POST-CONFERENCE WORKSHOP

Artificial Intelligence and the Transformation of Research and Learning in Theological Education

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ABSTRACT: The emergence of generative artificial intelligence presents an unprecedented disruption and opportunity for higher education, and particularly for theological education. The future of learning and work will be shaped and reshaped by this technology and its implementation in our institutions. This workshop is designed to provide some foundational frameworks, concepts, and information and make the case that theological librarians and libraries must assert themselves at the center of these conversations within their institutions. Implications for theological libraries and librarians and theological education more broadly are explored.

INTRODUCTION

The emergence of generative artificial intelligence and its impact on the present and future of theological education (and theological libraries and librarians in particular) is both complex and wide-ranging. This workshop seeks to offer some framework, guidance, example policy, and imagination for navigating this uncharted frontier.[1]

FRAMEWORKS AND GRAMMAR

It is important to recognize that the conversation about AI and the future of theological education are part of a much larger conversation about the future of education, the future of work, and the future of learning and human formation. This has three immediate applications:

1) Navigating the challenges and opportunities that emerge around AI and theological education, theological librarians will be better informed if they are informed by these larger conversations.
2) Theological education has profound contributions to make to those larger conversations, particularly as we advance around these questions in our field.
3) Understanding the emerging trends and trajectories of the future of work can unlock new possibilities for theological education and higher education more broadly.

Tool vs. Technology. When we think about artificial intelligence, we must make a distinction between a *technology* and a *tool*. A tool is a specific product/app/website/platform that is powered by generative AI (e.g., ChatGPT) or integrates into its existing services (e.g., Grammarly). The technology (in this case, generative AI) is what powers that ever-expanding suite of tools and integrations. This distinction is essential as we begin to think about literacy and proficiency. If we work to provide only basic literacy and proficiency in tools, not in the underlying technology, then our capabilities are very vulnerable to the consequences of tools as they change, evolve, and disappear. Doing our best to incorporate a level of literacy and proficiency in the technology more broadly enables us to have both a more durable and agile set of skills as we navigate a world in which the tools evolve and change both arbitrarily and rapidly.

Arrival Technology. Most technological advances require adoption to be integrated in a meaningful way in our lives. This has been true for nearly every technological advancement that we have experienced in our lifetimes because most of the arrival technologies in our world came (at least in some form) before we were born.

As an example, the iPhone was an advancement in technology (albeit a substantive one), but we all had a choice whether to adopt it when it first came out. Electricity and electrification on the other

hand should be understood as an arrival technology. Even if you were not interested in incorporating this technology into your life specifically, it impacted your experience of the world in ways you could neither ignore nor avoid. Generative AI is an arrival technology.

Human-Computer Interaction (HCI). For all our lives the work of human-computer interaction has been the conforming of human behavior to the functionality and design of the machine. If we want to use a computer we must use a keyboard, entering words one letter at a time. If we wish to drive a car, we are forced to use the pedals and steering wheel in combination to safely commute to our destination. The primary way in which most people engage with generative AI (at least in non-technical settings) is through *natural language*. This means that the way in which we interact with generative AI requires a different, arguably more human, set of skills to both leverage and benefit from this technology and the tools that use it.

The Changing Nature of Progress and Advancement. We are historically used to advances in technology that are iterative, incremental, and inconsistent in their overall results. Not all subsequent versions of technology, software, or hardware seem better. This is not the case with generative artificial intelligence. The current level of the technology and the tools that deploy it are so basic that they will continually be going forward. Not only will these tools perpetually improve (with no current plateau in sight), but they advance more than incrementally.

What this means as we work with generative AI tools is that we should bear a couple of things in mind:

- If we find that the current capabilities or results of a tool either disappoint or frustrate what we are trying to accomplish, we must recognize that these are temporary limitations. As these tools get increasingly more capable, we should revisit work that we have been unsuccessful with in the past. This is what some researchers refer to as “the jagged frontier.”
- If you aren’t sure whether a tool can do something, try it. Some of the most interesting and meaningful use cases for generative AI are discovered not designed.

- Don't get too committed to individual tools for the long term. This is true for three reasons: (1) The tools themselves will change over time; (2) There are other tools that will come along that are perhaps more aligned to your work; and (3) We simply don't really know what is coming next. Stay open-minded, be willing to learn, and build the skills necessary to pivot when it's the right move.

POLICY AND VALUES

There are several important and urgent questions that are raised about how we think about policy and practice at the institutional, instructional, and individual levels.

Expectations Should Relate to Current Practice. As it relates to our concerns, critiques, and critical engagement with generative AI, it is important that as we raise questions, issues, and challenges, we are conscious of those same things in our current practice. This does not serve to discount what we might raise, but it can provide a constructive reframing of the actual concern at hand. This is also important because oftentimes, particularly as it relates to a technology that is this new, this disruptive, and improving this fast, we resort to objections that give us the feeling of certainty and predictability. This is an instance of a particular kind of cognitive bias known as the illusion of explanatory depth.

Rules and Restrictions are Ineffective and Counterproductive. Traditional approaches of creating policy filled with specific prohibitions and instructions are both ineffective and counterproductive as it relates to generative artificial intelligence for three reasons:

1) Any kind of policy about AI use that includes specific use case instructions or prohibitions, or endorsement of specific tools are vulnerable to rapid (if not immediate) obsolescence.
2) AI detection tools have been shown to be inaccurate, to be discriminatory, and to be the object of lawsuits against institutions who use them to prove academic misconduct.
3) This approach exacerbates inequity, diminishes transparency on behalf of the institution or faculty member, and does not serve students.

It is for these reasons that some institutions are explicitly enacting policies that prohibit the use of AI Detection Tools (and plagiarism detection tools more broadly).

Recommendations for an Academic Misconduct Policy. As detection tools lose legitimacy and effectiveness, increase inequitable and punitive measures for many of our most vulnerable learners, and do not contribute to the constructive work of students, we are faced with one other issue: the nature of writing and exams are being forced to evolve because of generative AI. Having served on academic misconduct committees as a graduate student, university administrator, and teacher, my explicit academic misconduct policy is as follows:

> If it is determined that the student has committed a form of academic misconduct in their work (without utilizing AI and plagiarism detection tools), the formal institutional response should involve three steps: (1) Inquire in a human-centered way about the extenuating circumstances around the student's decision to cheat, (2) inform the student that such conduct is unacceptable and harms not only the integrity of their work but also the quality of their learning, and (3) require the student to complete the assignment again in a timeline that considers any extenuating circumstances disclosed in the first step.

As these generative artificial intelligence tools continue to evolve and improve, the very nature of our learning and work—especially the work of writing—will dramatically change. At this early stage of this disruption, it is difficult to ascertain what that might begin to look like. This is all the more reason that we should not then continue to engage in using time, energy, and money in the traditional processes and proceedings of academic misconduct policy, committees, and processes.

Constructive Policy Values. When we move beyond the traditional approach of prohibition and punitive results, we are left with the need for an alternative framework for how we guide access, adoption, and use of this technology and its tools in academic work. I propose five values as the formative posture by which we evaluate both our practice (institutional, instructional, and individual) and our assessment of tools that will be adopted, allowed, or enabled by the institution.

- *Transparency*. We openly and honestly represent the

power and importance of our tools, workflows, and learning for all.
- *Rigor*. We engage with these technologies to enhance the quality, complexity, and impact of our work for us and for the world.
- *Curiosity*. We expand the realm and potential of our inquiry in ways that make room for ongoing learning and growth.
- *Inclusion*. We recognize that access alone is not equitable and actively work toward literacy and proficiency for all.
- *Play*. We cultivate both joy and excitement in learning as a driver of exploration, increased engagement, and learning.

These five policy values are more extensively explored in our whitepaper, "Artificial Intelligence and the Future of Theological Education" (Hanegan and Rosser 2023).

What we must ask whenever we consider specific actions, prohibitions, or practices is the extent to which those choices serve to maintain or enhance these five values. If we discover that any of these policy values are diminished, we should understand this as an indication that this decision will fail to be both human-centered and effective.

Human-Centered; Pedagogy, Design, and Formation; and AI. I contend that the progression of these three elements is essential to all the work that we do going forward at the intersections of artificial intelligence, theological education, and theological libraries. They must always be considered in this order; moreover, each subsequent element should be shaped by what precedes it.

- *Human-Centered.* What kind of human beings do we wish to be? To what ends do we pursue our work, and how do these things lead not only to the flourishing of the individual, but contribute to the larger human family?
- *Pedagogy, Design, and Formation.* Informed by our understanding of and commitment to our human-centered work, how does our pedagogy, design, and formational work sustain or enhance the goals of

our work? How does it address our concerns not only for the work of our students, but their formation beyond their learning?
- *Artificial Intelligence.* How does the application and leveraging of artificial intelligence serve our human-centered pedagogy, design, and formation (if at all)?

TRENDS AND TRAJECTORIES

Multi-Modal to Omni-Modal. These tools currently accept and generate a wide variety of modalities. While each tool currently has limitations of both the modalities that it receives and generates, there will be a time in the future (with some speculating that we might be there before the end of 2024), when any modality can be leveraged for input and requested for output. When this happens, the speed, complexity, and creativity of what we can do with these tools will increase by an order of magnitude.

Differentiated to Integrated. Thus far, when we have wanted to meaningfully engage generative AI tools, we have had to go outside much of the software and infrastructure that already exists towards specific tools. We might open a new window and use ChatGPT or engage with a plug-in like Grammarly. What is coming very soon and very broadly is the kind of seamless integration that will not only accelerate the adoption of this technology and these tools but will dramatically affect the way we do our work with those tools.

Iterative to Exponential. Traditionally we are used to tools and technology that get better incrementally. Our experience with generative artificial intelligence will not follow this trajectory. The CTO of OpenAI (makers of ChatGPT) recently said that the levels of capability between GPT-3, GPT-4, and GPT-5 would be the difference between a kindergartener, a smart high schooler, and a person with a PhD. We do not have personal experience of that scale of learning and capacity-building in such a short period of time.

THE NEXT SERIES OF ADVANCEMENTS IN GENERATIVE AI

New Flagship Models. The introduction of the newest state-of-the-art (SOTA) model, Claude 3.5 – Sonnet, occurred recently. In the coming months (though the timeline is not public), we expect new flagship models from Google (Gemini), OpenAI (ChatGPT), Meta (Llama), Anthropic (Claude), and several other open-source models. This does not even include the models which are being built in stealth and can be released at any time.

New Integrations. Between now and the beginning of the 2024-2025 school year, we will see some significant integrations into major platforms and tools used in research and learning. This includes Google, Microsoft, and Apple. With a dramatic increase in ease of access and use that will inevitably increase the speed of adoption, any kind of policy that treats generative AI as an external tool will be rendered obsolete.

Major Enhancements. As these tools continue to advance in size and capabilities, we should expect an increase not only in the quality of their current capabilities, but in the number of their capabilities and applications as well. In other words, current use is not an indication of how these tools will be used in the very near future. This is also an invitation to begin thinking about how these rapidly advancing capabilities can unlock both new projects and learning.

THEOLOGICAL EDUCATION

Theological education is uniquely suited to meet this current moment for a few reasons:

Unapologetically Interdisciplinary. Theological education, more so than many other disciplines, holds within its very design and nature a cross-disciplinary or interdisciplinary posture. Students regularly take coursework in languages, philosophy, ethics, history, literature, and other areas within this interdisciplinary work. The focus of theological education on service to the world and the academy inescapably involves a wide range of content, design, and practice.

The utility and application of formal theological training to meaningful and impactful work in other fields and disciplines is

well-documented. The breadth of inquiry that constitutes theological education lends itself to the kinds of shifts that are coming to higher education and human learning more broadly with the advent and acceleration of the technologies and tools that leverage artificial intelligence.

Grounded in the Deep Traditions of Learning and Formation. Theological education draws not only from its deep roots in learning and higher education as one of the most interdisciplinary and high-utility fields in the world, but it also moves among the collective history, wisdom, and practice of the world's spiritual and religious traditions. This rich foundation positions us with not only the experience but the resources necessary to constructively shape and enhance the future of learning and human formation, both in higher education and more broadly.

THEOLOGICAL LIBRARIES AND LIBRARIANS

Historical Limitations for Libraries and Librarians. Libraries from the earliest times have been limited by the contents of their collections and the wisdom and expertise of those who led them as librarians and guides. As technology has advanced, we have included in our arsenal digital databases and resources. While our collections have undoubtedly expanded, these long-standing limitations have remained in place.

The emergence of generative artificial intelligence introduces an increasing suite of capabilities and applications that enhance the capacity of libraries and librarians to overcome or even transcend some of these limitations. What has previously been inconceivable because it was either cost-prohibitive or required immense amounts of additional time or expertise is increasingly within reach.

The Strong One Under the Floor. There is a Japanese proverb, 縁の下の力持ち (*en no shita no chikara mochi*) which means, "The Strong One Under the Floor." This is a wonderful metaphor for understanding the power and impact of libraries and librarians. Not only have libraries and librarians served as the underlying foundation of learning within our institutions, but the deep skills and practices of research and learning that come from those who

have committed themselves to the work of librarianship are more essential than ever in our emerging AI-powered future.

What is important now is that libraries and librarians begin to assert their rightful position at the center of their institutions as those who both hold up the floor (and thus the house as a whole), but who also possess the strength to lead into the future.

Fundamental Literacies and Generative Artificial Intelligence. The work of learning requires so many additional skills and literacies, particularly in our current world in which disinformation, bias, and other challenges are ever present. In our new reality, increasingly shaped by the presence and integration of generative AI in the work of research and learning, these underlying skills and literacies become simultaneously more important and in need of their own kind of enhancement. A few examples can help us to understand what I mean here by saying that AI alters the skills and literacies we need:

- Our skills of knowledge management become more important when the amount of information we can both access and engage is increased exponentially in both quantity and speed.
- Our skills in information literacy are more important as we work with new tools that are predicated upon certain forms of ranking, aggregating, and collecting information.
- Our need for critical AI literacy and proficiency will be essential in navigating this future.

TOOLS: IDENTIFY, DEPLOY, AND STACK

Identifying and Deploying Generative AI in Research and Learning. There is an innumerable array of tools that can be used in research and learning. The questions that are most important revolve around which tools and how they should be deployed. While these questions and the quantity and capabilities of our tools are perpetually evolving, there are several considerations that can help to inform our decisions and processes in using these powerful tools for research and learning.

Aligning with Values. Earlier in this workshop I shared our five policy values, which are appropriate here as a measure of the utility

and appropriateness of using generative AI tools in research and learning.

- *Transparency*. Is my work clearly and honestly represented, including the ways in which I leverage tools and technology to enhance my research and learning?
- *Rigor*. Have I used these tools as a shortcut in a way that diminishes the quality and character of my work or as a tool to enhance it?
- *Curiosity*. Have I engaged in work that explores my line of inquiry and is interested not in curtailing it, but in its increase in clarity and depth?
- *Inclusion*. Has this been used in any way that discriminates, diminishes, or elevates a person or people over others, or to expand our concern and care of others?
- *Play*. Did I engage in my work in such a way that brought joy, curiosity, and energy to my work?

Experimental and Iterative Approaches. Due to the rapidly evolving landscape of tools and overall capabilities of generative AI it is important to recognize that our processes and what we are able to accomplish are perpetually evolving. While it has been tempting in higher education (and theological education is by no means immune to this) to create relatively "stable" and "standard" research practices and habits, such an approach no longer makes sense, particularly as it relates to the adoption, deployment, and integration of AI tools in research and learning.

This means that there are three essential features of our work of research and learning that should always be under consideration:

- *We should always seek to understand and document our research and learning processes to better understand where gains with generative AI may be found.* It is essential that we very clearly identify how we do our work with as much effort as we seek to accomplish our work. This enables us to maximize our agility and to improve our research and learning.
- *We should maintain a running list of capabilities and processes that would aid us in our work as we*

regularly examine whether new tools or advancements can meet those needs or desires. The full capabilities and applications of these tools is unknown, which is why any single point-in-time measurement of their abilities is limited in its explanatory power and relevance.
- *We should recognize that oftentimes the limitations of these tools lie not necessarily in their capability, but in our use of them*. This highlights the importance of ongoing learning and training (at places like libraries), and the understanding that sometimes the outputs of these tools are arbitrary and not a reflection of the tool or its user, and therefore we must keep trying.

STACKS (Strategic Tool Assembly for Curated Knowledge Solutions). One of the first things you will learn in using generative AI tools for research and learning is that there is no kind of omni-tool (at least not yet). To do your work in a way that brings the full benefits of these tools you will have to not only combine them but do so in the proper order. While there is no out-of-the-box process that will work for all learning and research, there are a couple of guidelines that one can use to become more proficient at knowing when tool switching and tool stacking are most strategic.

- *Only Use the Features You Need.* It can be tempting to try to take advantage of every possible feature, modality, and use case. This is often a drain on time and doesn't contribute to the overall work. Choose the right tool for the work that you want to accomplish, not the most powerful or feature-heavy option available. Biggest is not always the best.
- *Organize Your Work in AI Tools.* Create for yourself a system for the knowledge management necessary to collect and organize the work you generate with these tools. This is especially true when doing data analysis, research in databases, and strategizing on ideation, structure, and research plans. Results are only as good as your ability to find them later.
- *Spend money sparingly and strategically.* There are a lot of tools that offer premium plans. These

costs can add up quickly. You should be able to do just about everything you will need for research and learning with free, publicly available tools. The main reason that a paid subscription would be useful is to remove rate limits or unlock certain features.
- *Always use multiple iterations and attempts.* Because of the ways that these tools are built you may find that the quality of your results can be entirely arbitrary. This is why you should always try more than one way and more than one time for your work. Also, you can often ask the tool itself for strategy, or look to YouTube or X for use cases.

THIS IS OUR ONLY CHANCE

There are three reasons that librarians, particularly theological librarians, must assert themselves at the center of conversations in our institutions about generative artificial intelligence and the future of learning:

- *Librarians Bring Unique Expertise to Learning.* More than ever, the hard-earned wisdom, experience, and expertise of librarians are needed as we navigate our way towards the next iteration of human learning. If we outsource this to other groups within higher ed institutions (e.g., instructional design or faculty development) then both the institution and those they serve will be profoundly disadvantaged from the absence of the additional literacies and competencies that are a natural part of the work of libraries and librarians. These include things like knowledge management, information literacy, best practices in research, and information science.
- *If Not Librarians, Then Who?* The landscape of education and generative artificial intelligence is moving too fast, with too many players, for institutions to simply take a "wait and see" approach. If libraries and librarians do not actively assert themselves at the center of this conversation as its rightful guides, then the money, momentum, and energy will be

redirected elsewhere, and the library will either be left behind or become one of the sources of diverted funds and institutional commitment.

- *Librarians Bring a Human-Centered Approach to the Future.* As we move into this next step in the work of human learning and formation, it is important that we cultivate postures and practices that are explicitly human-centered. There are many competing forces that are entering into this space that are either indifferent to such an orientation or more concerned with other objectives. Leadership in this space that holds this fundamental ethical commitment is essential to the cultivation and sustaining of a world that leads further towards flourishing for the whole human family. In this moment, there is no more important call.

REFERENCES

Hanegan, Michael and Chris Rosser. 2023. "Artificial Intelligence and the Future of Theological Education." *https://bit.ly/theological-education-and-ai*.

ENDNOTES

1 For a more comprehensive overview of this workshop with additional information, links, and resources please visit: *https://bit.ly/atla-and-ai*.