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In 2012, a team of students in our class on "Technology, Innovation and Law Practice" built a web-based application (app) called "Same-Sex Marriage Adviser."[1] The app, which covered fifty states and the District of Columbia, used an automated interview to help users determine whether they could get married or enter into a domestic partnership in their home state and, if so, how such a relationship might affect their other legal rights. The app described available state law benefits, such as hospital visitation and inheritance rights, possible disadvantages, such as the requirement to register, and limits on any federal benefits available as a consequence of the Defense of Marriage Act. After going through the interview, which usually took about three minutes, the user received a brief overall assessment statement.[2] The user could also view a customized full report that described the information the user had provided and set forth more specific detailed guidance based on this information.[3] At the start of the interview, the

1. *See* Brittany Clement et al., *Same-Sex Marriage Adviser*, Georgetown Law Legal Expert System, https://lawstudents.neotalogic.com/a/lgbtmarriage (last visited Apr. 22, 2013). The app was built by Brittany Clement, GULC '13, Hallie Sears, GULC '13, and Lisa Umans, GULC '13.

2. This assessment might read: "Because you live in New York, you and your partner can get married and receive the same benefits that heterosexual married couples in New York receive, including hospital visitation rights, automatic inheritance, and joint state tax filings."

3. The final report might explain as follows:

Children: You indicated that you or your partner has one or more child from a prior marriage. Since you live in a state that allows same-sex marriage, you may be able to petition your state as same-sex co-parents to adopt the child. Please check with your state's marriage laws to find out.

app asked the user to acknowledge that she understood that the app was not providing legal advice. In the final report, the app also advised the user to contact an attorney if she had further questions about the effects of entering a formal relationship on the user's rights.4

In designing an automated adviser that could help same-sex couples determine whether they could and might want to formalize their relationship, the students sought to build an app that served an important unmet need. Whereas most heterosexual couples get married without giving much thought to the legal effects of marriage, for same-sex partners the decision is much more complicated, involving considerations beyond the question of whether the law of one's state recognizes marriage or civil union. Many couples are unable to afford the cost of consulting a lawyer about the implications of obtaining formal recognition of their relationship. Others may want to understand their legal rights before deciding whether to seek legal advice.

In addition to the same-sex marriage adviser, student teams in our class built legal expert systems intended to help users navigate other areas of law, including copyright, criminal procedure, citizenship law, and business law.5 The apps in the course, which were demonstration projects, were designed for users who could read at a ninth grade level.

Georgetown is not the first to offer a course in which students build apps in a law school class. Since 2010, Professor Ron Staudt, a pioneer in the field, has taught a Justice and Technology Practicum at

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Age Difference: We noticed you said that you and your partner have an age difference of ten years or more. In that case, you may want to check your state's marriage laws to find out details about certain rights and privileges that may attach to your marriage, such as non-taxable inheritance and automatic inheritance. Also note that marriage typically voids your and/or your partner's existing wills, so you will want to make new wills, should you get married.

. . .

Confidentiality: You indicated that you and your partner would like to keep your union confidential. If you want to get married, the only state that allows for confidential marriages is California. You might want to talk this over with your partner before you come to a final decision about getting married.

4. For a discussion of the unauthorized practice issues that arise around software applications, *see* Marc Lauritsen, *Liberty, Justice, and Legal Automata*, 88 CHI.-KENT L. REV. 945 (2013).

5. *See* Stacey David & Bill Cheng, *The Copyright Navigator*, GEORGETOWN LAW LEGAL EXPERT SYSTEM – STUDENT PROJECT, https://lawstudents.neotalogic.com/a/copyright (last visited Apr. 28, 2013); *Vehicle Search Advisor for Routine Traffic Stops*, GEORGETOWN LAW LEGAL EXPERT SYSTEM – STUDENT PROJECT, https://lawstudents.neotalogic.com/a/onthebeat-searchadvisor (last visited Apr. 28, 2013); Maryam Tabatabai & Konstantinos Rokas, *US Citizen or Not?*, GEORGETOWN LAW LEGAL EXPERT SYSTEM – STUDENT PROJECT,
https://lawstudents.neotalogic.com/a/citizenshipacquistion (last visited Apr. 28, 2013); John Moore & Adedayo Lesi, *Business Entity Advisor*, GEORGETOWN LAW LEGAL EXPERT SYSTEM – STUDENT PROJECT, https://lawstudents.neotalogic.com/a/business-entity-advisor (last visited Apr. 28, 2013).

Chicago-Kent College of Law. In the practicum, students collaborate with Illinois Legal Services Online and other legal service providers to build automated interview systems that help users understand and exercise their legal rights. Recent apps designed by his students include a petition to discharge guardianship of a minor and a motion to obtain expungement of a criminal record due to identity theft. At New York Law School, Professor David Johnson has worked with students to build legal expert systems involving gift tax, music copyright, and other areas of law. Vermont Law School and a handful of other schools have course offerings that teach students to build systems that capture the expertise of lawyers.[6]

Lawyers tend to worry when they hear the words "legal app." The phrase suggests the need for programming knowledge or a coding background, which most of them do not have. A key advantage of the platforms used by our students is that they do not require app designers to know how to write software. A2J[7] and Neota Logic[8] provide an authoring environment that allows non-technical people to build apps with minimal training.[9] Using these tools, law students (and lawyers) can specify the rules-based logic, mathematical operations, and factor balancing that implement the reasoning of the regulatory regime involved. They can also customize the language that they want the app to display.

Among legal service providers, apps to increase access to justice hold great promise. Legal Services Corporation (LSC) funded programs are turning away more than half the people who meet its eligibility requirements to obtain representation.[10] Studies show that less than

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6. *See* Brock Rutter, *Survey of Existing Courses in Lawyer Use of Technology*, *in* EDUCATING THE DIGITAL LAWYER § 6.02 (Marc Lauritsen & Oliver Goodenough eds. 2012), *available at* http://www.law.harvard.edu/programs/plp/pages/digital_lawyer_book.php. In the coming year, five other law schools are receiving grants to teach students to build apps for justice through the Access to Justice Clinical Course Project. *See* Sarah Glassmeyer, *Law Schools Team Up with CALI to Harness Skills of Law Students, Develop Online Tools for Low-Income Litigants,* CENTER FOR COMPUTER-ASSISTED LEGAL INSTRUCTION (Jan. 2, 2013, 11:23 AM), www.cali.org/blog/2013/01/02/law-schools-team-cali-harness-skills-law-students-develop-online-tools-low-income-li.

7. *See* A2J Access to Justice, A2J AUTHOR COMMUNITY WEBSITE, www.a2jauthor.org (last visited Apr. 22, 2013).

8. *See* NEOTA LOGIC, www.neotalogic.com (last visited Apr. 22, 2013).

9. *Id.*; *About-A2J Author® Community Website*, ACCESS TO JUSTICE AT CHICAGO-KENT COLLEGE OF LAW, http://www.a2jauthor.org/drupal/?q=node/15 (last visited Apr. 28, 2013). Similar authoring environments are available, for example, in commercial software that allows purchasers without programming skills to build their own websites.

10. LEGAL SERVICES CORPORATION, DOCUMENTING THE JUSTICE GAP IN AMERICA: THE CURRENT UNMET CIVIL LEGAL NEEDS OF LOW INCOME AMERICANS 2-3 (2009),

twenty percent of the legal needs of poor Americans are being met.[11] The problem is not limited to the poorest Americans. In any given year, about half of low-and middle-income households in the United States have a civil justice problem involving a core life issue, including housing, employment, personal debt, child support, and benefits.[12] Legal access apps, which straddle the line between published information and individual representation, have the potential to help people who cannot afford representation to solve a broad range of legal problems. As of 2012, the web site LawHelpInteractive hosted more than five hundred legal access apps that had been built by legal service organizations.[13]

While the potential of apps to address unmet legal needs is becoming recognized, the pedagogic value of building apps in the law school setting is only now beginning to be explored. Contrary to what law professors might expect, teaching students to design legal apps furthers many of the teaching goals associated with the more traditional law school curriculum and, in particular, clinical legal education. In the application-design process—which involves legal analysis, the specification of relevant factual scenarios, and communicating in plain language—students learn to "think like a lawyer" and develop skills relevant to the practice of law.[14]

By building expert systems, moreover, students are learning to think like 21st century lawyers. To be helpful to their intended users, apps have to be specific and complete. They need to address the circumstances of their anticipated users with sufficient granularity to provide meaningful guidance; they also have to anticipate the range of concerns a typical user might have about his or her legal issue and the options available to address it. Equally important, legal apps have to be able to be validated and sustainable over time. Validation requires that lawyers with subject matter expertise are able to confirm that an app

http://www.lsc.gov/sites/default/files/LSC/pdfs/documenting_the_justice_gap_in_america_2009.pdf.

11. CENTER FOR AMERICAN PROGRESS, CLOSING THE JUSTICE GAP: HOW INNOVATION AND EVIDENCE CAN BRING LEGAL SERVICES TO MORE AMERICANS 1 (2011), http://www.americanprogress.org/wp-content/uploads/issues/2011/06/pdf/prose_all.pdf; *see* Ethan Bronner, *Right to Lawyer Can Be Empty Promise for Poor*, N.Y. TIMES (Mar. 16, 2013), www.nytimes.com/2013/03/16/us/16gideon.html.

12. *See* Rebecca L. Sandefur, *The Impact of Counsel: An Analysis of Empirical Evidence*, 9 SEATTLE J. FOR SOC. JUST. 51, 56 (2010).

13. LawHelpInteractive's content statistics are on file with the author.

14. *See* WILLIAM M. SULLIVAN, ET AL., EDUCATING LAWYERS: PREPARATION FOR THE PROFESSION OF LAW 87-125 (2007).

reflects the current state of the law. In addition, because the law changes constantly, the app has to be designed and built so that new authors can easily edit and update it. These last two requirements translate into principles of simplicity and transparent design. Content experts need to be able to look "under the hood"—that is review the app in the authoring environment—and be able to understand and assess its underlying logic. Through the exercise of creating apps, students learn to think about legal regimes as systems, intended to further specific aims and confer particular powers, rights, and obligations. They also learn to design systems that, by incorporating legal rules, permit users to more easily access the law to fulfill their goals.

I. DRAFTING THE DESIGN DOCUMENT: BEST PRACTICES

The most important and difficult step in building a legal adviser app is drafting a design document. This document has to specify the fundamental question that the app is intended to answer. It must also set forth the ultimate, intermediate, and primary conclusions that the system must be able to reach, the rules that set the conclusions, a detailed compilation of the relevant facts, and all the outputs that the system must be capable of producing—that that is, all the text for the assessments and tailored guidance that the system will generate based on information provided by a user.

To draft a design document, a system's author has to master the logic that underlies the legal regime in depth. For example, if the system is intended to tell a user whether he or she is entitled to collect unemployment benefits, the author has to understand the threshold conditions for eligibility, which range from whether the user is a lawful resident of the state to whether he or she meets the minimum wage and work hour requirements during the appropriate time period.[15] The author also has to specify under what circumstances a user would be considered to have left voluntarily or been fired for cause and the varying implications of these determinations for the user's eligibility.[16] In the same vein, the author of an app intended to help a user receive food stamps under the federal Supplemental Nutrition Assistance Program[17] must describe clearly and precisely the relationships among

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15. *See, e.g.*, D.C. CODE § 51-101, § 51-107 (2001).
16. *See, e.g.*, D.C. CODE § 51-110 (2001).
17. 7 U.S.C. §§ 2011-36(a) (2012).

the complex requirements, calculations, and exclusions set forth in the statute.18

In addition to reflecting the current state of the law, a design document has to anticipate the range of questions and concerns a typical user will have about exercising his or her legal rights. The app must also educate the user about issues the user might not have considered. The exercise of a right has a range of legal and practical effects that need to be addressed in the app. The student authors of the same-sex marriage adviser recognized that many same-sex partners might want to keep their relationship private, but determined that in almost all states in which same-sex marriage is recognized, marriages are filed in a clerk's office and are therefore not confidential.19 The author of an app that permits a victim of violence to obtain a temporary restraining order must consider whether there are children who are also at risk, for whom a user might also seek protection.

The design document must also include the text of the questions and the explanations that the app will provide the user. For the app to be helpful, the language used has to be clear and conversational and avoid technical legal terms. It also has to respond appropriately to the personal information provided by the user, just as a conscientious lawyer would when counseling a client. For example, an app built to assist a user in determining his or her rights under the Family and Medical Leave Act20 might tell the user after the user provided this information: "We are very sorry that your family member is struggling with a serious health condition."21

A design document that specifies the legal and factual conclusions and rules, anticipates the range of concerns a typical user might have, and communicates in plain English, provides the basis for creating a legal expert system that will be correct on the law, satisfy a user's expectations, and educate him or her about the options available.

The document must also be written and organized so that it can be understood with ease by other participants in the development process. To the system's technical author, the document needs to represent a series of easy-to-follow instructions about how to build the app. In addition, domain experts must be able to confirm, from reviewing

18. 29 U.S.C. §§ 2601-54 (2012).

19. *See* Clement et al., *supra* note 1.

20. *See* 29 U.S.C. §§ 2601-54.

21. *See* EMPLOYMENT LAW HQ, http://www.employmentlawhq.com/ (last visited Apr. 28, 2013).

the document, that it captures their substantive knowledge. In this sense, a design document functions like an architectural blueprint, which must be interpreted by contractors—the app's builders in our scenario—but also the architect's client—the lawyers whose expertise will be captured in the app.22 A blueprint is a rendition of the client's instructions about the building he or she wants constructed. In the same way, the design document is a representation of a lawyer's expertise regarding the issue to be addressed by the app. And like a blueprint, a design document provides a guide when later revisions are needed. The design document thus helps to ensure that the app is valid and sustainable over the long term.

II.   Learning Foundational Legal Skills

As our description of the design document suggests, teaching students to design legal expert systems in a law school setting has little or nothing to do with writing software code. The skills that this pedagogy imparts are contiguous with many of the skills taught in the typical law school curriculum. As in traditional courses, students learn to engage in precise analysis of how rules within a legal regime fit together and how those rules apply to facts. Students also begin to develop skills associated with clinical education, and in particular, interviewing and counseling. To design a powerful app—one that will give the user meaningful access to the law—a creator must surface, articulate, and organize the tacit knowledge that an experienced lawyer brings to bear on advising clients about their legal problems. This knowledge must also be translated into language that not only is understood by the lay user, but directly addresses the user's concerns.

A.   Legal Analysis

While there is broad agreement among legal educators that a goal of legal education is to teach legal analysis, there is less consensus about exactly what this skill entails. At a general level, it means applying rules or precedent to facts, but how this idea plays out in the classroom can vary with subject matter, pedagogic, intellectual and political orientation, and historical period. The Socratic method, the signature

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22.   Arthur L. Stinchcombe, When Formality Works: Authority and Abstraction in Law and Organizations 20 (2001).

pedagogy in law schools, has proven itself sufficiently malleable and capacious to encompass a range of scholarly movements.23

Nevertheless, the method has a basic goal, which is to teach students to talk and make arguments in the language of law. Through its characteristic give and take, students are invited to struggle with the meanings of legal categories, holdings, and rules. In the classroom, students are inducted into an unfamiliar way of reasoning that requires learning a new language. The process is often analogized to translating between one language and another.24 Unlike translation, however, where the words for physical objects, actions, and mental states in one language generally correspond to the words in the other, mastering the language of the law requires learning to identify facts that are legally relevant, even though they may not have a particular role in the underlying events.25 In a related process, students learn to fit rules and holdings to facts, and become familiar with the "peculiar nature of legal language, at once precise and ambiguous."26 In certain classes, instructors focus on teaching students to understand how rules apply to a variety of factual scenarios, giving less weight to the grey areas; in others, the priority is reversed, and instructors emphasize the contested peripheries of legal rules, leaving students to assimilate the core of rules and holdings on their own.27

As with the Socratic method, students who are designing a legal expert system must focus on what a particular legal provision (whether reflected in a rule, statute, or case) *means.* This involves providing specific and clear formulations of the rules that the system will follow, as well as appropriate characterizations of the facts that will trigger different rules. At the most granular level, legally relevant facts have to be coupled by rules to the answers that the user might provide, and these must be formulated in a manner that is free of jargon and at a sufficiently precise level of detail to be meaningful to the user. For ex-

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23. Christopher Columbus Langdell, who developed the case method at Harvard in the late 19th century, aspired to create a science of law. *See* ROBERT STEVENS, LAW SCHOOL: LEGAL EDUCATION IN AMERICA FROM THE 1850S TO THE 1980S 35-71 (1983). Over its hundred-year history, the method has been deployed to teach a wide range of approaches, from formalism and legal realism to critical legal studies and law and economics. *See* SULLIVAN, ET AL., *supra* note 14, at 47-86.

24. *See, e.g.*, JAMES BOYD WHITE, JUSTICE AS TRANSLATION: AN ESSAY IN CULTURAL AND LEGAL CRITICISM (1990).

25. *See* ELIZABETH MERTZ, THE LANGUAGE OF LAW SCHOOL: LEARNING TO "THINK LIKE A LAWYER" 43-83 (2007).

26. *See id.*; SULLIVAN ET AL., *supra* note 14, at 64.

27. *See* RICHARD MICHAEL FISCHL & JEREMY PAUL, GETTING TO MAYBE: HOW TO EXCEL ON LAW SCHOOL EXAMS (1999). Given the emphasis on appellate court cases in the first year curriculum, classes tend to emphasize argumentation and advocacy.

ample, a system designed to assist a user to determine his or her eligibility for unemployment benefits must painstakingly unpack the concept of "discharge for cause" under the relevant statutes, regulations, and case law.28

In addition, the author must be able to distinguish the instances when the system will be able to offer a definitive answer and when the underlying facts are sufficiently ambiguous, based on the relevant legal regime, such that a substantive answer cannot be provided by the system. Just as students in the classroom have to be able to distinguish where legal language is "precise" and where it is "ambiguous," so the author of a legal expert system has to know when the application of a rule leads to certainty and when it does not.29

B.   *Imagining the User's World*

Designing legal expert systems also offers a student the opportunity to understand the questions and concerns that an anticipated user may have. In this regard, the process teaches skills associated with client interviewing and counseling.30 In its pure form, client-centered counseling requires a lawyer to draw out every aspect of a client's goals and experiences that might bear on his or her legal problem.31 Although building an app obviously cannot fully replicate the experience of talking to a client face-to-face, it can begin to instill habits of thinking and imagining that are the basis for developing into a lawyer who is adept at interviewing a client, diagnosing the client's legal problem, and advising the client about the options available.

As studies of professional judgment suggest, experienced lawyers draw on a reservoir of organized knowledge to identify a client's problem efficiently and accurately. Quoting research on medical experts, Stephen Ellmann and his co-authors observe that legal experts are adept at synthesizing all the details into a brief but coherent problem formulation.32 Having handled many similar cases before, lawyers employ intuitive pattern recognition to grasp the key issues at hand.

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28.   *See, e.g.*, D.C. CODE § 51-110.

29.   In the latter instance, the assessment produced by the app can explain that it cannot offer guidance based on the information provided and suggest that the user consult an attorney.

30.   *See,* STEPHEN ELLMANN ET AL., LAWYERS AND CLIENTS: CRITICAL ISSUES IN INTERVIEWING AND COUNSELING 346-75 (2009). Ellmann and his co-authors describe a version of client-centered lawyering that takes into account the temporal and resource limits within which a lawyer works.

31.   DAVID A. BINDER ET AL., LAWYERS AS COUNSELORS: A CLIENT-CENTERED APPROACH 3 (1991).

32.   ELLMANN ET AL., *supra* note 30.

"[E]xperts . . . function best when they use their remarkable capaci-
ties for intuitive insight to narrow the serious possibilities so dra-
matically that the work remaining is to test a very limited set of
ideas rather than to explore step-by-step, the field of possible ways
to achieve a client's goals."33

The same cognitive skills underlie a lawyer's capacity to counsel a
client about the options available to him or her. Rather than brain-
storm about every conceivable option with a client, Ellmann and his
co-authors suggest that, in routine cases, expert lawyers narrow the
options they present and focus only on the "real choices," those that
are likely to succeed and not to lead to harmful practical effects for the
client.34 From experience, lawyers know which advantages and disad-
vantages of a proposed strategy are likely to matter for the client and
focus on these issues.35

To design a legal expert system that is responsive to a user's con-
cerns, students need to articulate and organize the tacit knowledge
that experienced lawyers deploy in dealing with routine cases. As a
preliminary step, students can be invited to think through the range of
concerns that a user of their app is likely to have, an imaginative exer-
cise requiring them to put themselves in a typical user's shoes. It is
important, however, that students consult with domain experts—
lawyers with significant experience—to understand how these experts
approach interviewing and counseling their clients. The design docu-
ment plays an important function in this process. It expresses in a clear
and organized form the intuitive reasoning patterns used by lawyers in
dealing with the same types of cases. In reviewing the logic and lan-
guage to be reflected in the app, the domain expert has an opportunity
to clarify, distill, and make precise the application of his or her
knowledge to the problem at hand.

C.   *English as a Second Language*

By the spring of their first year, law students are no longer strug-
gling to master a new language. Instead, they have become fluent in
legalese (sometimes to the point where their friends and family com-
plain about their tendency to lapse into legal jargon). Teachers of live
client-clinics regularly have to remind students to speak in plain Eng-
lish. Teachers also have to work with students to talk and behave in

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33. *Id.* at 353. The authors acknowledge that expert judgment is far from infallible and pro-
pose a range of strategies to address expert error. *Id.* at 354, 368-73.

34. *Id.* at 364.

35. *Id.*

ways that attempt to bridge the gaps between students' typically middle-class backgrounds and experiences and the very different world in which their clients live.

These challenges are even greater in the context of designing legal access apps. When interviewing and counseling a client, a student has the opportunity to ask questions and observe verbal and non-verbal cues to determine whether she is communicating effectively. Subsequently, a teacher can help the student reflect on the conversation. Students building apps do not have these opportunities. Instead, they have to draw on domain specialists and instructors to give a voice to their legal expert system that will connect meaningfully with its users.

In addition to avoiding legal jargon and other terminology that will be difficult for a lay user to understand, the system has to speak sympathetically to its user. Just as a thoughtful counselor reflects appropriate emotion at hearing a client's difficulties, so too must an app recognize when a user acknowledges having a problem. The point is not to fool the user into thinking that he or she is speaking to a sentient being; with the ubiquity of web-based technology, people are too sophisticated to mistake inputting information in software with human interaction. The point is to show that the app's designers were thoughtful, and that the law, as reflected in the app, is responsive to a user's concerns. People are more likely to turn to law to seek solutions to their problems if they experience the law as salient to their concerns. Apps that reflect the caring and warmth of their creators can advance this goal.[36]

III. CONCLUSION: 21ST CENTURY LEGAL SKILLS

We have described a process for creating legal expert systems, based on drafting design documents, that is platform neutral. Our purpose in teaching students to build apps is not to train them in any specific technology or software, but to expose them to the analytic principles underlying the development of these systems.[37] The traditional law school curriculum teaches legal analysis on a case-by-case basis. Clinics, while adding significantly to the skill mix of students and

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36. From a user's perspective, obtaining access through an app may present advantages over consulting with an attorney. With an app, a user may obtain information about his or her legal rights anonymously. In addition, learning about and exercising legal rights through an app may empower a user in other facets of life.

37. Roger V. Skalbeck, *Tech Innovation in the Academy*, in AALL/ILTA DIGITAL WHITE PAPER: THE NEW LIBRARIAN 74, 77 (2012), *available at* http://read.uberflip.com/i/87421/.

shaping their moral horizons,38 also tend to focus on serving individual clients.39 During law school, students are, by and large, exposed to an approach that emphasizes finding customized solutions to individual problems. Although this is an important dimension of lawyers' work, it does not exhaust the possibilities for the types of professional services a lawyer might provide.

The idea that lawyers should expand their repertoire to include building *systems* is foreign to how most members of the profession think.40 Architecture may offer a helpful analogy here. In designing a structure, an architect needs to consider the uses to which it will be put, its fit with the surrounding buildings, and the various ways that the building will enhance the quality of its users' experiences.41 A governing principle of architectural modernism is that "form should follow function."42 During the last decades, architecture has also emphasized the importance of sustainability. Architects should aspire to create buildings whose aesthetic qualities emerge from their functions in day-to-day human activities and that interact harmoniously with the surrounding environment.

These same broad principles apply to designing legal access apps. Like an architect, an expert system's designer must consider the function that the system will serve for users. Law functions as a system, but it is a poorly designed one from the point of view of the people who seek access to it. Law is not accessible, intuitive, nor easy to use.. Draw-

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38. *See, e.g.,* Jane H. Aiken, *Provocateurs for Justice*, 7 CLINICAL L. REV. 287, 287-88 (2001).

39. In recent years, project-based clinics have emerged, including the Georgetown Community Justice Project, that focus on teaching students multi-dimensional skills, including complex problem solving, strategic planning, project management, and professional communication skills. *See, e.g.*, Anna E. Carpenter, *The Project Model of Clinical Education: Eight Pedagogical Principles to Maximize Student Learning and Social Justice Impact* 20 CLINICAL L. REV. (forthcoming Dec. 2013). Teaching students to build legal access apps for organizational clients imparts similar project-based skills.

40. In the world of corporate practice, increasing numbers of clients have been rejecting customized one-off solutions in favor of systems and processes that will solve a category of legal problems. *See, e.g.,* RICHARD SUSSKIND, THE END OF LAWYERS?: RETHINKING THE NATURE OF LEGAL SERVICES 27-58 (2008).

41. As the great 20th century French architect Le Corbusier observed, "Space and light and order. Those are the things that men need just as much as they need bread or a place to sleep." Michael Kimmelman, *Quiet Additions to a Modernist Masterpiece*, N.Y. TIMES (Apr. 18, 2012), http://www.nytimes.com/2012/04/18/arts/design/renzo-pianos-demure-additions-to-le-corbusiers-chapel.html.

42. *See* Louis H. Sullivan, *The Tall Office Building Artistically Considered*, 57 LIPPINCOTT'S MAGAZINE 403 (1896), *reprinted in* 31 THE WESTERN ARCHITECT 3, 11 (1922). "It is the pervading law of all things organic and inorganic, of all things physical and metaphysical, of all things human and all things superhuman, of all true manifestations of the head, of the heart, of the soul, that the life is recognizable in its expression, that form ever follows function. This is the law."

ing on principles of human centered design, app builders can tame law's complexity and render the legal system understandable and usable.[43] As one interaction design textbook notes, a well-designed system or object must be easy to learn, effective to use and provide an enjoyable experience.[44] While the fundamental principles of interaction design are well established in other realms of human-object interface, their applicability to access to the legal system is only beginning to be recognized. Drawing on these principles, lawyers can fashion apps that mediate between clients' and the public' legal needs and the highly complex system of rules and regulations intended to address them.

43.   *See* DONALD A. NORMAN, LIVING WITH COMPLEXITY 52-53 (2011).
44.   YVONNE ROGERS, ET. AL, INTERACTION DESIGN: BEYOND HUMAN – COMPUTER INTERACTION 2 (3d ed. 2011).