational practices and rituals—with and without ICTs—which can help us as moral agents use new technologies wisely to become wiser people.

Some Christians argue that new digital ICTs are antithetical to character formation. Andy Crouch claims such technologies are "at best neutral in actually forming human beings who can create and cultivate as we were meant to." They do "almost nothing to actually form human beings in the things that make them worth serving and saving," he continues, and they do "nothing (well, almost nothing) to actually *form* human capacities." While we would agree with Crouch "that nothing is more important than becoming people of wisdom," we want to argue for a more constructive and integrative approach to digital ICTs in Christian formation—one that will shape people who can engage wisely a digital culture that is profoundly and irreversibly changing us and our world.[13]

There is danger in thinking of technology as simply neutral. Human agency is involved in the design and use of all technologies: a designer's intentions shape a technology, and its efficacy is complicated by a user's intentions. Moreover, as Ron Cole-Turner argues,

It is no longer possible, if indeed it ever was, to see technology as irrelevant to the theologi-cal meaning of humanity. One way or another, the transformations through technology are part of the larger cosmic drama of creation and redemption.[14]

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[11]Ibid., 11; Smith quoted on 12.
[12]Ibid., 15.
[13]Andy Crouch, *The Tech-Wise Family: Everyday Steps for Putting Technology in Its Proper Place* (Grand Rapids, MI: Baker Books, 2017), 66-68.

Heidi Campbell and Stephen Garner also challenge us to think more deeply about technology, "not just as tools to be used or put aside," but of "the values, inherent character, and environments created by technology and media as wider socio-technological systems."[15] With Campbell, Garner, and others, we follow a "social shaping of technology" approach, which considers the affordances of technologies as well as "practices that influence and emerge around technology." We agree with Microsoft researcher Nancy Baym who says, "People, technologies, and institutions all have power to influence the development and subsequent use of technology…people are adaptive, innovative, and influential in determining what technology is and will become."[16]

The introduction of powerful new technologies creates turning points in history, when "the familiar becomes unfamiliar, and therefore open to change."[17] We have, throughout history and as Christians, negotiated periods of radical technological change before—such as the shift from oral to written communication, the shift from manuscript to print books, and the shift from manual to machine power—and each shift required reimagining human agency. The digital technological shifts we are currently experiencing present us with new challenges: ICTs permeate nearly every aspect of our embodied lives and extend our actual and potential selves and relationships into new digital environments. As the digital world continues to merge with the physical world through emerging technologies such as the Internet of Things, artificial intelligence, and augmented reality, we are like the two-dimensional narrator in *Flatland* trying to imagine how our reality is open to and includes another unrecognizable dimension called "digital."[18] We are already *also* digital, with digital identities that we cannot ignore, and we must deliberately live these digital lives wisely.

The following framework for digital wisdom draws from biblical, historical, and theological resources and is informed by the authors' multidisciplinary backgrounds and perspectives, as well as our experiences in the academy, the church, the workplace, and the home. Our thinking was particularly influenced by the work of and conversations we had with three theologians working at the intersection of theology and technology: Jana Bennett, Brent Waters, and Michael Burdett, each of whom visited our campus and met with us during the fall of

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[14]Ronald Cole-Turner, "Introduction: The Transhumanist Challenge," in *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, ed. Ronald Cole-Turner (Washington, DC: Georgetown University Press, 2011), 6f.

[15]Heidi A. Campbell and Stephen Garner, *Networked Theology: Negotiating Faith in Digital Culture* (Grand Rapids, MI: Baker Academic, 2016), 147.

[16]Nancy K. Baym, *Personal Connections in the Digital Age* (Malden, MA: Polity Press, 2015), 52, 56, 175.

[17]Ibid., 2.

[18]The analogy of *Flatland*, published by Edwin A. Abbot in 1884, is explored in Laurence Scott, *The Four-Dimensional Human: Ways of Being in the Digital World* (New York: W. W. Norton & Company, 2015), 31.

2015.[19] We present this framework acknowledging that we, too, are seeking to grow in wisdom in a rapidly evolving world.

Luciano Floridi says our information society is "like a tree that has been growing its far-reaching branches much more widely, hastily, and chaotically than its conceptual, ethical, and cultural roots. The lack of balance is obvious and a matter of daily experience." The information society has ancient roots, and ICTs have been profoundly changing our world for over 50 years now, but Floridi argues that today

while technology keeps growing bottom-up, it is high time we start digging deeper, top-down, in order to expand and reinforce our conceptual understanding of our information age, of its nature, of its less visible implications, and of its impact on human and environmental welfare, and thus give ourselves a chance to anticipate difficulties, identify opportunities, and resolve problems.[20]

We hope this framework suggests a critical and constructive theological approach to forming our students—and ourselves—so that we may live and grow in wisdom *with* new technologies in the present and for the future.

Shared *Telos*

Many see institutions of higher education at a "critical crossroad … both at great risk of competitive disruption and potentially poised for an innovation-fueled renaissance."[21] At the same time there is "an increased concern for civic virtue, character formation, and spirituality among both public and private institutions," which Susan VanZanten says puts Christian institutions "at the forefront of a broad genuine concern for character, meaning, values, and spirituality."[22] Technological progress fuels these concerns, but the gap between technological power and wisdom continues to grow. Vallor calls this gap a "disease" and argues that the first step toward curing it is "to convene new institutions, communities, and cultural alliances in the service of global technomoral cultivation."[23] With a shared *telos* of faith that is oriented toward a better future—and, more precisely, Christian eschatological hope in new creation—Christian colleges and universities are well positioned to evolve our formative institutions and practices to cultivate individual and communal digital wisdom. Speaking of the technological culture emerging in the late twentieth century, Marshall McLuhan said, "nothing is in-

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[19]We are also indebted to Chris Gehrz, who delivered an inspiring talk at our faculty retreat in 2017 about Christian education and scholarship and the role of Christian scholars in making all things new.

[20]Luciano Floridi, *Information: A Very Short Introduction* (New York: Oxford University Press, 2010), 7-8.

[21]Clayton M. Christensen and Henry J. Eyring, *The Innovative University: Changing the DNA of Higher Education from the Inside Out* (San Francisco, CA: Jossey-Bass, 2011), xxii.

[22]Susan VanZanten, *Joining the Mission: A Guide for (Mainly) New College Faculty* (Grand Rapids, MI: William B. Eerdmans Publishing Company, 2011) 42, 44.

[23]Vallor, *Technology and the Virtues*, 249.

evitable provided we are prepared to pay attention."[24]

Beginning with Attention

Attention has been described by Howard Rheingold and others as the most important digital literacy or discipline.[25] In its most basic sense, attention is the ability to select and focus on discrete information for action within an information-rich environment. Attention can be "deep," as when involved in long-form reading or an intense conversation, or it can be "hyper," as in multitasking—or, more precisely, task-switching—with many screens or activities. Sherry Turkle argues for fluency in both: "attentional pluralism … should be our educational goal."[26] Rheingold also emphasizes being mindful of our bodies and emotions as we use ICTs as well as the importance of keeping our intentions in mind so we do not become distracted from our goals. David Levy refers to these attentional strategies as "self-observation" and "task focus." "When we are mindful," Levy explains, "we choose to pay attention to what is explicitly important to us; being mindful begins to reveal our values in a way wandering lost through the digital landscape can never do."[27]

Attention also has a cultural dimension to it, because cultural values influence what we pay attention to and how. Culture, Simone Weil reflected in one of her last notebooks, is the "formation of attention."[28] Through its shaping of past memories, future expectations, and present plans, culture can inform and narrate a more reflective top-down influence on attention and interrupt more reflexive responses to environmental stimuli.[29] For Christians, the formation of our attention is rooted in the creative, redemptive, and transformative work of God revealed in the narrative of Scripture. This narrative, which informs our cultural critiques and formative practices, also helps us understand the integral role of technology from the beginning and through our end.

The End in the Beginning

In the book of Genesis, the advent of technology seems intrinsically linked to the creation of humanity. The very purpose for which "God formed man from

[24]Quoted in Read Mercer Schuchardt, "Social Media and the Loss of Embodied Communication," in *Liberal Arts for the Christian Life*, eds. Jeffry C. Davis and Philip G. Ryken (Wheaton, IL: Crossway, 2012), 251.
[25]Howard Rheingold, *Net Smart: How to Thrive Online* (Cambridge, MA: The MIT Press, 2012), 57.
[26]Sherry Turkle, *Reclaiming Conversation: The Power of Talk in a Digital Age* (New York: Penguin Press, 2015), 219.
[27]David M. Levy, *Mindful Tech: How to Bring Balance to Our Digital Lives* (New Haven, CT: Yale University Press, 2016), 4, 26.
[28]Simone Weil, *Simone Weil*, ed. Eric O. Springstead (Maryknoll, NY: Orbis Books, 1998), 119.
[29]For further explanation of top-down influences, see Gazzaley and Rosen, *The Distracted Mind*, 22-24.

the dust of the ground and breathed into his nostrils the breath of life" was to work the ground, "to till it and keep it."[30] Cultivation is a foundational human technological skill, and its techniques and tools are essential hallmarks of human- ity's responsibility and capability to steward the creation. And this is glimpsed *prior* to the fall. After the fall, when the first humans were sent out to work the ground east of Eden, and there to live and multiply, technology was a necessary grace of God to give humankind the ability to survive—and not only to survive, but to thrive, grow a family, bring forth bountiful fruit from the land, build cities and institutions, and communicate across generations and around the world. The innovative nature of humanity, which develops technologies to create, cultivate, and curate, is reflective of the revealed nature of the Creator.

In Genesis (which is available to us thanks to ancient technologies of the word such as writing, book-making, and libraries), ambivalence surrounds the origins of technology. Cain the murderer established the first city, and his descendants are remembered for fashioning the first instruments of bronze and iron. At the later city of Babel, with its overly ambitious tower, divine intervention restrained technological progress by multiplying and complicating human language and culture. The primordial desire for divine knowledge and power, arrogated in Eden, corrupted our identity and agency: Our design and use of technologies since have been influenced by flawed human intentions and actions.

And yet, on the other side of the story of the *techton* or carpenter who dies by the technology of which he was a master, the book of Revelation presents something like a redemptive reversal of Babel in the New Jerusalem. The vision of humanity's ultimate destiny is not a return to a lost garden, but an entrance into a divinely created and inhabited city with a garden in its center. Into this final city, the rulers of the world bring the diverse and glorious accomplishments of human creativity and civilization, which we may presume include creations of technological culture. As Philip Ryken observes, a liberal education is "not for this life only but also for the life to come…as we explore the material universe of the new heavens and the new earth, we may also hope to make new discoveries in science."[31] Between this anticipated future and our remembered past, we can situate our present technological moment within a theological tradition that affirms technologies that improve life and participate in the new creation.[32]

A Counter-Narrative

This biblical and theological narrative presents an alternative narrative to many of the narratives about technology prevalent in our contemporary culture.

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[30]Genesis 2:7, 15 (NRSV).
[31]Philip G. Ryken, "Liberal Arts in the New Jerusalem," in *Liberal Arts for the Christian Life*, 293, 298.
[32]Hugh of St. Victor articulated the redemptive role of technology in the twelfth century. See Diogenes Allen, *Spiritual Theology: The Theology of Yesterday for Spiritual Help Today* (Cambridge, MA: Cowley Publications, 1997), 118-120.

For example, in *Homo Deus* Yuval Harari presents this technological narrative: as we come closer to bringing famine, plague, and war under control, we may now "aim to upgrade humans into gods, and turn *Homo sapiens* into *Homo deus*." "The basic abilities of individual humans have not changed much since the Stone Age," Harari observes, but our stories have grown "from strength to strength, thereby pushing history from the Stone Age to the Silicon Age."[33] Harari is right that as our cultural stories evolve with technologies they become powerful foundations and forces for shaping reality. But many contemporary technological narratives, such as Harari's, focus on merely materialistic progress and teleologies.

Jana Bennett argues that Scripture provides a counter-narrative that centers our identities and enables us to live with ICTs in a way that makes them work for God's purposes. The Scripture story of salvation history provides important critiques of many technology-centric stories, such as those celebrating the freedom of detached online identities. Scripture enables us look behind and beyond our and others' online identities to see ourselves and others as embodied and relational beings made in the image of God.[34] To help us see how ICTs can enable us to realize our *telos* of life in God, Bennett suggests an approach that includes "examination of sin, the view of God as humanity's final end, and reflective practical reasoning—which involves healthy skepticism of both an overly joyous approach … or an overly dark condemnation."[35]

Whether utopian or dystopian, our technological stories shape our expectations of the future. We can think about the future as *futurum*, which concerns the outworking of present conditions and historical patterns. Alternatively or additionally, we can think about the future as *adventus*, which is about what is arriving or coming into history from God. Michael Burdett argues that "Christian eschatology can provide a more robust account of the future than that offered by technological futurism," as well as "a needed corrective" to our cultural hopes and fears.[36] Both technological futurism and theological eschatology include possibility and promise, but Christian hope sees good human future-oriented work as participating in God's work for the flourishing of human life and all creation—the full realization of which is coming to us from the future. This is the metanarrative against which Christians should critique technological narratives, in which we are called to participate, and by which we are meant to be formed.

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[33]Yuval Noah Harari, *Homo Deus: A Brief History of Tomorrow* (New York: HarperCollins Publishers, 2017), 21, 155.
[34]Jana Marguerite Bennett, "In the Beginning, Who Created? A Discussion of Theology, Identity, and Social Media," lecture delivered at Seattle Pacific University, November 3, 2015, recording available from http://digitalcommons.spu.edu/digital_wisdom_framework/.
[35]Jana Marguerite Bennett, *Aquinas on the Web?: Doing Theology in an Internet Age* (New York: T&T Clark International, 2012), 163.
[36]Michael S. Burdett, *Eschatology and the Technological Future* (New York: Routledge, 2015), 2-3.

Kevin Kelly claims that today's technologies surpass the expectations "of the wise experts from the 1980s," and what lies ahead may be an even more radical departure from anything we can expect. "Most of the important technologies that will dominate life thirty years from now have not yet been invented," Kelly asserts, which makes all of us "endless newbies" simply trying to keep up.[37] Keeping up is challenging, especially when, as Harari admits, "We just don't know what to pay attention to. … So considering everything that is happening in our chaotic world, what should we focus on?"[38] As we engage in cultural analysis of how our beliefs and behaviors are being shaped by new ICTs, a useful set of fundamental questions for focusing our attention are Immanuel Kant's: What can we know? What may we hope? What should we do?[39] These questions correlate to theological concerns about epistemology, eschatology, and ethics.

Epistemology

In *The Internet of Us*, Michael Lynch observes that the expansion of digital knowledge, paired with rapid technological change, is "affecting how we know and the responsibilities we have toward that knowledge." As our ability to know expands in a passive way by simply accessing information via the internet, he argues, ICTs are "actually impeding our ability to know in other, more complex ways; ways that require 1) taking responsibility for our own beliefs and 2) working creatively to grasp and reason how information fits together."[40] Knowledge cannot be reduced to mere information acquisition. If we are to know in deeper ways and to grow in wisdom, we must become reflective, reasonable, responsible, and active believers in truth.

For Christians, who believe that wisdom begins with "fear of the Lord," includes the love of God and neighbor, and is ultimately incarnate in Christ, the pursuit of knowledge includes our whole beings in relationships with God and others.[41] The active and transformative power of knowledge puts believers in the posture of responding to and engaging with truth in ways that transcend the simple reception of information. This pursuit of knowledge engages not merely the reasoning mind, but also the affective and physical person as a whole.

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[37]Kevin Kelly, *The Inevitable: Understanding the 12 Technological Forces That Will Shape Our Future* (New York: Viking, 2016), 11, 20.
[38]Harari, *Homo Deus*, 402.
[39]Immanuel Kant, *Critique of Pure Reason*, trans. Paul Guyer and Allen Wood (Cambridge, UK: Cambridge University Press, 2000), 677.
[40]Michael Patrick Lynch, *The Internet of Us: Knowing More and Understanding Less in the Age of Big Data* (New York: Liveright Publishing Corporation, 2016), xvii, 6.
[41]Rodney J. Sawatsky, "Prologue: The Virtue of Scholarly Hope," in *Scholarship and Christian Faith: Enlarging the Conversation*, eds. Douglas Jacobsen and Rhonda Hustedt Jacobsen (New York: Oxford University Press, 2004), 3.

ICTs were created for the transfer and acquisition of knowledge, even—and often especially—revealed knowledge. The history of the Bible, from the invention of the codex through the establishment of Bible societies, illustrates our reliance and belief in the efficacy of ICTs. But this does not eliminate the need for human intermediaries who help transform information into knowledge and wisdom. The Ethiopian eunuch needed human intervention, as does anyone today struggling to discern good news from false news. This is why the library is a better cultural technology for information access than the internet: a library depends on human mediators (librarians and others) who help form attention and agency.

Institutions of higher learning have been the trusted cultural custodians of knowledge for centuries. Wellmon points out many of the features that have warranted this trust, including pedagogical and scholarly methods, classrooms and libraries, and curricula and degrees. But, he adds, a central and enduring figure in these institutions—however idealized—is the teacher: The transformation of information into knowledge "was tied to the character of particular people, teachers who cultivated traditions and cared for their students."[42] Education includes knowledge transfer, of course, yet Christian education is ultimately about the holistic transformation of people. This involves character formation, which depends on learning that is personal and relational. Such a view is a significant check against a view of education as merely a technological process to be streamlined or a problem of efficiency to be solved. Rather than simply accepting proposals for technological automation, which can lead to information or knowledge "reductionism," we must create and use ICTs that augment our engagement with knowledge and our pedagogical encounters around it.[43] This is why the concept and cultivation of social presence—or how authentic relationships with faculty, students, and content occur through mediated communications—are so important in digital learning environments.[44]

Eschatology

Technologies and character formation both are teleological, shaped for specific ends. If these ends are aligned, then, as Ian Barbour concludes, technology "directed to genuine human needs is a legitimate expression of humankind's creative capacities and an essential contribution to its welfare.[45] But without a clear vision

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[42]Chad Wellmon, "Trust Without Teachers," Comment, February 23, 2017, https://www.cardus.ca/comment/article/5032/trust-without-teachers/.

[43]Evgeny Morozov expresses this idea as "solutionism"—the influence of technology pressing in the direction of interpreting every question and opportunity as a problem to be solved through better data analysis. Morozov, *To Save Everything, Click Here: Technology, Solutionism, and the Urge to Fix Problems That Don't Exist* (London: Penguin Books, 2013), 85.

[44]See, for example, Aimee L. Whiteside et al., *Social Presence in Online Learning: Multiple Perspectives on Practice and Research* (Sterling, VA: Stylus Publishing, LLC, 2017).

[45]Ian G. Barbour, *Ethics in an Age of Technology* (1st ed., Gifford Lectures; 1989-1991) (San Francisco: HarperSanFrancisco, 1993).

of the end for which humans were created, human identity and agency will be reduced to options defined and constrained by technologies. Harari identifies two options: "techno-humanism," which looks to new technologies to create a "much superior human model"; and "dataism," with "dataists [who] are skeptical about …human knowledge and wisdom, and prefer to put their trust in Big Data and computer algorithms."[46] Both of these, as well as many other technological options, are reductionistic: they reduce humans to data, life to algorithms, consciousness to intelligence, and self-knowledge to algorithmic knowledge.

Instinctively, like Dostoevsky's underground man, we might find such technological reductionism dehumanizing. But James Lanier reminds us that "people will accept ideas presented in technological form that would be abhorrent in any other form."[47] Justin Bailey appreciates Lanier's warning against the power of "reductive ways of thinking about humanity," but critiques Lanier for attempting to locate the mystery of personhood within the materialistic framework of "realistic computationalism."[48] Without an eschatological view of human destiny such as the one that inspired Francis Bacon's New Atlantis—in which human technological progress participates in the future that is coming from God—we are left to trust commercial assertions such as Eric Schmidt's: "The best thing anyone can do to improve the quality of life around the world is to drive connectivity and technological opportunity."[49]

Neil Selwyn encourages us to be "inherently skeptical of the claims made about technology and education"; "this is an area where few things are certain and where there rarely are simple answers or predetermined narratives waiting to unfold."[50] The ultimate question of any technology should be about hope, which for Christians concerns new creation and our full participation in the life of Christ. With this teleological narrative in view, we can engage with (for example) proposals and plans for the next generation of digital learning environments—which promise to create "a dynamic, interconnected, ever-evolving community of learners, instructors, tools, and content"—with a hermeneutic of trust mixed with appropriate skepticism.[51]

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[46]Harari, *Homo Deus*, 373, 357.

[47]Jaron Lanier, *You Are Not a Gadget* (New York: Alfred A. Knopf, 2010), 48.

[48]Justin Bailey, "Discerning the Body in Cyberspace: Jaron Lanier, Merleau-Ponty, and the Norms of Embodiment," *Christian Scholar's Review* 45.3 (2016): 211-228, 213-214.

[49]Burdett, *Eschatology and the Technological Future*, 15; Eric Schmidt and Jared Cohen, *The New Digital Age: Reshaping the Future of People, Nations, and Business* (New York: Alfred A. Knopf, 2013), 257. Jeremy Rifkin similarly sees connectivity as an unqualified good. See *The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism* (New York: Palgrave Macmillan, 2014), 75.

[50]Selwyn, *Is Technology Good for Education?*, 23.

[51]Malcolm Brown et al., "The Next Generation Digital Learning Environment: A Report on Research," (Educause, 2015), 3, available from https://library.educause.edu/~/media/files/library/2015/4/eli3035-pdf.pdf.

In addition to knowledge and hope, technologies affect our agency by extending or inhibiting our ability to act in accordance with our intentions. Technologies can challenge our agency when we are overwhelmed by powers and platforms that are greater than us. For example, a study published in 2014 showed that Facebook users' moods could be manipulated by showing them more positive or negative posts.[52] It also showed a lack of respect for—as well as an actual loss of—human choice and autonomy. More subtly, design constraints or an "app mentality" can lead individuals to enact superficial aspects of identity, intimacy, and imagination.[53] Worse, technologies can inhibit our moral agency when we abdicate our responsibilities by unreflectively outsourcing our authority to digital assistants and algorithms. Our use of technologies must be shaped by our intentions and values, and we must be aware of how platform interfaces, permissions, algorithms, and other design elements could interfere with our goals and obligations. Instead of simply banning ICTs from classrooms when they interrupt or interfere with intentions, students need help learning how to preserve their agency through the critical, skillful, and reflective use of ICTs that are normal and necessary in life and at work. As Cathy Davidson argues, "we should allow devices in classrooms more frequently than we do because sustained, careful, critical practice with devices helps us use them better—and that's a good thing for us and society." In addition, we should enable our students to use ICTs to create contributions to public knowledge while they are still in school. According to Davidson, "Students work best when they know their work is for their future beyond school … when they realize their work contributes."[54]

As we seek creative, redemptive, and transformative ways to integrate new and emerging ICTs into education, while negotiating the epistemological, eschatological, and ethical challenges associated with them, we must intentionally cultivate the corresponding virtues of faith, hope, and love. As James Davison Hunter observes, these virtues "speak to basic human needs shared throughout the human community," our needs for meaning and significance, purpose and beauty, and belonging and justice.[55] Those individuals and communities who have been formed by these theological virtues as they engage with ICTs will be best prepared to design and use them—and at times reject them—for the greatest good.

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[52]Adam D. I. Kramer, Jamie E. Guillory, and Jeffrey T. Hancock, "Experimental Evidence of Massive-Scale Emotional Contagion Through Social Networks," *Proceedings of the National Academy of Sciences of the United States of America*, 111.24 (2014): 8788-8790.
[53]Gardner and Davis, *The App Generation*, 7, 34.
[54]Cathy N. Davidson, *The New Education: How to Revolutionize the University to Prepare Students for a World in Flux* (New York: Basic Books, 2017), 90, 267.
[55]James Davison Hunter, *To Change the World: The Irony, Tragedy, and Possibility of Christianity in the Late Modern World* (New York: Oxford University Press, 2010), 262f.

Of course, it is not sufficient merely to note the pervasive and culture-changing nature of ICTs and our need to ground our relationship with them within what we believe as Christians. In light of our shared *telos*, we must concern ourselves as Christian educators with spiritual formation.[56] While "spirituality" is difficult to define, most generally it deals with human engagement with issues of ultimate concern and the consequences of that engagement, therefore with "religious practices and their transformational possibilities."[57] Christianity has a long and rich history of these "spiritual disciplines" as means to create space for the Holy Spirit to transform us into the *telos* of humanity embodied in Christ. "An experiential relationship with God has as its goal love of God; such love draws the believer ever closer to living a life of faithfulness," says Joseph Driskill.

A life lived with an awareness of the Holy One as its core is increasingly shaped by moral acts. Simply stated, spiritual practices have the potential to become habits. These habits create patterns of living that shape character, and character results in a life of faithfulness.[58]

Given the cultural epistemological, eschatological, and ethical trends described above, we would like to suggest that practices of meditation and fasting, Sabbath and worship, and solitude and silence are embodied practices we can use to help us in our teleological formation with ICTs.

Attention: Meditation and Fasting

Epistemological challenges related to ICTs highlight the importance of *attention*. To what—and how—do we give our attention? As new media emerged throughout the twentieth century, "attention merchants" found new ways to capture our attention and convert it into revenue. Today, with nearly ubiquitous personal platforms and devices, there has been an apotheosis of "the individual as an object of worshipful attention."[59] Weil articulates an opposite view of attention when she speaks of how, with study, one's soul is trained to empty "itself of all its own contents in order to receive into itself the being it is looking at, just as

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[56]Stanley Hauerwas notes that when Paul gives contextual advice for the sanctification of Christians (for instance, to the Corinthians), it is not only—or even mainly—aimed at right understanding, but rather at "how our bodies are positioned for the upbuilding of the body of Christ. Holiness is not, for Paul, a matter of individual will. Holiness is the result of our being made part of a body that makes it impossible for us to be anything other than disciples." *Sanctify Them in the Truth: Holiness Exemplified* (New York: Bloomsbury, 2016), 90.
[57]Peter Feldmeier, *Christian Spirituality: Lived Expressions in the Life of the Church* (Anselm Academic, 2015), 10.
[58]Joseph Driskill, "Mainline Protestant Spirituality" in *Four Views on Christian Spirituality*, eds. Bruce Demarest et al. (Grand Rapids, MI: Zondervan, 2012), 136-137.
[59]Tim Wu, *The Attention Merchants: The Epic Scramble to Get Inside Our Heads* (New York: Alfred A. Knopf, 2016), 5, 215-216.

he is, in all his truth."[60] When education is seen as information consumption, and the needs for human instruction, interactions, and interventions are questioned, it is increasingly important for us to preserve our ability to pay attention—to seek and receive and wisdom.

One practice that can help is meditation. Though other religions practice it in their own ways, meditation is an ancient Christian practice in which one ponders or considers that which is of God so that one might hear from God. Meditation can be on any number of things: Psalm 77:12 speaks of meditation on God's work, Philippians 4:8 on anything that is praiseworthy, and Psalm 1:3 speaks of the goodness of meditating on the Law. This last one—the Law—is mentioned as a theme of meditation several times in the Psalms; the Law might itself be considered a technology created to focus Israel's attention on love of God and love of neighbor. In meditation, we empty ourselves of distraction so that our attention might be directed toward the things of God, which brings us closer to our *telos*. "The mind will always take on an order conforming to that upon which it concentrates," says Richard Foster.[61] Meditation requires that we first find a way to escape from distraction, perhaps by finding a quiet place or state of mind, and then focus on something—an image, phrase, a passage of Scripture—with the prayer that God will speak through it. We may even employ the use of ICTs to meditate; there are several apps designed to help us focus on listening to God. Of course, attaining inward stillness is difficult, especially with minds that are not used to it. Many of us already model and create spaces for silent meditation in our classrooms, perhaps even using podcasts or projected digital photographs to help students reflect on words, sounds, and images. We can also help students in exercising attention as they use ICTs, suggesting strategies such as monotasking or turning off network connections to minimize interruptions.

A second spiritual practice that can help us approach a theologically-informed epistemology is fasting. A spiritual discipline in many different religious traditions, fasting is not merely abstaining from food, though that is the most common form. Fasting is not giving up something that is "bad," nor are fasts diets. Rather, fasting is giving up something that is meaningful, even essential, in life so that we can be reminded of spiritual essentialities. Fasting is an embodied, symbolic, and visceral practice in which we express and live into an alternate reality, one in which God is our sustenance. In other words, fasting refocuses our attention on God as our ground. When we fast, we are saying that we need God as much as we need other things that are important in our lives, such as food. Fasting from ICTs would, then, be a spiritual discipline of refocusing attention. "As we clear a space cluttered by constant multi-tasking and erratic bouncing," Michael Burdett says, "we find serenity and grounding because we focus on our ultimate origin

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[60]Simone Weil, "Reflections on the Right Use of School Studies with a View to the Love of God," in *Waiting for God* (New York: HarperCollins, 2000), 57-65.
[61]Richard Foster, *Celebration of Discipline: The Path to Spiritual Growth* (San Francisco, CA: HarperSanFrancisco, 1998), 63.

and end in God's kingdom."[62] As with fasts from other valued things in our daily lives, temporarily abstaining from a device or app can help us re-approach it with a renewed sense of priorities and intentions. We can help students with fasts by teaching them more than one way to accomplish tasks (such as taking notes on paper as well as with a computer), or by encouraging them to confront the fear of missing out on things such as personal notifications or news alerts during periods of study or rest.

Identity: Sabbath and Worship

Eschatologically, ICTs can encourage understandings of human destiny that are antithetical to the Christian *telos*. What it means to be a person can be reduced to being a consumer of information or a node in a social network, or it can be elevated to having unlimited access to information and means of communication (forms of godlike existence parodied in Dave Eggers's novel *The Circle*[63]). While ICTs have blessed humanity with extended access to essential knowledge and connections with loved ones, collapsing barriers of time and distance, we risk becoming merely informational entities engaged in impersonal exchanges. The issue here is one of *identity*. What does it mean to be a person? Who am I, and why am I here? Christian theology informs us that identity is more than what we know, what we do, or what can be digitized. To fully understand our identity, it must be viewed in theological perspective and dimension—in light of God's creative, redemptive, and transformative interactions with humanity.[64]

One practice that can help us remember the core of our identity is Sabbath. While many consider the Sabbath to be a day of rest, it is much more than merely (or even necessarily) that. "Sabbath," derived from the Hebrew word meaning "to cease," is central to the Law upon which we are meant to focus our attention. When God presents Moses with the two tablets of the Law in Exodus 31, the only law God reiterates as essential is keeping the Sabbath. Why is it so central? Because, in Sabbath, we cease our work—just as God did at the climactic moment of creation—so that we can remember and, in a proleptic peek, enact our ultimate destiny. When all of our activity ceases, we simply exist as embodied creations of God in loving relationship with God and each other, an identity that is received rather than achieved. Indeed, one way to consider Sabbath is as a fast from pro-

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[62]Michael S. Burdett, "Forming the (Virtual) Self: Christian Practice and Internet Living," lecture delivered at Seattle Pacific University, November 30, 2015, recording available from http://digitalcommons.spu.edu/digital_wisdom_framework/.

[63]Dave Eggers, *The Circle* (New York: Alfred A. Knopf, 2013).

[64]According to theologian James Loder, our identities are often reduced to a flat "two-dimensional" understanding that involves the self in merely psycho-social perspective. However, as Christians, we confess that we exist in "four-dimensional" reality that also involves the Holy and the Void. It requires transformational experiences to open ourselves to this larger reality. See *Logic of the Spirit: Human Development in Theological Perspective* (San Francisco, CA: Jossey-Bass, 1998).

ductivity. Brent Waters notes that, in practicing Sabbath, "we are given knowledge or understanding of ourselves and creation, requiring an openness that refrains from intervening and mastering." A Sabbath may not last a day; perhaps we find a few moments here or there in which we stop what we are doing in order to rest, to reflect, or to enjoy the world and relationships that God has given us. This can include a focus on how the digital dimension of our lives contributes to the spiritual dimension, revealing God in new ways, and it can happen in a classroom or during one's studies.[65] The point is to practice being in a "state of receptive being," which situates ICTs within a theological narrative about who we are.[66]

A second practice that leads us toward a theologically-informed eschatology is worship. Worship, of course, is variegated; it is music, it is liturgy, it is sacrament, but it is much more. To experience worship is to experience the state of things as they truly are, an existence in which God is God. Such a posture evokes awe, gratitude, supplication, sorrow, conviction, joy, and a whole host of emotions. But worship is not necessarily about emotion; worship is a practice in which we rehearse reality as we believe it to really be.[67] In fact, Orthodox Judaism considers the first of the Ten Commandments to be Exodus 30:2, a foundational statement of reality the people of God are meant to practice: "I am the Lord your God, who brought you out of the land of Egypt, out of the house of slavery." Over and over, week by week, we play out what it looks like to live a reality in which God really is God, and we are really not, despite the temptation to think we can control our existence with technologies. Of course, this sort of rehearsal take place not only at church. Over a century ago, B. B. Warfield asked seminary students, "Why should you turn from God when you turn to your books, or feel that you must turn from your books in order to turn to God?" Study can be a means of grace and part of one's spiritual life, and can certainly be worshipful.[68] We are free—and commanded—to worship in a variety of ways in our lives, including with ICTs, which can help us access worshipful expressions, experiences, spaces, and relationships.

Agency: Solitude and Silence

ICTs have enabled us to discover, create, and connect in so many new and exciting ways that it can be difficult to grasp our roles and responsibilities, and we

[65]For a discussion of technology as part of the book of nature and a source of revelation, see Allen, *Spiritual Theology*, 118-120.

[66]Brent Waters, "Mapping the Moral Terrain of the Emerging Technoculture: Living Faithfully Between Babylon and Jerusalem," lecture delivered at Seattle Pacific University, November 12, 2015, recording available from http://digitalcommons.spu.edu/digital_wisdom_framework.

[67]Dallas Willard says that to worship "is to engage ourselves with, dwell upon, and express the greatness, beauty, and goodness of God through thought and the use of words, rituals, and symbols." *The Spirit of the Disciplines: Understanding How God Changes Lives* (San Francisco: HarperCollins, 1988), 177.

[68]Benjamin B. Warfield, "Spiritual Culture in the Theological Seminary," *Princeton Theological Review* 2 (1904): 65-87; see also "The Religious Life of Theological Students" (n.p., 1911).

may be tempted to believe that we are anonymous or powerless agents. Ethically speaking, this presents an issue of *agency*. As moral agents, to what extent do our choices and their attendant actions matter? From a Christian perspective, the existence of the Law and the exhortations of Jesus make clear that our decisions are meaningful. The scriptural witness also makes it clear that God is in the sovereign business of healing creation. In fact, we might see the former truth in light of the latter. Theologically speaking, we are commanded to be witnesses of God's work of making all things new and we are called to love God and others as agents of this work, not because of any particular results we seek, but because that is who we are. In reference to Jesus's command to his apostles in Acts 1:8, "You shall be my witnesses," Darrell Guder notes, "It is impossible to separate the meaning of the witness as person from the content of the witness borne by that person. The witness 'incarnates,' as it were, his or her witness."[69] Our professional and personal uses of ICTs should be connected with a witness of making all things new.

One practice we can engage in order to focus on our agency is solitude. In an age when it is always possible to be connected digitally with others, many find it foreign—or even frightening—to be alone. Yet, to practice solitude is not to pursue loneliness, nor even to be "alone." In solitude, we are meant to focus on the enduring presence of God instead of the presence of others, wherever we are. Foster notes that, whatever we may be doing, we can "cultivate an inner solitude and silence that sets us free from loneliness and fear. Loneliness is inner emptiness. Solitude is inner fulfillment."[70] Just as someone can feel lonely in a crowd of people, so we can practice solitude even in the midst of our everyday lives. And in the awareness of God's presence, in the midst of our action comes an awareness also of the meaningfulness of who we are, of what it is that we are doing, and of the One who directs our actions. In solitude, Henri Nouwen says, "we reach out to our innermost being to find there our great healing powers … a gift to be shared with all human beings."[71] At a Christian university, solitude could be part of the work with we do with students in their vocational discernment, providing a powerful foundation for designing and using ICTs.

A second related practice that can help us embrace a sense of agency is silence. The spiritual discipline of silence can be understood as a fast from communicating, both inwardly and outwardly, so that we learn to listen. It is only when we learn to listen that we are able to grasp how God is calling us to act. In our world so full of ICTs, silence is extremely counter-cultural: "The futility of everything that comes to us from the media is the inescapable consequence of the absolute inability of that particular stage to remain silent," says Jean Baudrillard. "Music, commercial breaks, news flashes, adverts, news broadcasts, movies,

[69]Darrell Guder, *Be My Witnesses: The Church's Mission, Message, and Messengers* (Grand Rapids, MI: Eerdmans, 1985) 40-41.
[70]Foster, *Celebration of Discipline*, 96.
[71]Henri J. M. Nouwen, *Reaching Out: The Three Movements of the Spiritual Life* (New York: Image, Doubleday, 1986), 62.

presenters—there is no alternative but to fill the screen; otherwise there would be an irremediable void."[72] To feel safe with silence is to feel safe with not knowing, with waiting, with mystery. And in learning to listen carefully to God and our own thoughts, we come to recognize our intimate connection to the source of those voices as they direct us. To practice silence for a time, or at least to reduce expressions through communication media, can help us learn the value of words, others' thoughts, and even our own vulnerability. Pedagogically, students could be encouraged or even assigned (with perhaps a short reflection) to spend some time in silence, both with and without ICTS, to reflect on what is most real and how their lives reflect and engage with that reality. As silence is so unusual for college students, this could be a powerful practice in helping them understand their agency in relation to how they help shape the world around them.

Conclusion

Chad Wellmon describes the emergence of the modern research university as a technological solution to the epistemological and ethical challenges caused by prolific print technologies. "Unlike previous technologies," he observes, "'the university' was also an institution.…It was not just another content delivery device. It was constituted not just of bricks and mortar but also of norms, practices, and people."[73] What distinguished the modern university from previous approaches to education and information was the *integration* of formative with material technologies to cultivate and form a particular type of person—one whose attention, identity, and agency were focused on certain disciplinary ends. Like modern research universities in the nineteenth century, institutions of higher education today are updating missions and material technologies for a digital world being shaped by ICTs. These updates to our information and technology ecosystem and infrastructures must be shaped by a focus on formative technologies that will cultivate people of digital wisdom—people who are able not only to manage the challenges of ICTs but also to use them wisely to create a new and better world. Within Christian higher education, this requires us to reflect on and align our actions with our shared *telos* and critiques of our emerging technological culture, and to develop formative practices that will enable and equip us to become the people we are meant to be.

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[72]Jean Baudrillard, *Cool Memories* (Brooklyn, NY: Verso, 1990), 139.
[73]Wellmon, *Organizing Enlightenment*, 152.