HARVARD | BUSINESS | SCHOOL

9-904-047

REV: MARCH 24, 2005

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Who Is a Professional?

Many occupations lay claim to professional status. Business executives, social workers, musicians, sportsmen, and academics describe their occupations as professions. Office assistants call themselves administrative professionals. Obviously, not all occupations that claim to be professions are so recognized by society. Society attaches the professional label only to certain occupations. Doctors and lawyers are professionals; auto mechanics and restaurant wait staff are not. Yet, gray areas exist. Are nurses professionals? Teachers? Real estate brokers? This note discusses how particular occupations come to be characterized not only by their practitioners but also by society as professions.

Professionals are a subcategory of service providers.[1] An understanding of what distinguishes professionals from other service providers must be grounded in an understanding of (a) what constitutes service provision and (b) how the various categories of service provision differ.

Service Provision

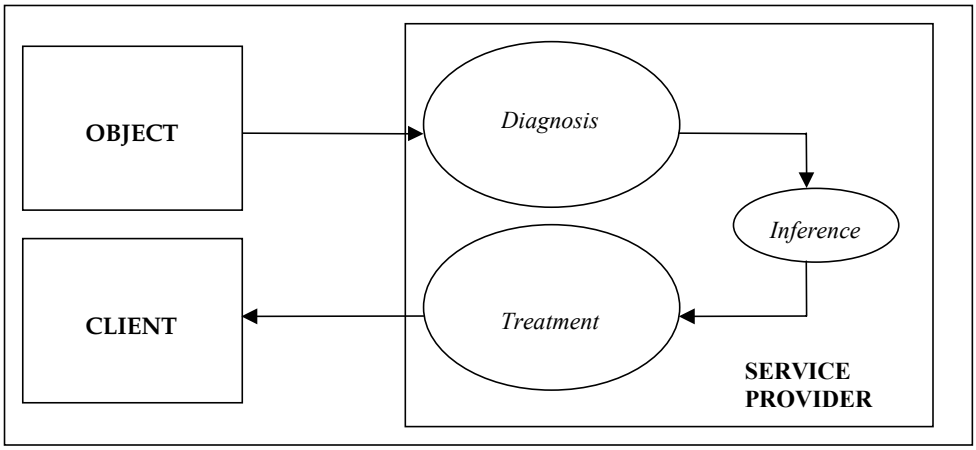
Service provision comprises three activities: diagnosis, inference, and treatment (**Figure A**).[2]

[1] What distinguishes service providers, the larger occupational category of which professionals are a subcategory? Starting at the substrate of all productive workers, we have two categories: skilled and unskilled workers. Unskilled work contributes undifferentiated effort, whereas skilled work contributes effort as well as skill, to produce output of value to consumers. Skilled workers are of two types, craftspeople and service providers. The output of a craftsperson's effort is craft, a tangible object that is alienable from craftsperson and consumer. The output of a service provider's effort is service, which exists at the interface of, and is inalienable from, service provider and consumer. A potter producing a clay figure is a craftsperson, a lawyer offering litigation advice to a client a service provider. Assembly workers in an automobile plant are craftspeople, mechanics repairing automobiles, service providers.

[2] This characterization builds on Andrew Abbott's work, *The System of Professions* (Chicago, IL: The University of Chicago Press, 1988). Besides, sociologists Robert Merton and Thomas Gieryn characterize the three key aspects of being a professional as knowing, doing, and helping. See Robert Merton and Thomas Gieryn, "Institutionalized Altruism: The Case of the Professions," in Lynn Smith and Man Singh Das, eds., *Sociocultural Changes Since 1950: A Festchrift for Carle C. Zimmerman* (New Delhi: Vikas Publishing, 1978).

Professor Ashish Nanda prepared this note as the basis for class discussion. It draws upon Ashish Nanda, "Who Is a Professional?" HBS Working Paper 03-063, 2002.

Figure A Service Provision



Source: Casewriter.

Diagnosis categorizes and removes the extraneous qualities of an object being studied. It is a process of departicularizing, of removing the idiosyncratic aspects of an object to enable a service provider to focus undistracted on the "problem" it presents. A doctor examining a 10-year-old patient and listing the symptoms of high temperature and chills is performing a diagnosis. An auto-repair mechanic depressing the accelerator pedal to hear the engine sound and observe the color of the exhaust is conducting a diagnosis. A lawyer taking down a client's version of events surrounding a fight that occurred two months earlier is engaged in diagnosis.

Inference is the process of converting an analysis of problem "type" into a prescribed "solution." The doctor relates the symptoms of chills, high temperature, and a blood test to an inference that the patient has malaria. The auto mechanic relates the symptoms of sooty exhaust and low engine revving to an inference of valve problems. The lawyer relates the client's description of the fight and interviews with prospective witnesses to an inference that the client should sue the other party for assault and battery.

Treatment is the reverse of diagnosis. It is a process of individualizing a "solution" for a particular client. The doctor prescribing a twice-daily medication regimen of quinine spread over 10 days is treating the patient suffering from chills and high temperature. The auto mechanic grinding the engine's valves is treating the automobile. The lawyer counseling suit for assault and battery is treating the client involved in the fight.

Treatment can be of three types: intervention, counsel, and information provision. A surgeon who operates on a patient is engaged in intervention. A lawyer who advises a client to pursue arbitration rather than litigation is engaged in counsel. A search firm that identifies for a firm's board potential candidates for the CEO's job is engaged in information provision.[3]

[3] Depending on the type of treatment, diagnosis may or may not involve the client. When treatment is interventional, the treated entity is also subject to diagnosis. A doctor diagnoses and treats a patient. An auto mechanic diagnoses and treats an automobile. A restaurant waiter "diagnoses" by taking a patron's orders and then "treats" by serving the patron the dishes ordered. Sometimes, for intervention to be effective, the entities diagnosed comprise a broader set than the entity treated. A psychiatrist treating a patient might want to diagnose the patient's relatives as well. A lawyer litigating a case might want to interview a wide range of potential witnesses.

A service provider's interface with the outside world occurs at the point of diagnosis (when the service provider depersonalizes the problem) and the point of treatment (when the service provider individualizes the solution). Inference is internal to the service provider and not observable by the client.

Types of Service Providers

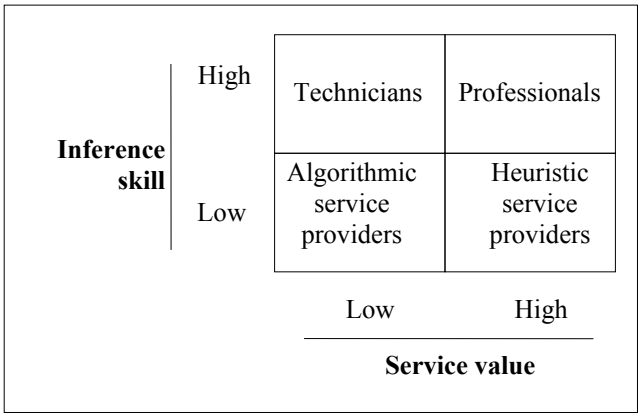
Service providers differ on two dimensions: (1) inference skill, the complexity of the inference process they use; and (2) service value, the importance of the service to client welfare.

The less externally observable is the service providers' inference process, the greater is the inference skill that clients attribute to the service providers. A doctor who diagnoses a patient's chills and fever and treats him with quinine tablets is assumed to rely on a complex inference process because the transformation of diagnosis to treatment is opaque to the patient. A travel agent who diagnoses a client's travel request and treats with a travel itinerary is assumed to rely on a simple inference process because the transformation of diagnosis to treatment is transparent to the client.

Service value, the enhanced well-being a client experiences as a consequence of service provision, can be provided on two dimensions: (1) speed of delivery (client welfare depends critically on urgent service provision), and (2) impact of delivery (client welfare is affected significantly whenever the service is provided). A shopkeeper who is being robbed needs the immediate attention of law enforcement officers. An effective lawyer has a significant impact on a criminal defendant's welfare whenever his case comes before the court.

Together, these two dimensions of inference skill and service value characterize four categories of service providers (**Figure B**).

Figure B Service Provider Categories



Source: Casewriter.

Algorithmic service providers rely on algorithm-based inference to provide services that are useful but not highly valued by clients. Call-center operators, help-desk staff, survey takers, restaurant waiters, and ticket agents at airline counters are algorithmic service providers. An algorithmic inference process relates each diagnosis to a unique treatment.[4] Restaurant service, for example, employs algorithmic inference. Diagnoses—dishes that can be ordered from the menu—are converted into prescribed treatments—

When the treatment is information provision or counsel, the diagnosis is typically a study and the treatment a report. In such cases, the target of diagnosis is often different from the client being treated. Auditors, for instance, diagnose firm managements by evaluating the accounting figures they generate and offer treatment in the form of audit opinions to audit committees of the firms' boards of directors. Investment bankers diagnose potential acquisition targets and counsel their clients, the potential acquirers, about the attractiveness of the targets. Search firms diagnose job candidates and report to hiring firms.

[4] If D is the set of all diagnoses and T the set of all treatments, then algorithmic inference is the function $f:D \rightarrow T$ such that for every diagnosis $d \in D$, there exists a treatment $t \in T$, where $f(d)=t$.

appetizers, followed by entrees, and then desserts—employing an inference process that functionally relates orders against dishes.

Heuristic service providers, such as police officers, firefighters, and emergency medical technicians, rely on routines to draw inference quickly from a limited and fairly straightforward body of abstract knowledge to deliver critical one-time interventions. Routines are rules of thumb that enable service providers to respond to diagnoses with quick and simple, albeit not necessarily optimal, treatments, that is, to "satisfice" rather than "optimize" in response to client needs.[5] When speed of delivery is of the essence and multiple interventions are not possible—for example, in combating fires or during medical emergencies—simple routines support the delivery of service that is prompt and robust, even if not optimal.

Technicians, for example, auto mechanics, beauticians, and laboratory workers, draw inference through experiments to provide services deemed useful but not very valuable by their clients. Afforded extended interface with clients, technical service providers, or *technicians*, draw inference through learning by doing. They treat the diagnosis-inference-treatment process as an experiment. Through multiple iterations of the experiment, they adjust treatment based on the efficacy of past iterations. The inference process is inductive learning by doing, and reasoning is developed through exclusion.

Auto mechanics use a process of experimentation with iterated interventions. Beauticians treat their clients and evaluate the impact of, and then refine, their treatments. Information brokers such as executive search consultants, buyers' brokers in the real estate market, marriage brokers, and stockbrokers are also primarily technicians. Each iteration of the diagnosis (surveying the target space based on their understanding of client needs), inference (short-listing targets), and treatment (providing information to clients) cycle helps them refine the service-provision process better as they understand client needs and preferences better.

Technicians develop sophisticated experimentation approaches and learning-by-doing skills but do not rely on an overly large body of abstract knowledge. Experimentation skills are developed primarily through apprenticeships to skilled technicians. Apprentices observe how the masters conduct experiments effectively and learn, then conduct their own experiments guided by the masters. Little abstract knowledge is transmitted; learning is related primarily to the experimentation process.

Professionals, such as lawyers and doctors, master complex inference skills to deliver services that are considered valuable by their clients.[6] The inference process used by *professionals*, or professional

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The inference algorithm is alienable (i.e., separable) from the service provider. The algorithm used by a call-center operator or an airline ticketing agent is stored in expert information technology systems. To be effective, all the operator or agent needs to understand is how to operate the algorithm that links question categories to responses.

[5] The term "satisfice" was used by Richard M. Cyert and James G. March in *A Behavioral Theory of the Firm* (Englewood Cliffs, NJ: Prentice Hall, 1963) to describe a process of finding "good enough," not necessarily optimal, solutions. See Richard R. Nelson and Sidney G. Winter, *An Evolutionary Theory of Economic Change* (Cambridge, MA: Harvard University Press, 1982), chapter 5, pp. 96–136, for a description of "organizational routines."

[6] A word of caution is apt here. This is my definition of the term "professional." Not everyone would define the term so. A rich and detailed sociological literature is concerned with defining professionals. Geoffrey Millerson began his classic 1964 study by identifying 21 different sources that had proposed various characteristics of professionals (Geoffrey Millerson, *The Qualifying Associations*, London: Routledge & Kegan Paul, 1964). Studies identifying distinguishing characteristics of professionals have only proliferated since Millerson's summary. Several definitions of professionalism (including Millerson's own) have been proposed.

I am skeptical of the benefit of restating the existing definitions in a compare-and-contrast exercise with my definition. Any definition of the word "professional" is bound to evoke criticism, in part because the word has become, in Eliot Friedson's words, "evaluative as well as descriptive" (Eliot Friedson, *Profession of Medicine* [New York: Dodd, Mead, 1971], p. 10).

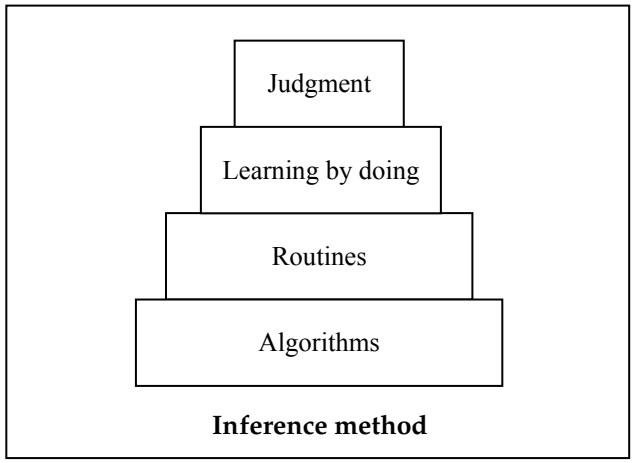
service providers, is judgment. Judgment is a deductive process of applying the understanding of abstract knowledge to a specific problem. Whereas learning by doing develops over multiple iterations of reasoning through exclusion, judgment is a one-time process of reasoning through construction.

A heart surgeon operating on a patient attempts a single iteration, as far as possible, of the service-delivery process. A lawyer defending a client in a criminal case has a single opportunity to do so before the court. The surgeon and the lawyer do not go through a process of experimentation involving multiple interventions in delivering service to a client. Instead, they rely on their knowledge of heart surgery and criminal law, respectively, to develop the best treatment for the particular cases at hand.

Following are some examples of professionals: accountants, actuaries, advertising agencies, architects, clergy, doctors, lawyers, engineering consultants, investment bankers, investment counselors, hedge fund managers, management consultants, money managers, professors, psychologists, and social workers.

The exposition thus far might give rise to three erroneous impressions: first, that one type of service provider employs only one type of inference; second, that the four categories of service providers are sharply delineated; and third, that the categorization of service providers is independent of the social milieu.

Figure C Hierarchy of Inference Categories



Source: Casewriter.

Inference processes can be organized in a hierarchy of increasing complexity (see **Figure C**). A service provider who employs inference at any one level of the hierarchy can use inference at lower levels of the hierarchy as well. Algorithmic service providers rely on algorithms to make inferences. Restaurant waiters use algorithms to take and fill orders. Heuristic service providers rely on rules of thumb as well as algorithms. Firefighters apply rules of thumb when fires must be fought quickly and algorithms when performing customary tasks, for example, responding to a multistory-building alarm when there is no visible fire. Technicians employ experimentation, routines, and algorithms. Auto mechanics use algorithms to address customary problems, such as checking vehicles for exhaust emissions; rules of thumb to address routine requests, such as draining and replacing engine oil while servicing cars quickly; and experimentation when presented with complaints related to car performance. Professionals employ algorithms to address usual situations, rules of thumb when speed is of the essence, experimentation when faced with atypical situations outside their knowledge base, and judgment when faced with atypical situations to

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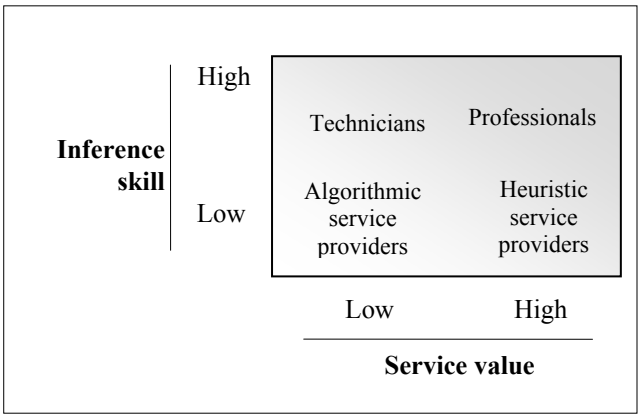
Occupational groups aspire to "professional" status and self-consciously apply the term to their own activities while vigorously denying the right to competing occupations. Attempts to distinguish one type of profession from others by adding qualifiers such as "true," "learned," "quasi," and "pseudo" have generally failed.

Rather than get bogged down in the task of defending mine as the "correct" definition of "professional," I have chosen to specify what I mean by the term, note the existence of overlapping ways in which the term has been defined, and move on to the rest of my argument.

which their knowledge base can be applied. A surgeon performing a routine operation follows an algorithm; a surgeon in an emergency room uses rules of thumb; a surgeon unsure about the nature of a tumor experiments, and learns from, exploratory surgery to plan future interventions; knowing a patient's malady, the various interventions possible, and the patient's specific circumstances and family history, a surgeon applies judgment to intervene in a particular way.

Rigid boundaries do not separate the four categories of service providers. Service provision is construed more realistically as a continuum with the four types of service providers as characterizations of parts thereof rather than as mutually exclusive groups (**Figure D**). Sharp delineations separate one service-provider category from another. Depending on where they are located on the inference-skill–service-value matrix, service providers can be characterized as belonging more to one than to another of the categories.

Figure D Continuum of Service Providers



Source: Casewriter.

Society, through its estimation of service value and level of inference skill, identifies where particular service providers are located on the inference-skill–service-value matrix. Whereas algorithms and routines are more transparent, hence perceived as simpler skills, learning by doing and judgment are more opaque, hence perceived as more complex skills. Whereas repeated observations of a call-center operator can help an outsider determine the algorithm being used and repeated observation of a firefighter can help an outsider identify the rules of thumb being employed, repeated observations of an auto mechanic tinkering with car engines or of a physician diagnosing and treating patients are likely to yield to an outsider little insight into the inference mechanisms being used.

A doctor is considered a professional because the practice of medicine requires mastery over medical knowledge and is critical to patients. If society considers that nursing requires mastery over a relatively simpler abstract knowledge base, then a nurse, even if as important to patients as a doctor, is characterized as less of a professional than a doctor. Other service providers on the professional-heuristic service-provider continuum who are striving to be, but are not widely recognized as, professionals include travel agents, temporary placement service workers, and public relations counselors.

An investment banker's advice on mergers and acquisitions is based on mastery of business and finance and is of considerable value to clients. A stockbroker transacting a client request to sell or buy a stock, although reliant on a sophisticated understanding of how the stock market functions, uses an experimental process of finding a matching buyer or seller. Therefore, society considers stockbrokers as more technicians and less professional than investment bankers. Other information brokers, such as executive search consultants, buyers' brokers in the real estate market, and marriage brokers, who rely on experimentation to serve their clients, also lie closer to the technician end of the professional-technician continuum.

Professionalization, Deprofessionalization, and Technology

Service provision might, over time, be characterized as professional or nonprofessional work, depending on how society's evaluation of the service value and level of inference skill changes. Whether a particular service provision comes to be recognized as a profession, or whether an existing profession is no longer so recognized, depends on three drivers—public trust in the profession, competition among the professions, and technology.

The first two drivers—public trust and competition between the professions—are discussed in detail in other notes.[7] This section focuses on the third driver of professionalization and deprofessionalization—technology. Although some argue that occupations secularly professionalize with industrialization ("An industrializing society *is* a professionalizing society," observed William Goode[8]) and others that industrialization leads to the secular decline of professions ("The conditions which gave rise to the institutions of professionalism are no longer dominant in industrialized societies," wrote Terence Johnson[9]), professions are affected differentially by technology, depending on the specific domains of technological progress.

Technology influences professions most directly by creating new or closing existing domains of practice. Walter Licht documented how unique opportunities and constraints associated with railroad travel during the nineteenth century gave rise to a number of service functions—station agent, conductor, railroad dispatcher, and so forth—that subsequently gained prominence as professions and quasi-professions.[10] With highways and airline travel, telephony, and wireless communication emerging as alternative modes of long-distance communication in the twentieth century, the importance of railroads diminished and railroad-related service providers deprofessionalized. Technological progress lent prominence during the twentieth century to management consultants and software programmers.

Beyond such direct impact, enabling technology deprofessionalizes professions by substituting standardized products for services tailored to specific client needs. If the benefits of a standardized product (e.g., lower cost, assured quality, easy availability) are large enough for clients to forgo customized service, practitioners who delivered the customized service face the difficult choice of either deprofessionalizing and offering the product that replaces their service or being gradually put out of business altogether.

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[7] The more complex is the inference skill required of the provider, the greater is the trust the public needs to repose in the provider. Causality works in the opposite direction as well. The more the public trusts a service provider, the more willing it is to allow the inference process of the service provider to remain opaque. The interaction between public trust and professional work is discussed in detail in Ashish Nanda, "The Essence of Professionalism: Managing Conflict of Interest," HBS Case No. 903–120.

If another service provider is better able to meet the needs that were previously satisfied by a profession, then the incumbent profession loses standing and the entering service provider gains standing. During the twentieth century, accountants increasingly laid claim to services traditionally provided by lawyers, such as tax advice, arguing that they were able to meet client needs more economically than were the lawyers. Psychologists who historically relied on "talking cure" increasingly lost jurisdiction in the twentieth century over treatment of the mentally ill to psychiatrists, who claimed that the medical treatment approach that they followed was more effective. The relation between society's valuation of professional service and competition between the professions is discussed in greater detail in Ashish Nanda, "Managing Client Conflicts," HBS Case No. 904–059.

[8] William J. Goode, "Encroachment, Charlatanism, and the Emerging Profession: Psychology, Sociology, and Medicine," *American Sociological Review* 25 (1960): 902–913.

[9] Terence J. Johnson, *Professions and Power* (London: MacMillan, 1972), pp. 34, 89.

[10] Walter Licht, *Working for the Railroad* (Princeton, NJ: Princeton University Press, 1983).

The development during the 1980s by companies such as SAP of software packages that satisfied the information-processing needs of a wide variety of corporate clients shifted the bulk of software development activity away from professionals—application programmers who developed custom software—to craftspeople, programmers who developed component parts of software products. The standardization during the 1990s of certain legal documents such as wills turned some clients from service professionals (lawyers) to products (software programs to generate simple wills). Computer-aided design had a similar deprofessionalizing impact on architecture. Reduced cost and increased capability of information technology has disintermediated information brokers, who previously bridged constituencies that needed information about one another but usually did not interact. During the 1990s executive search firms faced increasing competition from Internet-based job-matching firms that substitute databases and search algorithms for the professionals who traditionally brought firms and candidates together. Real estate and stock brokers were similarly supplanted by Internet-based matching services.

Finally, technology can facilitate the division of complex tasks that previously needed to be performed jointly into simpler activities. If the complex tasks could be broken into smaller components, judgment might be replaced by routines and algorithms. As medical diagnosis became more dependent on medical tests and less on diagnostic ability, it moved from the arena of professionals (doctors) to that of technicians (medical-testing laboratories). Press and Washburn documented how Internet-based distance education triggered concern among professors that education might become commoditized, with "courseware" broken up into "content" modules; instruction replaced by production, dissemination, and marketing; and teaching positions replaced by online course-design positions.[11] To counter such risk of commoditization, professions might resort to processes and rituals that serve to make the entire professional practice appear unified and holistic to mystified clients.

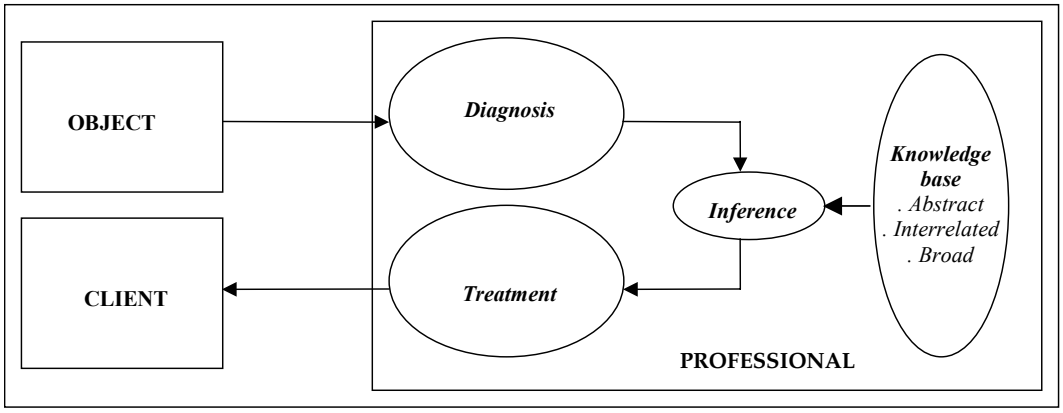
Professional Practice

Professionals exercise judgment to apply complex abstract knowledge to provide services that are highly valued by clients. Surgeons operate based on their knowledge of human anatomy, physiology, and surgery to serve patients by curing their disease or alleviating painful ailments. Litigators employ their knowledge of law to represent clients in lawsuits to protect and advance their clients' interests on important issues. Architects employ their knowledge of engineering and architecture to design structures that have powerful and lasting impact on space to meet the utilitarian needs and artistic aspirations of their clients.

Professionals' inference relies on mastery over a body of knowledge (see **Figure E**). The body of knowledge on which professional service relies is abstract, broad, and interrelated. If the body of knowledge were specific, such that each diagnosis led to a particular treatment, then the linkage between diagnoses and treatments could be mapped by an algorithm. If the knowledge base were narrow, routines or experiments would suffice to support inference. If the knowledge base could be parsed into smaller, unrelated pieces that could be applied independently, the profession would split into subprofessions, each requiring mastery of its specific knowledge base and employing only that knowledge to provide service.

[11] Eyal Press and Jennifer Washburn, "The Kept University," *The Atlantic Monthly*, March 2000, pp. 39–54.

Figure E Professional Practice



Source: Casewriter.

Because professional inference is based on a large body of abstract knowledge that cannot be parsed into smaller, unrelated pieces, professionals must master the entire body of knowledge.[12] But in addition to mastery over the body of knowledge, professionals must have the ability to apply the knowledge to provide service appropriate to specific client circumstances. Professional judgment comprises this joint ability—mastery over a broad body of interrelated abstract knowledge and the ability to apply this knowledge effectively to particular circumstances.

Individuals train for a profession by learning the content of abstract knowledge in a didactic setting and the application of that knowledge in a practice setting. Doctors, specialization notwithstanding, must have a broad basic understanding of a body of knowledge in biology and medicine. But medical students must also intern as residents to learn how to apply abstract knowledge in practice. Similarly, lawyers must have command over a core body of legal knowledge, irrespective of additional specialization, and learn, additionally, through clerkship and internship, how to apply the abstract legal knowledge in practical cases.

The judgment that professionals employ to convert diagnoses into treatments and the abstract knowledge on which it is based are opaque to clients. How a doctor translates chills and fever into a prescription of medicine, a management consultant converts interviews with managers and staff into counsel to spin off a business unit, or a lawyer presented with views and facts concludes that a civil lawsuit for a specific amount should be filed are enigmas for the patient, business executive, and legal client, respectively. Sociologists such as T. J. Johnson in *Professions and Power* (London: MacMillan, 1972) characterize this phenomenon of clients not knowing how professionals serve them as "social distance" between professionals and clients.

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[12] The body of abstract knowledge that girds professional judgment evolves over time in two ways. First, practice informs it. Professional practitioners refine and deepen their abstract knowledge in the course of providing service. Doctors considering different treatments for the same disease identify the superior treatment regimen by practicing the various regimens and observing the impact of the alternatives on the patients. The practice of law creates legal precedence, which accumulates in the professional's knowledge base.

In addition to learning from practice, professionals invest directly in advancing their abstract knowledge by encouraging meta-professionals to transfer relevant learning from basic disciplines to the professions. Medical researchers build upon advances in the various disciplines of biology to advance the knowledge of medicine; finance theorists apply advances in mathematics and economics to fortify the disciplines of finance that underlie investment banking; and law professors use moral philosophy, economics, and history to advance the legal theory that supports the legal profession.