FROM PANDEMIC TO PEDAGOGY: TEACHING THE TECHNOLOGY OF LAWYERING IN LAW CLINICS

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FROM PANDEMIC TO PEDAGOGY

In March 2020, the COVID-19 pandemic upended work, school, family units, and lives throughout the U.S.[1] Law schools across the country shut down their physical campuses and in a matter of days pivoted to online learning.[2] Law firms, courts, and administrative agencies abruptly closed their offices and quickly reimagined how to perform their daily functions remotely.[3] Straddling the worlds of legal education and legal practice, law school clinical programs almost universally deployed technology to

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1. *See generally* Kim Parker, Juliana Menasce Horowitz & Rachel Minkin, *How the Corona Virus Has – and Hasn't – Changed the Way Americans Work*, PEW RSCH. CTR. (Dec. 9, 2020), https://www.pewresearch.org/social-trends/2020/12/09/how-the-coronavirus-outbreak-has-and-hasnt-changed-the-way-americans-work/ [https://perma.cc/ZZ4E-XN79].

2. *See* Andrew Smalley, *Higher Education Responses to Coronavirus (COVID-19)*, NAT'L CONF. of STATE LEGISLATURES (Mar. 22, 2021), https://www.ncsl.org/research/education/higher-education-responses-to-coronavirus-covid-19.aspx [https://perma.cc/EZT6-K5C6] (noting that during the spring of 2020 more than 1,300 U.S. colleges and universities moved to fully online instruction, and by fall 2020, only 27% offered fully or primarily in-person instruction).

3. *See, e.g.*, *Courts' Responses to the COVID-19 Crisis*, BRENNAN CTR. FOR JUST. (Sept. 10, 2020), https://www.brennancenter.org/our-work/research-reports/courts-responses-covid-19-crisis [https://perma.cc/F7W9-WXRN] (tracking policies of federal and state courts in response to COVID-19); *Adapt or Fail: Industry Changes Law Firms Can't Afford to Ignore*, LAW TECH. TODAY (Nov. 25, 2020), https://www.lawtechnologytoday.org/2020/11/adapt-or-fail-industry-changes-law-firms-cant-afford-to-ignore/ [https://perma.cc/ZN4E-77SX] (Eighty percent of law firms surveyed transitioned to fully or partially remote practice, and 70% anticipate COVID-19 will have lasting impacts on how they operate moving forward.).

transform their pedagogy and practices in the middle of the pandemic, adopting both online instruction and remote legal service delivery.[4]

Law firms, courts, administrative agencies, and other sites of adjudication have plans to maintain aspects of remote operations and services.[5] Lawyers, judges, and other legal service providers, who have gained efficiencies in leveraging technology, will likewise maintain much of this technology post-pandemic.[6] Institutions of higher education are reexamining their teaching models, offering more online and hybrid learning opportunities, and adapting their curricula to ensure students are prepared to enter partially or substantially remote workplaces.[7] Law school clinical and externships programs—which exist at the intersection of law practice and legal education—will also be expected to adapt broadly and permanently to these changes.

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4.   We use the term "clinic" or "clinical program" to refer to in-house clinics, community-based clinics, and externship programs as defined by ABA Standard 304(c). *See* AM. BAR ASS'N STANDARDS AND RULES OF PROC. FOR APPROVAL OF LAW SCHOOLS 2020-2021, at 17 (2020), https://www.americanbar.org/content/dam/aba/administrative/legal_education_and_admissions_to_the _bar/standards/2020-2021/2020-21-aba-standards-and-rules-chapter3.pdf. We use the term "clinician" to refer to clinical faculty and staff who supervise and teach students in law school clinic or externship programs.

5.   *Guiding Principles for Post-Pandemic Court Technology*, NAT'L COUNCIL OF STATE COURTS (July 16, 2020), https://www.ncsc.org/__data/assets/pdf_file/0014/42332/Guiding-Principles-for-Court-Technology.pdf [https://perma.cc/SKT2-R6J2].

6.   Robert Ambrogi, a legal technologist and journalist, anticipates that the pandemic has permanently altered law practice in seven ways: "1. Lawyers will no longer see technology as something to be feared . . . 2. Lawyers will no longer see innovation as a threat to the 'guild'. . . 3. Regulatory reform will accelerate . . . 4. Courts will accelerate innovation and online services . . . 5. More legal services will be delivered remotely and online . . . 6. Law firms will reduce their physical footprints . . . [and] 7. Legal education will be revamped." *See* Robert Ambrogi, *7 Ways the Pandemic Will Forever Change Law Practice*, ABOVE THE LAW (Apr. 27, 2020, 11:50 AM), https://abovethelaw.com/ 2020/04/7-ways-the-pandemic-will-forever-change-law-practice/?rf=1 [https://perma.cc/5JPF-2968].

7.   Prior to the pandemic, ABA Standard 306 permitted accredited law schools to offer up to one-third of a student's credits online, barring a variance for the law school. During the pandemic, the ABA modified its approach to distance learning to allow law schools to proceed with fully remote education but otherwise maintained the one-third online credit rule. *See* Memorandum from the Am. Bar Association's Council of the Section of Legal Educ. and Admissions to the Bar (May 15, 2020), https://images.law.com/contrib/content/uploads/documents/400/20-memo-on-recommendations-on-distance-ed-process-final.pdf [https://perma.cc/3S8A-J2FD]. *See also Law Schools and the Global Pandemic*, THOMSON REUTERS INST., at 2, https://www.thomsonreuters.com/en-us/posts/wp-content/ uploads/sites/20/2020/12/Law-Schools-and-the-Global-Pandemic_FINAL.pdf [https://perma.cc/3DRA-BV3X] (survey of 2,897 law school students, faculty, and administrators in August 2020 finding that remote education "unearthed opportunities for law schools to take a step back and consider what the future of legal education might look like").

To better understand how clinicians pivoted their teaching and practices to incorporate more technology during the pandemic, we launched an online survey of clinical faculty during the winter of 2021, in the midst of the pandemic experience. The survey received 121 responses from clinicians in 31 states and Puerto Rico. It revealed that the experiment in remote clinical education and practice was widespread and proved largely successful. This experience positions clinical programs to meet the growing calls to expand their use of technology going forward and to incorporate technology more deliberately and thoughtfully into pedagogy and practice.[8]

Part I of this Article provides context for understanding the vital role technology played during the pandemic and will continue to play in clinical programs. It offers an overview of the common uses of technology in law practice, which we refer to as *the technology of lawyering*.[9] It further discusses how the ethical obligations of lawyering, and their inclusion by the American Bar Association (ABA) as core components of experiential education, render the technology of lawyering central to the project of clinical education in the twenty-first century. Part II discusses the survey methodology and key results. The findings illuminate clinical teaching and supervision models used during COVID-19, as well as the various law practice technologies utilized in clinics and externships to adapt to remote practice. Part III offers suggestions for clinicians looking to be more intentional about the use of technology in clinical programs. It describes how the deliberate and thoughtful integration of technology into clinical

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8.	This meets the emerging consensus regarding best practices in clinical education, as described in Clinical Legal Education Association's *Building on Best Practices* compilation. *See* Conrad Johnson, *Technology in the Profession*, *in* BUILDING ON BEST PRACTICES: TRANSFORMING LEGAL EDUCATION IN A CHANGING WORLD 402 (Deborah Maranville et al. eds., 2015) (describing how law schools should "provide a safe, structured environment for students to explore the variety of ways that technology can assist lawyers in performing the basic tasks of gathering, managing and presenting information"); Michele Pistone & Warren Binford, *Use of Technology in Teaching*, *in* BUILDING ON BEST PRACTICES, *supra*, at 129–39 (describing how law school educators can embrace new technologies in the classroom to enhance learning).

9.	In this Article, we use the term "technology of lawyering" to refer to the tools of law practice management and other technologies used to enhance the delivery of legal services. *See* Johnson, *supra* note 8. It can be distinguished from the "technology of teaching," which can be used to describe classroom or teaching technologies (PowerPoint, online message boards, etc.) used to enhance content delivery and learning. *See* Pistone & Binford, *supra* note 8. *See also* Dyane L. O'Leary, *"Smart" Lawyering: Integrating Technology Competence into the Legal Practice Curriculum*, 19 UNIV. N.H. L. REV. 197, 202 (2021) (distinguishing her work on teaching students to be technologically competent from "teaching *with* technology," which focuses on distance education and other technologies as pedagogical tools).

programs can support core goals and methodologies of clinical pedagogy and practice. It also discusses how clinic infrastructure can support the use of such technology. The Article concludes by urging clinicians to build on the current momentum to embrace the technology of lawyering as an indispensable component of clinical pedagogy and practice.

I.   LOCATING TECHNOLOGICAL COMPETENCE WITHIN CLINICAL EDUCATION

To contextualize the results of our survey and subsequent recommendations, this Article begins by situating technological competence as a core learning objective within the clinical education framework. The technology of lawyering has seeped into every aspect of the legal field into which law graduates are entering. As new technologies have been employed in the practice of law, ethical standards for lawyers have evolved to mandate technological competence. Clinical programs, tasked with introducing students to the realities of practice, are already required to address this technical revolution.

A.   *The Technology of Lawyering*

Technology is not new to legal practice. Some federal and state codes were computerized as early as 1973, and Westlaw began putting full-text legal information on computers in 1978.[10] WordPerfect, Lotus, Windows, and the PC came online in the early and mid-1980s.[11] By the late 1980s, an increasing amount of legal content was accessible via CD-ROM, and by the mid-1990s, 87% of solo and small-firm lawyers used personal computers

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10.   Robert Ambrogi, *A Chronology of Legal Technology, 1842- 1995*, LAWSITES (Feb. 14, 2010), https://www.lawsitesblog.com/2010/02/chronology-of-legal-technology-1842.html [https:// perma.cc/EH3N-8HZ5]; *see also* Ronald W. Staudt & Andrew P. Medeiros, *Access to Justice and Technology Clinics: A 4% Solution*, 88 CHI.-KENT L. REV. 695, 700–02 (2013) (describing "relentless march of technological change and invention" that has impacted the practice since the 1970s); Rogelio Lasso, *From the Paper Chase to the Digital Chase: Technology and the Challenge of 21st Century Law Students*, 43 SANTA CLARA L. REV. 1, 4–12 (2002) (describing two major revolutions in communication over the past five hundred years: first, the transition from oral to text-based communication; and since the advent of the computer, the evolution from a "print-text to a hypertext society," involving electronic forms of text that allow interaction).

11.   Ambrogi, *supra* note 10.

and 23% used email.[12] Over the past twenty years, the use of technology in legal practice has exploded into what we refer to as "*the technology of lawyering*."

Lawyers today leverage various technologies to serve clients more efficiently, improve law practice management, and enhance the reach and accessibility of legal services.[13] For example, many if not most law firms now rely on remote computing access, law practice management systems, document storage and collaboration tools, e-mail and messaging apps, and videoconferencing.[14] In addition, many law firms use document automation to convert templatized documents into personalized legal instruments at low cost, such as leases, trusts, wills, and business contracts.[15] Legal services organizations use chat-bots and guided interviews to assist self-represented litigants in finding resources.[16] Litigators employ a number of tools in pre-litigation, like e-discovery, and rely in litigation on complex visual and audio technologies to present evidence in an interactive format.[17] Technology is likewise impacting the economics of practice by incorporating artificial intelligence technology to conduct document review, analyze contracts, and conduct legal research, amongst other tasks.[18] The integration of data analytics into law practice also allows courts, firms,

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12. *Id.*

13. *See generally* MATTHEW S. CORNICK, USING COMPUTERS IN THE LAW OFFICE (8th ed. 2019) (providing detailed guidance on a broad range of law practice technologies).

14. *See, e.g.*, Marc Lauritsen & Quinten Steenhuis, *Substantive Legal Software Quality: A Gathering Storm?*, *in* PROC. OF THE SEVENTEENTH INT'L CONF. ON ARTIFICIAL INTELLIGENCE 52–62 (2019) (describing a range of "interactive legal applications") (available at https://dl.acm.org/doi/10.11 45/3322640.3326706).

15. *See, e.g.*, Quinten Steenhuis & David Colarusso, *Digital Curb Cuts: Towards an Inclusive Open Forms Ecosystem*, AKRON L. REV. (forthcoming) (describing online automated legal service providers like LegalZoom, HelloDivorce, and Upsolve).

16. Rondald W. Staudt, *Technology for Justice Customers: Bridging the Digital Divide Facing Self-Represented Litigants*, 5 U. MD. L.J. OF RACE, RELIGION, GENDER & CLASS 71 (2005) (discussing the creation of A2J Author software for self-represented litigants funded by the Legal Services Corporation's Technology Initiative Grant).

17. Jana Friedman & T. Ray Guy, *Litigation Post-Pandemic: The View from Corporate Legal Departments*, 94 THE ADVOCATE 17 (2021).

18. Lauri Donahue, *A Primer on Using Artificial Intelligence in the Legal Profession*, JOLT DIGEST (Jan. 3, 2018), https://jolt.law.harvard.edu/digest/a-primer-on-using-artificial-intelligence-in-the-legal-profession [https://perma.cc/BS5N-M6HF] (explaining how artificial intelligence is being used in the legal profession).

and other entities to aggregate individual case information to better understand, track, and analyze legal processes and their impacts.[19]

While the technology of lawyering has been steadily gaining prominence among a segment of lawyers, COVID-19 enabled it to permeate every facet of the legal profession. Lawyers who never considered themselves technologists were forced to rely on a broad range of technologies to maintain operations. Now, as the world haltingly returns to face-to-face interactions, the legal profession is unlikely to completely walk away from these adaptations. The technology of lawyering has gained a larger, permanent foothold in a far broader range of legal settings.[20]

B.   Ethical Imperative of Technological Competence

The impact of technology on the ethical obligations of lawyers is now well established. Since the mid-1980s, the ABA has recognized the growing prominence of technology in the practice of law, helping educate lawyers on how to incorporate new technologies into their law practices while abiding by their ethical duties.[21] In 1999, the ABA issued Formal Opinion 99-413, clarifying the impact of unencrypted email on client confidentiality.[22] In 2009, the ABA created the Commission on Ethics 20/20 to examine and update the Model Rules of Professional Conduct in light of the growing presence of technology in law practice.[23] As a result of this work, the ABA added language to the Model Rules of Professional Conduct in 2012, explaining the need for lawyers to understand technology as a

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19.   *See, e.g.*, LEX MACHINA, https://lexmachina.com/ [https://perma.cc/SQ7B-VYKA]; *see also* DATA-DRIVEN LAW: DATA ANALYTICS AND THE NEW LEGAL SERVICES 4–6 (Ed Walters ed., 2019).

20.   Lyle Moran, *Legal Tech CEOs Urge Lawyers to Keep Innovating Beyond the COVID-19 Pandemic*, ABA JOURNAL (Mar. 9, 2021, 5:55 PM), https://www.abajournal.com/news/article/legal-tech-ceos-urge-lawyers-to-keep-innovating-beyond-the-covid-19-pandemic [https://perma.cc/KN5M-N9ZZ].

21.   Christy Burke, *LTO Spotlight: ABA Technology Resource Center (LTRC)*, LEGAL IT PRO. (June 19, 2012), https://www.legalitprofessionals.com/legal-it-columns/4379-lto-spotlight-aba-legal-technology-resource-center-ltrc [https://perma.cc/5KHS-W48L]. The foundational ABA work on technology was led by the eLawyering Task Force, founded in 2000 to explore ways that lawyers engage with electronic and internet tools in their profession of legal services. *See James I. Keane Award*, AM. BAR ASS'N, https://www.americanbar.org/groups/law_ practice/awards/keane-award/ (last visited Oct. 23, 2021).

22.   ABA Comm. on Ethics & Prof. Resp., Formal Op. 99-413 (1999).

23.   Jamie S. Gorelick et al., *ABA Commission on Ethics 20/20: Introduction and Overview*, LEGAL ETHICS F. (2012), https://www.legalethicsforum.com/files/20120508_ethics_20_20_final_hod_introdution_and_overview_report.pdf. [https://perma.cc/SKR8-5S2U].

matter of competence. Comment 8 to Rule 1.1 of the ABA Model Rules of Professional Conduct addressing lawyer competence now states:

> To maintain the requisite knowledge and skill, a lawyer should keep abreast of changes in the law and its practice, *including the benefits and risks associated with relevant technology*, engage in continuing study and education and comply with all continuing legal education requirements to which the lawyer is subject.[24]

As of March 2021, thirty-eight states had adopted this or similar technological competence language.[25]

ABA Model Rule 1.6(c) on confidentiality was also modified to state that lawyers are responsible to "make reasonable efforts to prevent the inadvertent or unauthorized disclosure of, or unauthorized access to, information relating to the representation of a client."[26] ABA Model Rule 4.4(b) governs the receipt of inadvertently disclosed electronic information.[27] Rule 1.4, which governs the lawyer's duty to communicate with the client, was clarified to include the obligation to respond to all forms of client communication, including electronic communication.[28] In 2017, the ABA issued Formal Opinion 477R, providing guidance to lawyers on the transmission of information over the internet.[29] Today, the ABA Law Practice Division maintains the online Legal Technology Resource Center,

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24.   MODEL RULES OF PROF. CONDUCT r. 1.1 cmt. 8 (ABA 2021) (emphasis added).

25.   For a list of states that have adopted technological competence language similar to Rule 1.1, Comment 8, see AM. BAR ASS'N, https://www.americanbar.org/content/dam/aba/administrative/professional_responsibility/mrpc1-1-comment-8.pdf (last visited Jan. 11, 2021).

26.   MODEL RULES OF PROF. CONDUCT r. 1.6(c) (ABA 2021).

27.   MODEL RULES OF PROF. CONDUCT r. 4.4(b) (ABA 2021) ("A lawyer who receives a document or electronically stored information relating to the representation of the lawyer's client and knows or reasonably should know that the document or electronically stored information was inadvertently sent shall promptly notify the sender.").

28.   ELLEN J. BENNETT & HELEN W. GUNNARSSON, ANNOTATED MODEL RULES OF PROFESSIONAL CONDUCT 59 (9th ed. 2019) (citing THE AMERICAN BAR ASSOCIATION, A LEGISLATIVE HISTORY 76–78 (Arthur Garwin ed., 2013)) (describing the evolution of the duty to keep clients informed). Other ABA Model Rules of Professional Conduct are also implicated by technology. *See, e.g.*, MODEL RULES OF PROF. CONDUCT r. 1.18 (ABA 2021) (governing the duty to online solicitations from prospective clients); MODEL RULES OF PROF. CONDUCT r. 5.1 (ABA 2021) (governing the responsibilities of supervisory lawyers to ensure technological competence of those they supervise).

29.   ABA Comm. on Ethics & Prof. Resp., Formal Op. 477R (2017).

which offers a wealth of resources to assist lawyers in engaging with technology in practice.[30]

A few states have gone beyond the adoption of the ABA model rules and comments on technology to require continuing legal education on aspects of legal technology.[31] In addition, there are state bar-supported initiatives and nonprofit organizations that provide lawyers with law practice management and technology support.[32] Lawyers who handle personally identifiable information (PII), or personal health information (PHI), may have obligations to safeguard information under federal and state laws designed to protect personal information.[33] Technological literacy has become vital in a post-COVID legal world.

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30.   *See Legal Technology Resource Center*, AM. BAR ASS'N, https://www.americanbar.org/groups/departments_offices/legal_technology_resources/ (last visited Oct. 23, 2021).

31.   For example, in 2016, Florida was the first to institute three hours of continuing legal education in "approved technology programs" every three years. *See* Robert Ambrogi, *Florida Becomes First State to Mandate Tech CLE*, LAWSITES (Oct. 3, 2016), https://www.lawsitesblog.com/2016/10/florida-becomes-first-state-mandate-tech-cle.html [https://perma.cc/59M8-HV58]. Also in North Carolina, lawyers must complete one unit of technology training per year. Robert Ambrogi, *North Carolina Becomes Second State to Mandate Technology Training for Lawyers*, LAWSITES (Dec. 5, 2018), https://www.lawsitesblog.com/2018/12/north-carolina-becomes-second-state-mandate-technology-training-lawyers.html [https://perma.cc/KS6H-DNRK].

32.   A number of state bar associations also have resources to help lawyers with technology through their continuing legal education programs, online resources, and discount pricing. For example, the Florida Bar Association tested a Tech Support Helpline to assist lawyers that cannot afford I.T. staff with routine I.T. issues. *The Florida Bar Tech Support Helpline (BETA)*, LEGAL FUEL (May 20, 2021), https://www.legalfuel.com/the-florida-bar-tech-support-helpline-beta/ (last visited Oct. 23, 2021). In Massachusetts, the Law Office Management Assistance Program (LOMAP) offers guidance to Massachusetts lawyers on law practice technology, and is supported by IOLTA funds. *See* MASS. LOMAP, https://www.masslomap.org/ [https://perma.cc/5ACT-PQ94].

33.   *See Summary of the HIPAA Security Rule*, U.S. DEP'T. OF HEALTH & HUM. SERVICES, https://www.hhs.gov/hipaa/for-professionals/security/laws-regulations/index.html [https://perma.cc/HZE5-LWLT]; *see also* Brittany Stringfellow Otey, *Millennials, Technology, and Professional Responsibility: Training a New Generation in Technological Professionalism*, 37 J. LEGAL PROF. 199, 221–22 (2013) (reviewing state bar opinions and state privacy laws implicating law practice technology); TEX. HEALTH & SAFETY CODE ANN. § 181.001 (West 2012).

C. Technological Competence
within the Clinical Curriculum

For several decades now, law schools have faced increased pressure to prepare students for twenty-first century law practice.[34] One thread of literature on the topic trumpets the deployment of technology as a pedagogical tool in law school classrooms via interactive polling, dynamic slide presentations, blended and flipped classrooms, and other teaching innovations.[35] Other scholars have gone further, arguing that teaching law students technical skills and knowledge is fundamental to the law school curriculum.[36] In addition to ethical and data privacy obligations that require technological competency, the argument in favor of teaching legal technology is that the marketplace of the future will require attorneys who can translate between business, technology, and the law.[37] Technological

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34.   *See, e.g.*, Richard S. Granat & Stephanie Kimbro, *The Teaching of Law Practice Management and Technology in Law Schools: A New Paradigm*, 88 CHI.-KENT L. REV. 757 (2013) (arguing that current labor market conditions require graduates to understand law practice management and technology); Anthony Volini, *A Perspective on Technology Education for Law Students*, 36 SANTA CLARA HIGH TECH. L.J. 33 (2020) (arguing that law schools should teach "tech fluency" to law students); Oliver R. Goodenough, *Developing an E-Curriculum: Reflections on the Future of Legal Education and on the Importance of Digital Expertise*, 88 CHI.-KENT L. REV. 845 (2013) (urging more recognition and integration of "e-lawyering" in legal education); O'Leary, *supra* note 9, at 207–15 (explaining how and why law students need technological competence to stay competitive in a changing legal market).

35.   *See, e.g.*, Hugh Gibbons, *Electronic Technology Provides a New Methodology for Teaching and Testing*, 52 J. LEGAL EDUC. 145 (2002) (describing "conversational interaction" using technology for peer instruction); Kristin B. Gerdy et al., *Expanding Our Classroom Walls: Enhancing Teaching and Learning through Technology*, 11 LEGAL WRITING: J. LEGAL WRITING INST. 263 (2005) (applying learning theory to integration of technology in the legal writing curriculum); Lasso, *supra* note 10 (examining strategies for law schools to use teaching technologies to meet the needs of twenty-first century student-centered learning); Peter Alldridge & Ann Mumford, *Gazing into the Future Through a VDU: Communications, Information Technology, and the Law Teaching*, 25 J.L. & SOC'Y 116 (1998) (arguing that technology has changed the way students communicate and learn).

36.   *See* Johnson, *supra* note 8; Michele Pistone, *Law Schools and Technology: Where We Are and Where We Are Heading*, 65 J. LEGAL EDUC. 586 (2015) (discussing what is propelling law schools to incorporate more technology and offering an overview of prominent learning technologies).

37.   *See* Volini, *supra* note 34, at 38; Simon Canick, *Infusing Technology Skills into the Law School Curriculum*, 42 CAP. UNIV. L. REV. 663, 666–67 (2014) (recognizing that even tech-savvy students lack skills in utilizing technology in legal practice, that many firms don't train lawyers in technology, and that enhanced technology skills for practice can help improve job prospects of law graduates); *see also* RICHARD E. SUSSKIND, THE END OF LAWYERS?: RETHINKING THE NATURE OF LEGAL SERVICES (2008) (arguing that lawyers will need to compete with disruptive technology that is transforming legal services into a commoditized product); Johnson, *supra* note 8, at 405–06 (citing employability as justification for teaching law practice technology in law schools).

know-how is increasingly a seminal element of law student marketability and relevance.[38] Several law school programs have heeded the call, including Duke's Center on Law & Technology, Stanford's CodeX Center for Legal Informatics, and Suffolk Law School's Institute on Legal Innovation and Technology.[39] Legal technologists, academics, and others have developed a range of curricular recommendations and materials designed to help law schools teach technology and prepare students for an evolving legal practice.[40]

An important strand in this movement links teaching technological competence and experiential education.[41] Early pioneers in this movement include Conrad Johnson and Brian Donnelly of Columbia Law School's Digital Age Clinic, which allows students to develop technology solutions for public interest organizations and courts.[42] Legal technology and access-to-justice clinics, as well as experiential courses at law schools that focus on technology have since grown in number.[43] Several law schools have

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38.   Goodenough, *supra* note 34, at 874–75.

39.   *See About the Center*, DUKE L. CTR. ON L. & TECH., https://law.duke.edu/dclt/ [https://perma.cc/H9PA-K542]; *see also* CODEX: STANFORD CTR. FOR LEGAL INFORMATICS, https://law.stanford.edu/codex-the-stanford-center-for-legal-informatics/ [https://perma.cc/9ZSH-9YVX]; SUFFOLK UNIV. BOSTON, INST. ON LEGAL INNOVATION & TECH., https://sites.suffolk.edu /legaltech/ [https://perma.cc/HK4S-MCP8]; Canick, *supra* note 37, at 680 (listing leading law schools in teaching technology); Emily Janoski-Haehlen & Sarah Starnes, *The Ghost in the Machine: Artificial Intelligence in Law Schools*, 58 DUQ. L. REV. 3, 21–22 (2020) (survey of law schools and their legal technology curricula).

40.   *See, e.g.*, OLIVER R. GOODENOUGH & MARC LAURITSEN, EDUCATING THE DIGITAL LAWYER (2012) (collection of essays and resources for educators to teach digital lawyering); Pamela Lysaght & Danielle Istl, *Integrating Technology: Teaching Students to Communicate in Another Medium*, 10 J. LEGAL WRITING INST. 163 (2004) (describing legal writing curriculum that includes teaching students to use technology to communicate).

41.   *See generally* BUILDING ON BEST PRACTICES, *supra* note 8 (published by the Clinical Legal Education Association and containing chapters on "Technology in the Profession" and "Use of Technology in Teaching"). *See, e.g.*, Stephen M. Johnson, *Teaching for Tomorrow: Utilizing Technology to Implement the Reforms of* McCrate, Carnegie, *and* Best Practices, 92 NEB. L. REV. 46 (2013) (arguing technology should play large role in implementing reforms in legal education, including experiential education); Robert Minarcin, *OK Boomer–The Approaching DiZruption of Legal Education by Generation Z*, 39 QUINNIPIAC L. REV. 29, 68–69 (2020) (describing the need for more experiential opportunities and infusion of technology in legal education).

42.   *See* Conrad Johnson & Brian Donnelly, *If Only We Knew What We Know*, 88 CHI.-KENT L. REV. 729, 730 (2013). In Columbia's Lawyering in the Digital Age Clinic, students work with non-profit organizations and the judiciary to leverage legal technology to meet clients' needs. *See About the Clinic*, LAWYERING IN THE DIGIT. AGE, http://blogs.law.columbia.edu/ldaclinic/about-the-clinic/ [https://perma.cc/4646-7REU].

43.   *See* Janoski-Haehlen, *supra* note 39, at 22, 25–49 (noting that over forty law schools have clinics or legal technology labs that incorporate legal technology into the experience); *see also* Sheldon

launched clinics in which students develop apps, online materials, host hackathons, and engage with other technology solutions for clients, pro se litigants, public interest organizations, and the courts.[44] In many of these programs, legal technology and/or innovation are the focus or primary methodology of the clinical work.[45] These efforts to teach technology within law schools have been at the vanguard of the legal technology revolution and have laid an important foundation for the instant project.[46] Nevertheless, until this past year, the explicit teaching of technology outside of technology- or innovation-focused clinical programs had been the exception, rather than the norm.[47] Clinics and externships, which occupy the

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Krantz & Michael Millemann, *Legal Education in Transition: Trends and Their Implications*, 94 NEB. L. REV. 1, 21–29 (2015) (describing examples of legal technology clinics).

44. There are a growing number of experiential courses that focus on preparing students to leverage technology in the practice of law. For example, Suffolk Law School's Legal Innovation and Technology Lab (LIT Lab) "allows students to work as part of a consultancy and research & development (R&D) shop focused on legal technology and data science work." LEGAL INNOVATION & TECH. LAB, https://suffolklitlab.org/ [https://perma.cc/H5QP-RQSZ]. Chicago-Kent's Justice & Technology Practicum teaches students about the "use of technology in the delivery of legal services to low-income litigants; the process of designing self-help resources at scale; and how emerging technology affects the ethical obligations of lawyers." *Justice and Technology Practicum*, CHI.-KENT COLLEGE OF L., https://www.kentlaw.iit.edu/courses/law-506-justice-and-technology-practicum [https://perma.cc/2X9M-QXQC]. Northeastern's NuLawLab combines the fields of art, design, and technology to prepare "legal inventors of the future." NULAWLAB, https://www.nulawlab.org/ [https://perma.cc/4AZE-44TW].

45. *See, e.g.*, NULAWLAB, *supra* note 44; LEGAL INNOVATION & TECH. LAB, *supra* note 44. Other clinical programs that focus on innovation and technology operate in the space of intellectual property. *See* Cynthia L. Dahl & Victoria F. Phillips, *Innovation and Tradition: A Survey of Intellectual Property and Technology Legal Clinics*, 25 CLINICAL L. REV. 95, 137 (2018) (describing how several intellectual property clinics engage in technology and innovation work).

46. Some of these legal technology clinics have also helped to spread the adoption of technology into other clinics. For example, after Suffolk's Legal Innovation and Technology (LIT) Lab launched, Suffolk's Clinical Programs launched the LIT Fellows program, through which student technologists are embedded in several other Suffolk clinics, taking on legal technology projects designed to serve those clinics' clients.

47. *See* Johnson, *supra* note 8, at 400–01 (describing how legal education, including clinical education, has lagged in "providing students with the structure and perspective they need to practice competently using technology"). *See also* Robert R. Kuehn, Margaret Reuter & David A. Santacroce, *2019-20 Survey of Applied Legal Education*, CTR. FOR THE STUDY OF APPLIED LEGAL EDUC. (CSALE) 6–8 (2020) [hereinafter CSALE] (survey of 1,521 distinct law clinics offered in the 2019-20 academic year revealed 37 clinics with a focus on intellectual property and technology). One program that integrates legal technology is Suffolk's Accelerator to Practice (A2P) Program, in which students learn about and employ law practice technology to serve clients in fee-shifting cases. This practice is designed to prepare students to join or launch small or solo law practices serving average income clients. *See* Jeffrey J. Pokorak, Ilene Seidman & Gerald M. Slater, *Stop Thinking and Start Doing: Three-Year Accelerator-to-Practice Program as a Market-Based Solution for Legal Education*, 43 WASH. U.J.L. & POL'Y 59 (2014).

nexus between legal education and legal practice, are uniquely situated—and indeed compelled—to take on this role more broadly.

The ABA has affirmed the role of clinical programs as indispensable in preparing practice-ready students by requiring all accredited law schools to provide "substantial" clinic and externship opportunities for students, and requiring all students to complete six credit hours of experiential education, defined as law clinics, field placement (or externships), or simulation courses.[48] The ABA went further, explicitly including legal ethics among the few required features of every experiential course.[49] In addition to six units of experiential education, the ABA requires that law schools offer at least a two-credit course in professional responsibility to all students.[50] The ABA's emphasis on legal ethics within the program of legal education, and its incorporation within the experiential standards in particular, suggest that the ethical components of clinical courses—including technological competency—deserve particular attention.[51]

The very project of clinical education lends itself to the task of teaching technology. Clinical programs are premised on the notion that the professional development of lawyers is incomplete without the opportunity for law students to inhabit the role of the lawyer prior to graduation and practice.[52] The experiential curriculum aims to expose students to the realities of law practice while teaching students to be reflective about their

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48. AM. BAR ASS'N STANDARDS AND RULES OF PROC., *supra* note 4, at § 303(a)(3). The other requirement includes a writing course in the first year of instruction and an additional writing experience that is supervised by a faculty member.

49. *See* AM. BAR ASS'N STANDARDS AND RULES OF PROC., *supra* note 4, at §§ 302, 304. Deborah Rhode noted that "clinics are an especially effective way of teaching legal ethics." Deborah L. Rhode, *Legal Education: Rethinking the Problem, Reimagining the Reforms*, 40 PEPP. L. REV. 437, 457 (2013).

50. AM. BAR ASS'N STANDARDS AND RULES OF PROC., *supra* note 4, at § 303(a).

51. *See* Stringfellow Otey, *supra* note 33, at 224–25 (arguing that technological professionalism must be taught in law school clinics and tracing the imperative from ABA's imperative of technological competence).

52. *See* LEGAL EDUCATION AND PROFESSIONAL DEVELOPMENT—AN EDUCATIONAL CONTINUUM, REP. OF THE TASK FORCE ON LAW SCHOOLS AND THE PROFESSION: NARROWING THE GAP 330–34 (1992) (also known as the "MacCrate Report") (recognizing the need for law schools to graduate practice-ready students and recommending law schools provide students with opportunities to perform lawyering tasks prior to graduation). MacCrate's recommendation for more practice-based legal education was later adopted in the ABA's requirement that all law schools require at least six credits of experiential courses. *See* AM. BAR ASS'N STANDARDS AND RULES OF PROC., *supra* note 4, at § 303(a)(3). The ABA distinguishes clinics from simulations and externships by their provision of a "substantial lawyering experience that involves advising or representing one or more *actual clients*." *Id.* at § 304(c) (emphasis added).

work, the experience of their clients, the communities they serve, and their roles in legal systems. By design, clinical pedagogy evolves in response to the changing needs of communities, clients, and the legal profession.[53]

Nevertheless, clinical legal education has not yet broadly embraced its leadership role in teaching the technology of lawyering. COVID-19 demonstrated the promise of clinical programs to emerge as a primary site within law schools for educating students in this area. As the survey data below demonstrate, clinics of all types, whether specializing in eviction defense or criminal defense, corporate transactions or class actions, were neck deep in the technology of practice during COVID-19.

II.   HOW CLINICIANS LEVERAGED TECHNOLOGY DURING COVID-19

We conducted a survey of clinical law faculty and teaching staff designed to learn how clinical programs and externships utilized technology in their clinical teaching and supervision during COVID-19.[54] It built on the work of the Center for the Study of Applied Legal Education (CSALE) which conducts a biannual comprehensive set of surveys of clinical and externship programs that include limited questions on the use of technology in clinical programs.[55] Our survey focused exclusively on the use of technology in clinical programs during the pandemic, and we draw on CSALE data for comparison. Our survey reveals that clinics made widespread, successful use of law practice technology during the pandemic. It also exposes opportunities for the future development of a technology-infused clinical pedagogy and practice across legal disciplines.

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53.   This imperative was recognized in the most recent update of Best Practices for Legal Education by the Clinical Legal Education Association. *See* Johnson, *supra* note 8; *see also* Pistone & Binford, *supra* note 8.

54.   Luz E. Herrera & Sarah R. Boonin, Law School Survey (Feb. 27, 2021) (unpublished survey) [hereinafter General Survey]. The survey instrument and results are on file with the authors. The study was deemed by both institutions to be minimal risk and therefore qualified for an "exempt" Institutional Review Board review pursuant to 45 CFR 46.101. Nevertheless, we worked with our Universities to obtain informed consent from all participants. IRB approvals from both Suffolk University and Texas A&M are on file with the authors.

55.   *See* CSALE, *supra*, note 47. CSALE's bi-annual surveys of clinical and externship programs have been vital in understanding the trends in clinical education since 2007. The last CSALE master survey was completed by 185 law schools. *See id.*

A. Survey Methodology

The survey was administered using Qualtrics and distributed in January 2021 to the Clinical Legal Education Association listserv managed by Washburn University. There were 121 respondents who participated in the survey, representing 32 states and U.S. territories, and 57 public and 57 private universities.[56] Approximately 65% of the respondents indicated that they teach in-house clinics, 2% indicated they teach in community-based clinics, and 27% of respondents indicated they teach an externship course.[57] Most of the remaining respondents taught hybrid clinics (like prosecutors' clinics), practicums, or simulation courses.[58]

Respondents taught clinics and externships in all of the seventeen substantive legal practice areas named in the survey, the most common being criminal defense/post-conviction/prisoner rights clinics (9%); business/transactional/entrepreneurship/community economic development clinics (8%); general civil ligation clinics (8%); health/disability/elder law (7%); civil rights (6%); housing (5%); and appellate advocacy (5%).[59] Approximately 8% of respondents did not identify with any of the options listed and indicated "other," which most commonly included veterans, consumer protection, and employment clinics.[60]

When asked to rate their level of comfort with law practice and teaching technology, approximately 85% of respondents indicated at least some level of comfort.[61] While 44% of these respondents indicated they were

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56.   General Survey, *supra* note 54, at questions 1–3. Respondents from the same law school are considered to represent independent, non-duplicative responses, as most schools offer several clinics, and often there are variations in terms of how those clinics operate or utilize technology.

57.   General Survey, *supra* note 54, at question 4. In designing and distributing the survey, we intentionally included both clinical programs and externship programs. Because some of our survey questions focused on aspects of direct case supervision, which is traditionally not a part of externship supervision, we re-ran the data for those questions including only those respondents who indicated they taught an in-house or community-based clinic. We label those results "Clinic Survey." Unless clarified, the reader can assume the results discussed include the full dataset of both clinics and externships, labeled "General Survey."

58.   General Survey, *supra* note 54, at question 5.

59.   General Survey, *supra* note 54, at question 6. The additional practice areas listed in the survey and proportion of respondents who identified with them are: juvenile defense/children's rights (1%), prosecution (3%), immigration (4%), education law (3%), intellectual property (3%), family/domestic violence (4%), environmental law (2%), human rights/international law (1%), legislative advocacy (2%), and tax (3%).

60.   General Survey, *supra* note 54, at question 7.

61.   General Survey, supra note 54, at question 12.

"somewhat comfortable" with law practice teaching and technologies, meaning that "with some support, [they] can readily apply new technologies," another 42% responded that they were "very comfortable" with it and "look forward to learning new technologies and applying them."[62] Only 10% of respondents identified as "neutral," defined as "open to new technology and will incorporate it when asked to, but [] do not seek out new technologies."[63] Respondents who described themselves as "somewhat uncomfortable," meaning they "try to avoid new technologies if possible and do not look forward to incorporating them into teaching or practice" were only 5% of our sample. No respondents self-identified as "very uncomfortable" with law practice and teaching technology.[64]

It is possible that these high levels of comfort with technology reflect a bias in our online survey methodology, which may have encouraged participation by those most comfortable with technology. Nevertheless, the results suggest that a sizable number of clinical faculty leaned into the use of technology during the pandemic.

## B.	The Clinical Seminar

Clinical seminars are the site of substantive legal education, skills-building, case rounds, discussions of justice and injustice, and significant reflection.[65] They tend to have smaller class sizes and play an important role in fostering collaboration and trust among clinical students. The survey sought to understand in what format clinicians were teaching their seminars during COVID-19.[66] Survey results suggest that during the 2020-21 school year, clinical seminars shifted from in-person to predominantly online, synchronous formats. Almost three-fourths of 108 respondents indicated that they taught their seminars *fully* online and synchronously in the fall of 2020.[67] In contrast, only 5% of respondents taught their seminars in a fully

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62.	General Survey, *supra* note 54, question 12. We rounded each of these numbers to the nearest whole number, which is why they do not add up perfectly.

63.	*See id.*

64.	*Id.*

65.	*See generally* DEBORAH EPSTEIN ET AL., THE CLINIC SEMINAR (2014).

66.	This data is not captured by CSALE, which is understandable given that, prior to COVID-19, the use of remote teaching for clinical seminars was not widespread.

67.	General Survey, *supra* note 54, at questions 8–9. Synchronous online teaching is used to describe students and teachers online at the same time for "live"—although remote—instruction.

in-person format during the fall of 2020.[68] Approximately 19% taught their seminars in a hybrid format.[69] Of that hybrid group, 12% indicated that their seminars contained both in-person and remote classes, while 7% involved some students learning in person while other students learned remotely.[70] Only 2% of respondents, all of whom described themselves as teaching externships, utilized mostly or exclusively asynchronous online instruction for seminar.[71] No in-house clinical seminars utilized mostly or exclusively asynchronous teaching. These teaching models remained fairly stable for the spring of 2021.[72] Nearly three quarters (74%) of respondents indicated that they used Zoom to teach their seminars.[73] The second most popular remote teaching software were Panopto (11% of respondents) and Microsoft Teams (10% of respondents).[74]

Survey results suggest that clinicians were not unhappy with their online seminars. A plurality of respondents, 48%, indicated that they were "neutral" about the impact of teaching technology (like Zoom) on their seminar teaching, meaning they could point to as many positives as negatives.[75] Another 30% stated that their seminars were "somewhat enhanced" by technology, with the technology providing more benefits than obstacles; and an additional 6% found their seminars were "significantly enhanced" by the use of technology.[76] Far fewer respondents, only 16%, indicated that technology was more of a challenge than a benefit to their seminar teaching, and only 1 of 101 respondents to this question stated that technology posed a "significant challenge" to teaching their seminar.[77]

Asynchronous online teaching involves recorded or self-guided content that a student can access on their own time.

68. *Id.* at question 8.
69. *See id.*
70. *See id.*
71. *Id.* at questions 8–9.
72. *Id.* at question 18. A slightly smaller portion of respondents, 69%, indicated that they expected to teach a fully online synchronous seminar. The percentage of those who indicated some hybrid instruction rose slightly to 22%. The percent teaching their seminar in-person (5%) and those teaching mostly asynchronously online (2%) remained stable.
73. *Id.* at question 24.
74. Other software utilized by respondents in teaching their seminars included Go-To-Meeting, Cisco WebEx, FaceTime, Google Meets/Google Hangouts, WhatsApp, and Blackboard Collaborative ultra. *Id.* at question 24.
75. *Id.* at question 39.
76. *See id.*
77. *See id.*

C. Clinical Supervision & Law Practice Technology

Clinical supervision includes supervised legal practice, as well as tailored instruction and guided reflection supporting that work. Our survey asked several questions about the format of, and tools used by clinicians to conduct, student-led client representation and supervision during COVID-19.[78]

1. Remote versus Live Clinical Practice and Supervision

As compared to the clinical seminar, which shifted overwhelmingly to a fully remote format,[79] clinical practice and supervision was more likely to occur using *hybrid* models. When looking at clinics only,[80] the supervision model during the fall of 2020 was nearly evenly split between fully remote and hybrid supervision. Forty-six percent of clinic supervisors conducted clinical case work and supervision using a fully remote model in the fall, while 47% conducted casework and supervision using a hybrid model involving some in-person and remote supervision.[81] Only 5% conducted fully live practice and supervision.[82]

In the spring of 2021, these patterns of supervision skewed slightly more toward fully remote practice and supervision, when 49% of clinic respondents indicated that they expected to conduct casework and supervision in a fully remote format.[83] Thirty-eight percent of respondents anticipated a hybrid model (26% of those respondents expected to supervise mostly remotely with limited live interactions and 12% anticipated

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78. General Survey, *supra* note 54. Our survey captured information about the format of supervision that has not been a part of the CSALE dataset. We asked specifically, "What has been your teaching and supervision model for clinical casework/field placements" for both fall 2020 and spring 2021? We defined supervision and casework as overlapping. A better approach may have been to ask about supervision models independently from casework, recognizing that student supervision might take place remotely, while casework might involve some court appearances or in-person advocacy. *See id.* at questions 10, 20.

79. *See supra* Section IIB.

80. For this section, we excluded from the dataset responses by clinicians who indicated they taught externship courses. We refer to results from this dataset as "Clinic Survey."

81. Luz E. Herrera & Sarah R. Boonin, Law School Clinic Survey, question 10 (May 13, 2021) (unpublished survey) (on file with authors) [hereinafter Clinic Survey].

82. *See id.*

83. Clinic Survey, *supra* note 81, at question 20.

supervising some students fully online and others in person).[84] Interestingly, for both fall and spring, externship supervisors were more likely than in-house clinicians to report that their students engaged in live practice and supervision at their field placements.[85] As with the clinical seminar, the vast majority (76%) of clinicians used Zoom as their video conferencing technology for remote supervision.[86]

A plurality of respondents teaching both externships and clinics—42%—reported that technology either somewhat (28%) or significantly (14%) enhanced their clinical practices.[87] Just under one-third of respondents (32%) found the integration of technology to be "neutral," having as many positive as negative impacts.[88] Only 24% indicated that technology was more of a challenge than a benefit to their clinical practices, and a mere 2% stated that technology posed significant challenges to their practices.[89]

2. Law Practice Technologies Utilized

In conducting case work and supervision during the COVID-19 pandemic, clinicians used a broad range of technologies to facilitate partially or fully remote legal practices and supervision. The survey asked respondents to identify a range of technologies used in their clinical practices and supervision, including video conferencing technologies, case management systems, collaborative and team-based tools, email, virtual or remote desktops, and shared network drives, as well as phone calling

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84.   *See id.* The remaining 1% of these respondents described a model in which faculty perform live casework while students are remote. Small numbers (3%) anticipated fully in-person supervision. *See id.*

85.   When externship supervisors are included in the data, the percent of those describing fully live supervision and practice increases to 4%, the percent of hybrid supervision increases to 21%, and the percentage of fully remote supervision drops to 40%. General Survey, *supra* note 54, at question 20.

86.   Clinic Survey, *supra* note 81, at question 27. Other tools used for remote supervision included Microsoft Teams (16%), and small numbers of respondents reported using Go-To-Meeting, Cisco WebEx, Facetime, GoogleMeets/Google Hangouts, WhatsApp, and Panopto. *See id.*

87.   General Survey, *supra* note 54, at question 41.

88.   *See id.*

89.   Clinic Survey, *supra* note 81, at question 41. Among those who supervise only clinics, the data was almost identical—with 43% stating that technology either somewhat or significantly enhanced their clinical practices. *See id.* Thirty-two percent said it was neutral, and 23% said more of a challenge. *Id.* Only 3% said it posed significant challenges. *Id.*

options and texting/instant messaging tools. Collectively, these tools represent the "technology of lawyering" employed by clinics.[90]

First, we found that 95% of respondents described using collaborative or team-based tools and technologies in their practices.[91] These technological tools include cloud-based software such as OneDrive, Google Drive, and Microsoft Teams. They allow multiple authors to view, edit, and comment on documents; allow team members to share new documents with one another; permit instant messaging or video calls; and facilitate calendaring and communication.[92]

Next, clinicians made greater use of case management software during the pandemic.[93] Case management products manage a range of functions for lawyers and firms including: client intake, case file management, document management and automation, contact management and conflict checking, calendaring, timekeeping and billing, financial reporting, trust accounting, and the ability to run reports and gather statistics about law practices.[94] Overall, case management programs were nearly ubiquitous in clinics, with 91% reporting they used some case management system and approximately 80% of respondents using commercial case management products.[95] Clio was by far the most popular product, utilized by 68% of respondents. The second most common law practice management product was Time Matters, used by approximately 5% of the respondents.[96]

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90. Here again, we removed the responses from externship supervisors, referring to the results as Clinic Survey. The survey queried about a broader range of law practice technologies than CSALE. CSALE captures data on case management software, use of a dedicated intranet, cloud computing, and cell phone use. *See* CSALE, *supra* note 47, at 36–37.

91. Clinic Survey, *supra* note 81, at question 22.

92. Respondents were able to choose multiple responses to this question. The most common collaborative tools were OneDrive (22%), GoogleDrive (20%), and Microsoft Teams (19%). Clinic Survey, *supra* note 81, at question 22. A smaller but substantial subset used Box (13%) and DropBox (8%). *Id.* Other collaborative tools utilized by clinical faculty included Sharepoint, Slack, Teams, Zoom, Google, Blackboard, Moodle, and Canvas. *Id.* at question 23.

93. According to the latest CSALE data, 77% of law clinics reported using case management software in their clinics, up from 73% in 2013-14, and up from 49% in 2010-11. *See* CSALE, *supra* note 55, at 36.

94. *See* Bob Ambrogi, *New Practice Management Platform Debuts; How it Differs from the Others*, LAWSITES (June 1, 2020), https://www.lawsitesblog.com/2020/06/new-practice-management-platform-debuts-how-it-differs-from-the-others.html [https://perma.cc/2VMQ-PM9R].

95. Clinic Survey, *supra* note 81, at question 16.

96. Clinic Survey, *supra* note 81, at questions 16–17. Other case management programs used by individual clinics included MyCase, Rocket Matter, ClinicCases, and LegalServer. *Id.* Two respondents indicated that their institutions created custom-built servers for case management. *Id.* at question 17. Still other clinicians reported using generic document sharing applications, such as Microsoft Teams,

The survey asked respondents how they effectuated remote access to their case-related files and documents during the pandemic.[97] Remote access technology refers to various methods of allowing users to access case files, computer applications, and network drives from alternate locations.[98] Remote access tools allow students and faculty to see, add, and edit client files while off-site using their personal devices. Many of these tools provide added data security for clinical programs, for example, by allowing students and faculty to access client files without storing those files on hundreds of personal devices that rotate with the students each semester or school year, and without transferring sensitive documents via email.[99] Remote access can take many forms, with the most common being VPNs (Virtual Private Networks) and VDIs (Virtual Desktop Infrastructures).[100] Only 39% of respondents indicated their students used remote access technology.[101] Approximately a third (31%) of those who used the technology required their students to use the remote access tools for all of their clinic work,

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OneDrive, Excel, DropBox, NetDocuments, and Slack, in lieu of case management programs. *Id.* While the percentage of clinicians using case management systems increased substantially over the most recent CSALE data, both data sets show Clio as the most popular system, followed by TimeMatters. *See* General Survey, *supra* note 54, at question 16.

97.   The survey asked respondents about their use of "virtual or remote desktops" in their clinics, intending to inquire about remote access more generally. A better question would have been to ask about "remote access, such as virtual networks or remote desktops." CSALE does not query about remote access specifically, but rather asks about a "dedicated intranet" that may be accessed remotely, as well as the availability of "cloud computing." The 2019-2020 CSALE survey found in that 60% of clinics had a dedicated intranet, with 79% accessible from outside the law school. *See* CSALE, *supra* note 47, at 36. CSALE found 64% of clinics used cloud computing. *See id.*

98.   *See, e.g.*, Paul Reissner, *Remote Access Technology and You: A Guide for the SMB*, DATAPRISE (Nov. 19, 2020), https://www.dataprise.com/resources/blog/remote-access-technology [https://perma.cc/7FSH-BY3K].

99.   *See, e.g.*, Catherine Hernandez, *The Top Benefits of Remote Desktop Services*, IT BRIEFCASE (May 2, 2018), https://www.itbriefcase.net/the-top-benefits-of-remote-desktop-services [https://perma.cc/62ZN-XXPS] (listing data security as number one benefit of remote desktop services).

100.   A VPN is a "virtual private network" that allows the user to connect securely to institutional drives, folders, and printers via the internet to access, read, and edit documents remotely. A VDI, or "virtual desktop infrastructure," allows a user to log onto a virtual computer set up by the institution, complete with the documents, drives, programs, and applications (like Adobe, PowerPoint, Word), and web browsers that are set up on the virtual desktop. A VDI transforms a laptop or home computer into a work computer. When working within a VDI, a student or faculty member is actually working on the institution's computer, but doing so through their personal device. *See Remote Access: The Difference Between VPN, RDS and VDI*, NTIVA INC. (July 24, 2018), https://medium.com/@Ntiva/remote-access-the-difference-between-vpn-rds-and-vdi-4a94d4db4c5a (last visited Jan. 11, 2022).

101.   Clinic Survey, *supra* note 81, at question 31.

whether conducting that work at the law school or at home.[102] Interestingly, a significant number of respondents identified virtual or remote desktop technology as an unmet need.[103]

Relatedly, we asked clinicians whether their schools provided them with "private" (clinic only) shared network drives.[104] Shared network drives are directories housed on institutional servers and closed to all but one person or accessed by all members of a clinic. Shared network drives can be accessed remotely with the appropriate technology.[105] Approximately 68% of respondents reported that their law schools provided shared network drives dedicated to their clinics.[106] Roughly 26% stated they did not have shared drives, and the remainder did not know whether they had access to shared network drives.[107]

Finally, the survey asked respondents about their use of some of the oldest and most common communication technologies—email, texting, and phones. The survey asked whether clinic students had dedicated clinical email accounts, separate and apart from their school-issued email accounts.[108] Clinic-specific email accounts afford a number of advantages over generic school-issued email accounts in terms of account control, duration of access, and data security.[109] Only 39% of respondents indicated

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102. *Id.* at question 32. Approximately 48% of respondents who use the technology indicated that students had the *option* of using the remote access technology, and 14% required remote access tools only when students were working remotely. *Id.*

103. General Survey, *supra* note 54, at question 50 (6%, including clinics and externships). The lack of widespread adoption of remote access tools within clinics may be due to—or perhaps has resulted in—the reliance on cloud-based document storage systems like Google Drive, OneDrive, Microsoft Teams, and even cloud-based case management systems like Clio.

104. *See* Clinic Survey, *supra* note 81, at question 34. This is similar to CSALE's question about "dedicated intranet," and our results show an increase in usage of this technology, up from 60% in the 2019-20 CSALE Survey. *See* CSALE, *supra* note 47, at 36.

105. Shared network drives, which house all data on institutional servers, may be contrasted with cloud-based storage tools like DropBox or GoogleDrive. These tools may also be viewed as collaborative tools. *See supra* note 92.

106. Clinic Survey, *supra* note 81, at question 34.

107. *See id.*

108. *Id.* at question 29.

109. The advantages of clinic-specific email addresses include: 1) the ability for programs to disable the clinic email addresses at the end of a student's time in clinic, even as they maintain access to their institutional accounts; 2) the ability to disable automatic forwarding to other less secure email platforms; 3) more robust security and customization; 4) the ability for programs to set auto-reply messages from clinic accounts directing correspondence to the appropriate clinical faculty members; 5) helping students to separate their "work" from their personal correspondence—much like they will do in workplaces after they graduate; 6) the ability to link clinic email addresses to other clinic technology accounts, like case management software, Zoom, virtual desktops, etc., and all of this can be disabled

that their students had clinic-specific email accounts.[110] Another 46% indicated they used email encryption technology to secure emails and their attachments.[111] The lower rates of adoption of clinic-specific email and email encryption suggest that, while email usage has been a mainstay of clinical practice for some time, clinicians have yet to adopt best practices for email. In fact, when asked about unmet technological needs, several respondents listed the need for clinic-specific email accounts and email encryption among them.[112]

In recent years, phone technology has undergone a transformation. Calls can now be made and received from virtually anywhere on a range of devices. Social media and web-based calling and video apps have vastly expanded the options for synchronous and asynchronous communication, and texting has become a primary mode of communication.[113] We found that clinics are employing a range of strategies in the face of this evolving technology.[114] A plurality (43%) of respondents reported using their personal cell phones for case work and supervision, with the remainder using a patchwork of other solutions, the most common being Google Voice (19%) and call forwarding from their offices to their cell phones (13%).[115] The phone technologies employed by students were similar but reflected

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with the email addresses upon graduation; and 7) the ability to limit clinic email access on cell phones and other devices.

110. Clinic Survey, *supra* note 81, at question 29.

111. *Id.* at question 30.

112. *Id.* at question 50. Ten percent of respondents indicated an unmet need for email encryption technology in their clinics and 9% identified the unmet need for clinic-specific email accounts. *Id.* This put email needs as the second most commonly identified unmet needs behind phone and texting options for students.

113. *See* Aaron Smith, *U.S. Smartphone Use in 2015*, PEW RSCH. CTR. (Apr. 1, 2015) https://www.pewresearch.org/internet/2015/04/01/us-smartphone-use-in-2015/ [https://perma.cc/38WW-UJVR].

114. *See* Clinic Survey, *supra* note 81, at questions 35–38. The most recent CSALE data from 2019-20 revealed that 77% of clinics permitted students to use personal cellphones in clinic work. *See* CSALE, *supra* note 47, at 36. Our survey asked separately about clinicians' use of cell phones and students' use of cell phones, and additionally it inquired about use of internet-based calling and other technologies such as GoogleVoice. We found a substantially smaller percentage of our respondents relied on personal cell phone use. This likely reflects the fact that we included other calling technologies in our list of potential responses. *See* Clinic Survey, *supra* note 81, at questions 35, 37–38.

115. Clinic Survey, *supra* note 81, at questions 35–36. Seven percent used Microsoft Teams, 4% used products like Vonage or RingCentral, and approximately 13% were able to use their office phone numbers from their cell phones or laptops. *Id.* There were approximately 10% who chose "other" and specified calling options such as WhatsApp, Zoom, Cisco Jabber, and Skype. *Id.*

more widespread use of Google Voice.[116] Only a handful of respondents indicated that either they or their students had access to clinic-issued cell phones.[117] These results suggest the need for a better understanding of the risks and benefits of web-based phone calling options, texting apps, and more widespread integration of vetted and secure phone calling and texting options into clinical practice.

D. Technology Trainings and Policies

Understanding how to safeguard client data is an important element of ethical practice, and thus of the clinical curriculum.[118] The survey queried about the existence of policies and procedures governing the use of technology and data security in clinical programs, as well as trainings for students on the proper use of technology in clinics.[119]

The overwhelming majority (84%) of clinicians reported providing some type of training to their students on the proper use of technology in their clinical practices.[120] The format of these trainings was predominantly written guidance (34%), online trainings (33%), and in-person trainings (29%).[121] On the other hand, only 59% of clinicians surveyed indicated that their clinics or law schools trained their students on data security.[122] When asked to describe the types of data security trainings provided to students, 55% of this group described in-person or online trainings, whereas 41% provided written guidance, and 4% stated that they provide the training through remote seminar, in-class guidance, and synchronous virtual

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116. Forty-four percent of respondents indicated their students use personal cell phones, and 26% used GoogleVoice. Clinic Survey, *supra* note 81, at question 37–38.

117. Clinic Survey, *supra* note 81, at questions 35–38.

118. *See* MODEL RULES OF PROF. CONDUCT r. 1.1, 1.6 (ABA 2021) (covering competency and confidentiality). *See also* AM. BAR ASS'N STANDARDS AND RULES OF PROC., *supra* note 4, at §§ 302(c), 304(a)(1) (requiring integration of legal ethics into clinics and externships).

119. CSALE does not currently collect data on data security and technology use policies, but we hope they might consider doing so in the future. Clinical faculty were presumed to have developed or participated in the student trainings, although this may not be universally the case. *See* CSALE, *supra* note 47.

120. General Survey, *supra* note 54, at question 45.

121. *Id.* at question 46. Other methods included in-class guidance, technology manuals, and orientation programs. *Id.* at question 47.

122. General Survey, *supra* note 54, at question 42. This number was even lower (54%) when limiting the results to those who teach in-house or community-based clinics. Clinic Survey, *supra* note 81, at question 42.

training.[123] The majority of clinicians surveyed, therefore, do not appear to provide their students with written data security policies—and a substantial proportion of programs surveyed have no such policies at all. The results reveal an urgent need for greater development and dissemination of policies and trainings on the proper use of technology and data privacy in clinical practice.

Overall, our survey results reveal that the adoption of technology in clinical programs during COVID-19 was widespread and largely successful. And as is the case in other law-related workplaces, many clinicians are looking to maintain elements of this transformation post-pandemic.[124]

III. A CLINICAL APPROACH TO TEACHING THE TECHNOLOGY OF LAWYERING

Having established that clinical programs are tasked with playing a central role in preparing technologically competent lawyers, and demonstrating that clinics and externships did just that during COVID-19, we argue that clinicians are positioned to be leaders in teaching this technology to students, regardless of the substantive area of law in which their clinics specialize.[125] We offer reflections on how teaching the technology of lawyering may enrich clinical pedagogy and identify vital elements of an infrastructure that can support the incorporation of technology into clinical practice. While the discussion largely centers on the pedagogy and practice of in-house clinics, our data included a significant

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123. General Survey, *supra* note 54, at question 43. Respondents could select multiple answers to this question.

124. *Id.* at questions 52–53. Seventeen percent of all respondents indicated they plan to continue using video conferencing tools like Zoom in their clinical teaching and practice. *Id.* Thirteen percent of all respondents, and 14.5% of those who teach in clinics, plan to continue using online case management programs, like Clio and Time Matters. Eleven percent plan on using online collaboration tools, like Teams and Slack. *Id.* Significant portions of our respondents also plan to use other law practice management tools, such as shared network drives (8%), various calling technologies (5%), remote or virtual desktops (5%), email encryption (5%), clinic-specific email accounts (5%). *Id.*

125. We are not the first to make this claim. *See* Pokorak et al., *supra* note 47 (developing a replicable model of education and practice that includes law practice management technology); Margaret Martin Barry, John C. Dubin & Peter A. Joy, *Clinical Education for This Millennium: The Third Wave*, 7 CLINICAL L. REV. 1, 50–52 (2000) (predicting transformation of clinical education in "digital age"). *See also* Kimberly E. O'Leary, *Weaving Threads of Clinical Legal Scholarship into the First-Year Curriculum: How the Clinical Law Movement is Strengthening the Fabric of Legal Education*, 26 CLINICAL L. REV. 357 (2019) (describing law practice technology as one thread of clinical scholarship).

number of externship educators. We hope some in that community will find value in this conversation and expand upon it in ways that respond to their unique needs.

A. Applying the Lens of Clinic Pedagogy

The merger of education and practice that lies at the heart of clinics and externships has sparked the development of a rich, varied, and constantly evolving clinical pedagogy.[126] A comprehensive distillation of clinical pedagogy and a discussion of the ways that technology can enrich clinical pedagogy are beyond the scope of this Article.[127] We instead use a brief overview of the seven goals of clinical pedagogy identified by Susan Bryant, Elliot S. Milstein and Ann C. Shalleck in *Transforming the Education of Lawyers: The Theory and Practice of Clinical Pedagogy* to illustrate how teaching the technology of lawyering might fit within an existing clinical pedagogical framework.[128] While pedagogical choices and priorities vary across programs and from year to year, we propose that the thoughtful integration of technology within any clinic can reinforce the teaching goals and values that are the hallmark of clinical practice.[129]

A primary goal of clinics is to help students integrate their personal and professional identities.[130] Thoughtful deployment of technology in clinical settings can spark exploration of the boundaries of professional relationships, particularly the attorney-client relationship, as mediated by technology. It can also implicate personal boundaries and student

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126. *See* Barry, Dubin & Joy, *supra* note 125, at 16–18 (providing a history of clinical "methodology").

127. Given the *Journal*'s space constraints, it is impossible to cite all the relevant clinical pedagogy. An excellent resource for readers interested in clinical pedagogy is the bibliography compiled by CLEA and used to train new clinicians. *See* CLINICAL LEGAL EDUCATION ASSOCIATION, HANDBOOK FOR NEW CLINICAL TEACHERS 33–45 (May 2019) (available at https://wustl.app.box.com/file/880686788556 [https://perma.cc/3T7M-WNEW]).

128. SUSAN BRYANT, ELLIOTT S. MILSTEIN & ANN C. SHALLECK, TRANSFORMING THE EDUCATION OF LAWYERS: THE THEORY AND PRACTICE OF CLINICAL PEDAGOGY 4–6, 14–26 (2014). Bryant et al. describe the four clinical methodologies—fieldwork, supervision, seminar, and rounds—as operating collectively in service of seven broad learning goals for clinical teaching.

129. Other scholars may apply different pedagogical lenses when examining how to teach the technology of lawyering clinics. *See, e.g.*, Stringfellow Otey, *supra* note 33, at 235–36 (using Sue Bryant and Jean Koh Peters' Five Habits).

130. *See* BRYANT ET AL., *supra* note 128, at 14–17.

wellbeing.[131] The technology of lawyering impacts the identity of the lawyer in virtually every dimension: as advisor, navigator, interpreter, and advocate.[132] By helping students explore the impacts of technology on their multiple identities, clinicians can help prepare students for what will undoubtedly be an ongoing process of personal and professional redefinition in the digital age.

A second goal in clinical education is to increase understanding of how the law functions in people's lives.[133] Technology has transformed not only legal practice, but clients' relationship to the law and legal institutions. Clinical students using technology to serve clients can explore issues of unequal access to technology, as well as the ways in which innovation transforms clients' experiences with legal information and processes for better and worse. Training students to critically examine the role of technology in their clients' lives reinforces for students that lawyering is not about lawyers; it is about clients. It helps students develop critical insights from a perspective other than their own.

As clinical practice operates under real-life conditions of instability and change, clinical pedagogy aims to improve students' capacity to manage uncertainty, exercise judgment, and take action under imperfect conditions.[134] Technology itself can be disruptive, it is ever-changing, and it is not always reliable. The technology of lawyering can be leveraged by clinicians to teach problem solving, flexibility, and adaptation in real life applications. For example, clinicians can help students prepare for uncertainty and equip them to provide direction to clients who experiences technical failures or face barriers to accessing technology.

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131. *See* Brittany Stringfellow Otey, *Buffering Burnout: Preparing the Online Generation for the Occupational Hazards of the Legal Profession*, 24 S. CAL. INTERDISC. L.J. 147 (2014) (arguing that stress management skills become more important for millennial lawyers, who have 24-7 access to work and social technology, and proposing best practices to foster wellbeing). *See generally* SHAILINI JANDIAL GEORGE, THE LAW STUDENT'S GUIDE TO DOING WELL AND BEING WELL 13–48 (2021) ("cultivating focus in the 24/7 digital age").

132. Susan Bryant, *The Five Habits: Building Cross-Cultural Competence in Lawyers*, 8 CLINICAL L. REV. 33 (2001) (describing the Five Habits of cross-cultural lawyering that have been widely adopted as seminal components of clinical pedagogy).

133. *See* BRYANT ET AL., *supra* note 128, at 17–19 (describing goal two as seeking to "increase understanding of how law, the legal system, and other institutions function in the lives of people, particularly the most marginalized.").

134. *Id.* at 19–20.

Clinical education also provides opportunities for students to develop new modes of "thinking like a lawyer."[135] The deployment of technology transforms how attorneys communicate their clients' stories, as well as how judges and others receive this information. Legal technology can offer rich opportunities for clinical students to engage in new modes of narrative and creative thinking and reflect on the impact of technology on those processes.

By teaching students to critically assess and thoughtfully apply new law practice technologies, clinical programs can help students develop a lifelong commitment to learning in a professional setting.[136] Today's lawyers must continually learn to deploy new technologies; exposure in clinics can prepare students for that ongoing learning. Engagement with online tools that facilitate collaboration can build twenty-first century teamwork skills.[137] Involving students in an exploration of their own learning around technology can also help students develop metacognition.[138]

Another important goal of clinical education is supporting students in the development of skills associated with the human dimension of practice.[139] Our modes of human interaction were radically transformed during the pandemic. By using technology in practice, students can learn new ways of making connections with clients, factfinders, and others. Clinicians can help students reflect on how and why technology facilitates and hampers client relationships, offering new insights into client-centeredness and cultural competency.[140] By helping students center the perspectives and experiences of clients within technology, clinicians can help students recognize their own biases, assumptions, and privileges.

Finally, clinicians can employ the technology of lawyering in teaching a range of lawyering skills.[141] The skills associated with leveraging

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135. *Id.* at 21–23.

136. *Id*. at 23–25.

137. The process of collaboration is identified by Bryant et al. as consistent with building a lifelong commitment and skills to learn in professional settings. *Id.* at 23–24.

138. *Id.* at 25.

139. *Id.* at 25–26.

140. *See generally* DAVID A. BINDER ET AL., LAWYERS AS COUNSELORS: A CLIENT CENTERED APPROACH (3d ed. 2012); William H. Simon, *Lawyer Advice and Client Autonomy: Mrs. Jones's Case*, 50 MD. L. REV. 213 (1991) (describing and critiquing various models of client-centered lawyering); Bryant, *supra* note 132 (discussing the role of culture in lawyering and describing a process that lawyers can use to avoid or recover from cultural blinders); *see also* Steenhuis & Colarusso, *supra* note 15, at 29 (describing how Document Assembly Line project in legal technology lab taught students to listen differently).

141. *See* BRYANT ET AL., *supra* note 128, at 27–29.

technology necessarily cut across client interviewing, client counseling, persuasion, story-telling, and oral advocacy, to name a few. By integrating the technology of lawyering into core skills development, clinical programs can better prepare students to transfer and apply their lawyering skills in the technology-infused legal settings into which they will emerge as attorneys. Clinicians can engage students in identifying the ways in which various technologies impact the execution of different lawyering skills and offer feedback to students that specifically addresses their deployment of technology.

This application of the technology of lawyering to one model of clinical pedagogy barely scratches the surface. Nevertheless, we hope it sparks further exploration of the ways in which the technology of lawyering may enhance this and other approaches to clinical pedagogy. In the next section, we offer practical guidance on incorporating the technology of lawyering into clinical practice as a way to begin working toward these broad goals.

B. Building a Programmatic Infrastructure for Technology

Technology as a pedagogical tool is only part of the picture in the clinical context. For clinicians, the task is to help students navigate the realities of a digitized law practice in real time and under the most dynamic of conditions. During COVID-19, many clinics deployed technology as-needed and with little advanced planning. As our experience with COVID-19 evolves, clinical programs will remain laboratories of technological practice within law schools. To create the best clinical learning and teaching environment around technology, clinics should consider building an "infrastructure" that can support the technology of lawyering. We describe some core elements below.

First, clinical programs should consider adopting technology holistically. Rather than a piecemeal or reactive approach, clinical programs should consider adopting a suite of technologies that collectively meet programmatic needs. Clinical programs should investigate which technologies will work in coordination with others, including which technologies can integrate with one another and which may be duplicative.[142] The needs of clinical programs will vary, but a

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142. For example, we both employed virtual desktop technology (VDI) for all clinical work in our clinics but neither Zoom nor the video feature of Microsoft Teams work through our VDI. Our

comprehensive clinic technology plan might include, at a minimum: a professional case management system (e.g., Clio, Time Matters), secure video conferencing technologies (e.g., HIPAA Zoom, Microsoft Teams), collaboration or teamwork tools (e.g., Microsoft Teams, Slack), secure and dedicated clinic email addresses, virtual or remote desktops for clinic-use only, shared network drives for clinic-use only, secure printing, phone calling technologies, and secure texting/messaging.[143] This list will necessarily evolve over time.

Next, clinical programs should prioritize meaningful remote access to the various technologies for students, faculty, staff, and clients. It is not enough to have a case management system. Individuals need to access that system from remote locations. For clients, this may mean accessing technology on smart phones, as well as in settings with limited or inconsistent internet. For students, staff, and faculty, this might mean a VDI system that allows the team to access case files and computer programs securely from home, court, or elsewhere.

The survey results also highlight the importance of marshalling institutional support prior to adopting technologies. Such support includes financial support, IT support, and risk management or legal support in negotiating contracts with vendors. It also includes the budget necessary for customization and training, even for technologies offered for free to law school clinics.

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programs provide clinical students with dedicated clinical email addresses, which are the foundation for all other clinic-related technology accounts.

143. While email has been around since before most law students were born, the way in which we access email has changed. Email is now easily accessed on cell phones and tablets, as well as via web browsers on personal or even public computers. Emails can send and receive large attachments using ZipDrives and other tools. Many law school email accounts have significant storage capacity, retaining the entirety of a student's sent and received emails over the duration of their time in school and beyond. Many universities and law schools, recognizing the power of emails in engaging alumni, generally give their students access to their email accounts for life. These school email accounts can be automatically and invisibly forwarded to free accounts like those offered from Gmail. Given the evolution of email technology, law school clinical programs have significant security concerns to consider with student email accounts. Some questions that clinical programs need to ask include: What are the pros and cons of cloud-based access to emails? Is it safe for students to forward emails to personal accounts? What level of data security do various email accounts offer? What are the policies in terms of third-party access? What type of access, if any, should University or Law School personnel outside of clinic have to clinic email accounts? What are the best methods of email encryption, and when should it be employed? Some of these questions should be answered in a comprehensive technology policy. *See supra* note 109 (discussing advantages of clinic specific email accounts).

This inquiry revealed that many clinical programs lack robust data security policies and/or policies governing the use of technologies in clinic.[144] The experience during COVID-19 for some clinicians (largely by necessity) may have been to provide access to various technologies and let their tech savvy students "figure it out." [145] Comprehensive policies are important to ensure client data is secured in accordance with ethical obligations, as well as state and federal laws.[146] These policies should also include parameters for how and when technologies may be accessed. Technology that is deemed sufficiently secure for use on a school computer or a home laptop via a secured VDI may not be adequately secured when accessed by a student on a smart phone or over a public internet connection. Clinical programs should provide training to their students, faculty, and staff on these policies.

Finally, rather than taking an ad-hoc approach to assessing new technologies, clinicians should develop a set of standards and a process by which to do so.[147] Standards might include the degree of third-party access to data and accounts, ownership/control over data, cost, the terms of use and licensing provisions, user versus institutional control over account settings, and whether and how the technology will integrate with the existing suite of clinic technology utilized. The evaluation process might include a panel of students and faculty to review new technologies, weigh the risks and benefits of their adoption against the standards identified, and make recommendations on their adoption in the clinical setting. Participation by students offers valuable, transferrable lessons for practice.

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144. *See* General Survey, *supra* note 54, at questions 42–43; *see also supra* Section IID.

145. *See, e.g.*, Volini, *supra* note 34, at 53 (describing the myth that millennials understand technology and don't require instruction and training); Canick, *supra* note 37, at 665 (describing the "misperception that current students already 'get it'" with respect to incorporating technology in the legal curriculum). "Students' abilities are oriented toward their personal, social, and educational needs, and may not be well matched with professional skills needed in the practice of law." *Id.*

146. *See, e.g.*, MODEL RULES OF PROF. CONDUCT r. 1.6(c), 4.4(b) (ABA 2021).

147. *See* Stringfellow Otey, *supra* note 33, at 262 (recommending that clinics require students to review and sign a "technology user agreement" and providing a sample).

CONCLUSION

Teaching students to leverage the technology of lawyering has steadily evolved into an imperative within clinical education. Recognizing their role in preparing students for digitized legal workplaces, clinical programs can and should embrace the integration of technology into their teaching and practices. Clinicians must pivot away from thinking of clinic technology as a set of tools to be "used," and instead consider the technology of lawyering as linked to other core elements of clinical pedagogy and practice. Technology is an aspect of the clinical curriculum that should be thoughtfully designed, explicitly taught, critically examined, and refined.

Clinical pedagogy and practice offer uniquely fertile ground for deep exploration and innovation in this area. Clinical programs have an opportunity and obligation to equip law students with the foundational practice habits, ethical frameworks, and values necessary to apply technologies thoughtfully, creatively, and responsibly in practice. We hope clinicians will build upon, criticize, reimagine, and cultivate the modest seeds we have sewn in this Article. We hope CSALE might find these results helpful and consider adopting some of our survey questions or similar ones into their future work.