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Commentary

An Essay on the Division between Craft-Based and Knowledge-Based Professions as an Inhibitor of Interprofessional Healthcare Education and Practice

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Editor's Note: This is the first of a two-part essay on the role of craft and knowledge in interprofessional practice. The second part will be published in the next issue of HIP.

Introduction: Knowledge and Craft

Plato and Aristotle both engaged in explorations of the classical Greek ideas of *episteme* and *techne*—of knowledge and craft. Historically, knowledge and craft have been viewed as separate forms of knowing, with knowledge being based on theory and craft upon practice. This differentiation, like the Cartesian dichotomy of mind and brain, has served as a conceptual wedge that has influenced our views on healthcare education and practice in the United States. This conceptual differentiation has led to the creation of what is termed an in-group/out-group dichotomy in social psychology literature and may serve as an inhibitor of interprofessionalism. This essay will explore the impact of these ideas on modern American healthcare education and practice with a focus on the role of craft as primarily an inhibitor but also as a potential facilitator of interprofessionalism within the context of one healthcare specialty, that of anatomic pathology.

There are many modern American cultural artifacts that point to a culture that has shown a preference for knowledge-based professions over craft-based or trade-based occupations. These artifacts include a decline in the number of people perusing trade education,

the devaluing of blue-color jobs over white-color jobs in terms of economic status and prestige. There has also been a growing divide between elite liberal arts higher education and job training found at for-profit colleges and community colleges. This general cultural bias for knowledge-based education over craft-based or trade education is also evident with the explosion in college and university enrollments over the last several decades.

The Mind at Work

Sociologist Steven Peter Vallas notes that, “Writers on work routinely employ certain stock categories – ‘blue-’ versus ‘white-collar,’ ‘mental’ versus ‘manual’ labor” and they often fail “to observe subtle commonalities between apparently different forms of work.” Mike Rose (2005) in his work *The Mind at Work* writes that, “These limiting categories reaffirm longstanding biases about particular occupations...” (p. xviii). These biases, though not exclusive to America, are a long-standing tradition of American professions and the professionalization of work, transforming it from a craft-based or trade-based occupation to a knowledge-based profession.

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The professions of American law and medicine were both originally conceived and functioned as craft-based or trade-based occupations and it was only through a process of ‘intellectualizing’ that these occupations were transformed into knowledge-based professions. I will argue here that this ‘intellectualization’ is forced and not a natural consequence of nor a natural progression for these two occupations. This process of ‘intellectualization’ required great efforts to re-brand and re-conceptualize both law and medicine and are largely responsible for the modern structure of particularly American healthcare education and practice.

The biases which exist today with regard to craft-based or trade-based occupations and knowledge-based professions have their roots in the 19th century when members of the legal ‘profession’ made conscious and concerted efforts to elevate their trade to the level of a knowledge-based profession.

Until the middle of the 19th century, would-be-lawyers learned their trade by ‘reading law’ at the office of a private attorney, but Langdell [dean of the Harvard Law School in the 1870’s] sought to elevate legal education to the level of a true academic discipline. “If law be not a science [...] a university will consult its own dignity in declining to teach it. If law be not a science, it is a species of handicraft, and may be learned by serving an apprenticeship to one who practices it.” (Franklin, 1997)

As is the case with law above, medicine too made a concerted effort around the same time to elevate its craft to a ‘higher level’ in part by moving it into the academy.

The Spectrum of Doctors

For medicine in the 19th century there was a spectrum of ‘doctors’ including homeopaths, osteopaths, allopaths, and others all competing for legitimacy and the market share of paying patients. Allopaths led the charge to distinguish and elevate their trade to a profession on several fronts: through controlling medical licensing, authority over medication, and reforming medical education at elite allopathic schools of medicine. It was at this time when elite medical schools started to require a college degree for admissions, in and of itself a knowledge-based move, which also helped to create a stratification of schools. This hierarchy left some schools to produce craft-based ‘trade’ clinicians, while others were

creating more knowledge-based professionals such as the physician-scientist (Starr, 1982, p. 115).

From a medical school in Chattanooga, Tennessee, one doctor responded, True, our entrance requirements are not the same as those of the University of Pennsylvania or Harvard, nor do we pretend to turn out the same sort of finished product. Yet we prepare worthy, ambitious men who have striven hard with small opportunities and risen above their surroundings to become family doctors to the farmers of the south, and to the smaller towns of the mining districts. (Starr, 1982, p. 125)

When we look at undergraduate medical curricula and the graduate training of allopathic physicians there is a further reinforcement of the knowledge-craft dichotomy. A majority of medical schools temporally divide the education of future physicians into a two-plus-two model, where knowledge-based didactic instruction occurs during the first two-years, followed by two-years of hospital and clinic based craft or trade education. The craft-based education of physicians continues with internships, residencies, and fellowships where “apprentices had learned the craft of medicine in their preceptor’s office...” (Starr, 1982, p. 116).

So, it is for some of these reasons in part that we today view medicine as a knowledge-based profession, despite the fact that a majority of a future physician’s training is clinical, hands-on, apprenticeship-based, trade-like crafts education. The yearning to elevate allopathic medical practice from other forms of medical practice led to a dichotomy between the allopaths claiming special status and privilege based on their knowledge-based training, opposed to other craft-based medical occupations. Occupations not requiring a college degree for admissions to their schools and typically having fewer years of overall training, especially knowledge-based didactic instruction, were delegated to lesser craft status.

Paramedicine and Craft

Allopathic physicians did not only use this dichotomy to stratify themselves, and separate themselves from other ‘physicians,’ but also from paramedical workers as well, notably in the pathology laboratory.

The pathologists’ control of the laboratory business

naturally gave them power over other laboratory workers. In 1929 the recently formed American Society of Clinical Pathologists, made up exclusively of physicians, began operating a system for certifying laboratory personnel. Their program required medical technologists, the higher of the two grades it certified, to have two years of college and a year's working experience and to pass a written examination; they also had to be personally recommended by a physician. Six years later, the educational standard was raised to a college degree. The code of ethics stipulated that registered technicians and technologists 'shall agree to work at all times under the supervision of a qualified physician and shall under no circumstances, on their own initiative, render written or oral diagnoses except in so far as it is self-evident in the report, or advise physicians and others in the treatment of disease, or operate a laboratory independently without the supervision of a qualified physician or clinical pathologists. Since pathologists controlled the labor market for technicians, laboratory workers had a strong incentive to meet the requirements for certification. The pathologists opposed any government licensing of technologists, which would have reduced their flexibility in the use of personnel. (Starr, 1982, p. 222)

Although the knowledge-based educational requirements of laboratory paramedical workers were expanded to meet the growing technical advances and sophistication of laboratory tests, there was no corresponding expansion in their scope of work. Pathologists reserved knowledge-based activities such as the diagnosis and treatment of disease to themselves, delegating the craft-like work of the clinical pathology laboratory to the technicians and technologists under their direct supervision.

A similar division of work and power as occurred in the clinical pathology laboratory has also occurred recently in the anatomic pathology laboratory where a relatively new paramedical laboratory professional, the pathologists' assistant, is challenging traditional interpretations of the boundaries between knowledge-based versus craft-based medical professions.

A Pathologists' Assistant is a highly trained allied health professional who provides various pathology services under the direction and supervision of a pathologist. These professionals are academically and

practically trained to aid the pathologist in many ways to provide accurate and timely processing of a variety of laboratory specimens. Pathologists' Assistants provide the majority of pathological specimen processing up to making a diagnosis for a patient. They are key components to helping make a clinical diagnosis, but there is a distinct line where a Pathologists' Assistant duty ends, and where a pathologist's review to diagnose a case begins. Pathologists' Assistants interact with pathologists in a similar manner to physician assistants in surgical and medical practice, carrying out their duties under the direction of their physicians. (AAPA, 2010)

Observe the careful language above; a distinct line is drawn between the work of the pathologists' assistant and the pathologist. Here again the paramedical professional is allowed to do much of the work of medicine, with the exception of the most sacred of knowledge-based activities in medicine, that of rendering a diagnosis. The pathologists' assistants, like the laboratory technicians and technologists before them, are certified by the American Society of Clinical Pathologists and have adopted much of the language governing their scope of work as well.

Paramedicine and Knowledge

One unique difference between the technologists and the pathologists' assistant is that pathologists' assistants attend graduate programs, often taking medical school classes in the realm of the knowledge-based physician. Pathologists' assistant students are also commonly clinically trained alongside pathology residents in some of the nation's most elite teaching hospitals such as the Massachusetts General Hospital and Johns Hopkins Hospital, among others. For these reasons the pathologists' assistant is uniquely positioned with one foot firmly in the realm of craft, as the pathologists would like, and the other in the realm of knowledge. Being partially situated in the realm of knowledge offers both potential harm and/or benefit to the relationships between pathologist and pathologists' assistant.

The traditional dichotomy between craft-based and knowledge-based work may serve as a conceptual framework for interactions between pathologist and pathologists' assistant and help govern the utilization of pathologists' assistants from a legal and practical standpoint. Reinforcing this dichotomy is the physical space,

the nature of the tools that each profession uses when conducting their work, and the attire they wear doing their work.

Pathologists' assistants work is literally dirty work, involving the dissection of surgical specimens and the performance of autopsies. These are hands-on, craft-like responsibilities involving tools like scalpels, scissors, and saws requiring dexterity and 'manual' labor. Contrast this to the pathologist's work that is largely composed of sitting at a desk looking under a microscope. Here the microscope aides the eye and further spatially separates the pathologist from the tissue on the slide which must be viewed through the intermediary of the optics of the microscope. Being this far removed from the actual tissue, the craft of anatomic pathology, the pathologist is then jettisoned into the knowledge-based realm of rendering a microscopic diagnosis.

Microscopic diagnoses themselves are made largely based on pattern recognition, the staining properties of the tissue such as the colors yielded by varying intensities and types of stains and staining and the morphology of the individual cells. Established diagnostic algorithms provide diagnostic criteria to pathologists helping them to make a diagnosis. In some cases a diagnosis can be made simply on the color of the cell membranes observed under the microscope. If the membranes absorb the stain and appear red-brown then the sample is positive, if they have not absorbed the stain and no color difference is noted then the sample is negative. While this work is clouded in mystery for many, the actual cognitive task at hand, the one which helps separate the knowledge-based world of the pathologist from the craft-based world of the pathologists' assistant may come down to following a checklist and reporting if you see red-brown when you look under the microscope.

The work of the pathologists' assistant is physical in nature and many choose to wear scrubs and an array of personal protective equipment including splash gowns or aprons, surgical gloves, protective boot coverings, and varying types of masks and eye protection. Contrast this to the pathologist who is often dressed in business-casual attire and works in a 'clean' office. The work of pathologists' assistants is conducted in a surgical pathology laboratory and morgue or autopsy suite. The surgical pathology laboratory is commonly referred to as the 'gross room' referring, to the gross

anatomy of the specimens, and the work of dissecting specimens is referred to as 'grossing.' The 'gross room' serves as a workshop for the craft-based work of the pathologists' assistants and indeed is the locus of craft in the anatomic pathology department.

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