

DOMINIQUE A. TOBELL

The Transformation of American Nursing

In the decades after World War II, nurse educators built a science of nursing. Their work underpins the profession as it is practiced today—and offers insights for other disciplines into how knowledge is created, valued, and used.

Nursing faced a crisis in the years following World War II. The arrival of new technologies, potent pharmaceuticals, and complex surgeries had made patient care increasingly complex. The regimented, procedure-based training of hospital-based diploma programs that had predominated in nursing education before the war became inadequate. Nurses often found themselves without the availability, knowledge, or authority to provide appropriate care to critically ill or dying patients.

Studies conducted in the late 1940s and early 1950s documented the crisis in hospital nursing and predicted that it was necessary to graduate between 50,000 and 75,000 new nurses each year. But rather than tackle discriminatory hiring practices, salaries, or working conditions—issues that might have improved job satisfaction and thus expanded retention—nurse leaders, hospital administrators, and other health care authorities focused on how to produce more nurses by expanding and reforming nursing education.

In particular, nurse educators sought to establish nursing as an academic discipline. Beginning in the 1950s, they introduced bachelor of science in nursing (BSN) programs on university and colleges campuses. This new model of undergraduate nursing education emphasized science-based learning, clinical thinking, and patient-centered practice. It prepared nurses for their new role as an “expert and an independent practitioner,” in the words of nursing theorist Virginia Henderson. By

emphasizing a health perspective rather than a disease perspective, by considering patients holistically, and by prioritizing the agency of patients in shaping their health, nursing and its science sought to stand apart from the reductionist model of medicine that emphasized disease, diagnosis, and cure.

By the 1960s, nurses who had undergone advanced clinical training at the master’s degree level assumed new advanced specialty practice roles in areas that included psychiatric nursing, maternal-child health, oncology, nephrology, and critical care nursing. Nursing’s academic project also entailed creating and demarcating the boundaries of a distinct science of nursing. Nursing PhD programs were established to prepare generations of nurse scientists able to conduct the clinical research necessary to improve patient care.

As nursing embarked on this academic project, it faced a series of issues and challenges. Two of these challenges proved especially determinative in shaping today’s nursing education and practice. First, how would nurses construct their discipline? That is, what types of knowledge and research questions would they focus on, and which research methods and theoretical frameworks would they draw upon? Second, as nursing committed to making the academic preparation of nurses more rigorous, how would the profession maintain accessible pathways into nursing for students from underserved and historically marginalized communities?



Tim Okamura, *Nurse Tamika*, 2021, oil on wood panel, 24 x 30 in.

Building the discipline

From the late 1950s through the early 1980s, academic nurses constructed a science of nursing that would provide the basis of nursing practice. They did so not only to improve patient care, but also to secure their roles within the postwar research university. Nursing science was to be distinct from, yet complementary to, the biomedical science that underpinned medical practice and research, particularly its focus on the identification, diagnosis, and treatment of discrete diseases. By contrast, nursing—and the science that informed it—would move beyond “merely ... treating disease entities,” as sociologist Frances Cooke Macgregor wrote, to treating “patients as ‘total persons.’” By establishing nursing science as an interdisciplinary science that integrated psychological, cultural, social, and physiological understandings of health, illness, and the patient, nurses could claim distinctive knowledge, skills, and expertise. This expertise was rooted in an understanding of patient behavior and attitudes by which nurses would contribute to the improvement of patient care.

But nurses grappled with how to distinguish nursing science from the theory and knowledge of the disciplines it drew upon. During the 1950s, 1960s, and 1970s, a small group of nurse theorists, including Rosemary Ellis, Virginia Henderson, Dorothy Johnson, Hildegard Peplau, Martha Rogers, and Sister Callista Roy, worked to demarcate nursing’s empirical focus, establish the theoretical frameworks by which nurses could understand and influence patient health, and distinguish nursing science from the biomedical and behavioral sciences.

The theorists identified four concepts that would define nursing’s focus: the whole person (not simply the locus of disease or disability); health (as opposed to disease and its treatment); the influence of the social and physical environment on an individual’s health; and nursing—that is, what nurses do for and with patients to enable and support patients as agents in the pursuit of their own health goals. In this way, Ellis wrote, nursing “moved from doing *for* patients to working *with* patients, helping people to care for themselves and involving them in their care and decisions about their health.” In addition to transforming patient care, this focus shaped the kind of knowledge produced by nurses and distinguished it from knowledge produced by physicians and biomedical researchers.

As academic nurses were constructing their science, academic physicians were establishing the discipline of clinical epidemiology and asserting the superiority of the randomized controlled trial for generating the most objective and reliable knowledge. They did so in the context of the quality assessment movement in health care, which aimed to systematically measure the outcomes of patient care. This would help determine which clinical interventions worked and which didn’t, and hold physicians accountable for those outcomes (referred to as outcomes research). The primacy of the biomedical sciences, the growing importance of outcomes research, and the broader quality assessment movement in health care shaped the ways in which research methods and the evidence they generated were evaluated and accorded status.

VISIONS OF NURSING

ANNE WALLENTINE

During conflict or crisis—from wars and pandemics to individual health emergencies—nurses are often depicted in art as heroes and saviors. The necessity and respect for nurses’ professional care emerges most conspicuously in these moments, exemplified in the early days of the COVID-19 pandemic by the signs thanking health care workers that sprouted on windows and lawns.

But nursing has been depicted in many ways as it evolved into a formalized profession over the nineteenth and twentieth centuries. From caps to

scrubs, exemplars to essential (and exhausted) workers, the many changes in the profession over the past half-century have been reflected in nursing’s representations in visual art and culture.

During World War II, government propaganda posters depicted nursing as a heroic choice in a bid to meet growing wartime needs. “Enlist in a proud profession!” blared advertisements for the US Cadet Nurse Corps, which featured and were aimed predominantly at women. The nurse on one 1943 poster (p. 77)—a perfectly coiffed, blonde, blue-eyed cadet in uniform haloed against a

blue ground—appears at once angelic, inspirational, and professional, her idealized beauty playing no small part in the vision of success that the poster aimed to project.

The government-sponsored images of nurses in 1943 did not yet reflect the true diversity of the profession. After the war ended, a severe nursing shortage led the United States to recruit more nurses beyond its borders, informed by its colonial legacy. The United States had instated Americanized nursing training programs in the Philippines since colonizing the country in 1898,

The randomized controlled trial had become the gold standard research method in clinical medicine by the 1970s. But nurse scientists preferred descriptive quantitative studies, observational studies, and qualitative research methods that relied on the invocation of theory rather than statistical analysis as a means of validation. As a result, the knowledge their research generated occupied a comparatively lower position in the so-called hierarchy of evidence. This led to nursing science and nurse scientists being undervalued within academia, even as nurse scientists contributed to clinical research what was missing from physicians' interventions-focused approach: evidence concerning the social and political context of patient care that could help explain why individuals made the choices they did about their own health and health care.

Nevertheless, nurse scientists, who were increasingly educated in nursing PhD programs, did secure their place within academia. They secured external research funding, engaged in research, published in peer-reviewed journals, and instituted nursing PhD programs—and did so during a time in which women scientists, in general, fared especially poorly. Historians of gender and science have described the postwar demise of predominantly female disciplines, such as home economics, and analyzed the efforts of women scientists to establish themselves within traditionally male disciplines previously closed off to them. The establishment of nursing science and the experiences of nurse scientists thus provides new insights into the experiences of women scientists and the intersections of gender, knowledge production, and discipline formation in the postwar decades.



Carolyn Moorhead Edmundson, 1943, 28 x 20 in. Courtesy UNT Libraries Government Documents Department.

and the combination of this educational system along with postwar legislation that encouraged migration enabled many more Filipina nurses to fill the country's needs for professional care. A 1976 graduation photograph of Rizalita Legaspi Aniel, Neruta Ladia, and Norma Lesada (p. 78) shows the three smiling new nurses in their starched, all-white uniforms and caps, representing at once the United States' colonial past and its diversifying future.

A drawing by Virginia Powell from the mid-1990s (p. 86) shows the further evolution of nursing as it relates to

technology and training. The nurse sits at the bedside of a patient wearing an oxygen mask, monitoring the patient's condition after an operation. With the advent of ever-more advanced medical technology came changes in nurses' roles and education, including a shift from providing predominantly physical care to managing equipment and reading increasingly detailed monitors and scans. Keith Holmes's early 1990s portrait, *Nurse in Red* (p. 82), also reflects this increasing professionalization through the equipment in the background and the nurse's calm face and commanding

pose, conveying her authority and expertise as she points beyond the frame with her gloved hand. Both works also show how nurses' uniforms continued to evolve over the decades. The nurse's red uniform includes a skirt and apron but no starched cap, which, although still strongly symbolic of the nursing profession, has gradually been eliminated for reasons of hygiene, practicality, and gender equality. Meanwhile, Powell's modern nurse wears scrubs and a hygienic bouffant cap, pushed back but still in place from the operating room.

(continued on p. 78)

Establishing educational pathways into nursing

By the 1960s, there existed multiple educational pathways into nursing. Hoping to resolve nursing shortages, nurse educators had introduced one-year licensed practical nursing (LPN) programs and two-year associate degree (AD) programs. In the resulting hierarchy, LPNs were tasked with the “traditional” bed and body work of nursing, while AD-educated nurses had greater clinical responsibilities than the LPN, but less than that of the BSN-educated nurses. The BSN-prepared nurse assumed the status of the “professional nurse” and the responsibilities of the expert and independent clinical practitioner. Professional nurses, typically after completing advanced graduate education, would go on to serve as clinical supervisors, educators, or administrators. Diploma-trained nurses (who had completed a hospital-based program) were expected to complete a BSN in order to be considered a professional nurse and to pursue career advancement.

This educational hierarchy, however, exacerbated existing hierarchies within the nursing workforce that stratified nurses by education level, family income, and class, and were further compounded by race. Shaped by the history of segregation and systemic racism, in the early 1970s the majority of Black nurses graduated from LPN, AD, and diploma programs. This subsequently limited their opportunities for career advancement, leadership, and faculty positions—all of which required at minimum a BSN degree.

Although some nurse leaders regarded the different educational pathways as hindering nursing’s professionalization, the persistence of these pathways indicates their value in increasing access to nursing for underrepresented populations. It also highlights the varied interests—and political power—of nurses and other stakeholders in maintaining them. For example, during the 1960s and 1970s, the American Nurses Association and other nursing leaders pushed to close diploma programs and establish the BSN as the minimum credential for professional



Graduation photograph of Rizalita Legaspi Aniel, Neruta Ladia, and Norma Lesada, March 1976. Photo courtesy National Museum of American History.

Today, the practicality of scrubs and personal protective equipment (PPE) predominates among nursing uniforms. In 2020, Tim Okamura began painting highly realistic portraits of nurses during the early height of the COVID-19 pandemic, including face masks and shields that drive home the frontline nature of their roles. His painting of Jennie Vasquez (p. 85) shows her girding herself with layers of PPE in preparation for her work, while an image of Tamika Dennis (p. 75) reveals the more vulnerable aftermath of a shift as she removes her mask.

These works are a far cry from the gloss of wartime propaganda posters, instead recognizing the precarity and humanness of the profession as overwork and understaffing continue to threaten public health.

The pandemic’s stresses on the health care system and its workers over the past several years have fueled numerous nurses’ strikes for better staffing and support to provide adequate care for patients. At one such strike at a Kaiser Permanente hospital in 2021, nurses held signs that read, “Heroes treated like zeroes” (p.

80). Photographs like these illustrate the tensions that underpin the profession as well as its depictions: nurses continue to be highly valorized but are often given inadequate support to do their difficult and demanding jobs. Still, representations of nurses continue to adapt just as the profession does—to new challenges, new mediums, and new visions of what a nurse can be.

Anne Wallentine is a writer and art historian with a focus on the intersections of art, culture, and health.

practice. But this was at a time when state and federal policymakers prioritized expanding access to and diversity within higher education. In this context, state legislators were persuaded by the arguments of diploma- and AD-educated nurses to keep and even expand the educational pathways into nursing because it fit their goals of expanding access to higher education while also addressing the health care needs of the state.

In Minnesota, for example, state legislators were under pressure from nurses to facilitate educational mobility for graduates of diploma and AD programs. These legislators, in turn, put pressure on the University of Minnesota, as the state's land grant institution, to resolve the problems of educational mobility by, for instance, creating accelerated registered nurse-BSN programs, awarding college credit for prior education and clinical experience, or enabling nurses to test out of classes that covered knowledge they already had competency in. In April 1971, state representative Verne Long wrote to the University of Minnesota's vice president for legislative affairs asking the university to help resolve difficulties nurses had faced in their efforts to attain advanced training. Long, who chaired the Minnesota House's higher education committee and was vice-chair of the appropriations committee, asked the university vice president "to direct

educational system as one characterized by differential pathways into nursing.

Through the late twentieth and early twenty-first centuries, nurses and health care organizations continued to debate the merits of maintaining these differential pathways. In 2011, the Institute of Medicine (IOM, now the National Academy of Medicine) called for the proportion of nurses with bachelor's degrees to increase from 50% to 80% by 2020. It did so in response to more than a decade's worth of compelling evidence that hospitals with higher percentages of BSN-educated nurses had better patient outcomes. Nevertheless, the IOM recognized that the AD remained a critical entry point into nursing, particularly for people from rural areas, disadvantaged backgrounds, or underrepresented populations. Five years later, the IOM reaffirmed the importance of maintaining and strengthening the different educational pathways into nursing.

To be sure, these educational pathways have not resolved the problem of racial inequities in nursing. This is especially true within academic nursing, where 82% of full-time nursing faculty are white. Among registered nurses, 73.5% are white, and 84% of advanced practice nurses are white. Indeed, ongoing systemic racism has meant that Black, Indigenous, and other people of color continue to face barriers accessing

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your *immediate attention* to the problem.... If, in fact, the solution to these problems can be found ... then I want to say in the most forceful manner I know how—let's have the answers forthcoming soon." The following year, Long asked the University of Minnesota dean of nursing to report on "the progress you have made in the areas of those [nurses] that are trying to upgrade their education."

The issue of educational mobility was, then, politically charged. As University of Minnesota nursing faculty member Mariah Snyder recalled, "Because of the two-year programs being in rural communities or outstate, legislators were not going to do away with the schools in their cities." The Minnesota Nurses Association (MNA) was also opposed to restricting access into professional practice by closing diploma or AD programs. After all, Snyder noted, the MNA's "largest membership was two- and three-year grads, so they weren't going to get behind this effort" to close two- and three-year programs. As a result, the state's registered nurses and the legislators who represented them expected the state's four-year colleges, and particularly the flagship University of Minnesota, to take the lead in facilitating the educational mobility of the state's nurses. The intersecting interests of nurses and state legislators thus helped to shore up nursing's

higher education in nursing. This is reflected in the continuing marginalization of women of color in low paying, low status direct care occupations, such as nursing assistants and home health aides.

Much more work is needed to address these racial inequities and increase diversity within nursing, particularly at the highest educational levels. An essential component of this work is to provide support and resources for educational mobility within nursing—from the role of home health aide all the way to the advanced practice role—via articulated education pathways and the implementation of career ladders.

Building disciplines, confronting legacies

Nursing was not the only practice profession engaged in the work of building its discipline in the second half of the twentieth century. During these same decades, engineering, computing, clinical psychology, and pharmacy were embroiled in similar scientific and political debates as they undertook their own academic projects. For example, the emergence of computer science as an academic discipline in the period between 1955 and 1975 entailed a significant degree of boundary work with the academic disciplines upon which computer science drew for its people and its



Hospital staffers and union organizers waved signs and banners in protest over staffing shortages at Kaiser Permanente Hospital in Roseville on October 14, 2021. Photo by Fred Greaves for CalMatters, courtesy CalMatters.

content. It also led to significant tensions between academics and practitioners—that is, those working as computer programmers—particularly regarding the balance of theory and practice in computer science education.

Pharmacists were similarly engaged in a decades-long debate over educational reform and the academic requirements for entry into professional practice. By the 1960s, as physicians struggled to make sense of the ever-growing array of new drugs on the market, hospital pharmacists established themselves as drug information experts and played an increasingly critical role within the health care team. At the same time, community pharmacists began providing drug information and counseling to patients. In this context, the movement for academic reform—characterized by the push to expand clinical education and establish the PharmD (doctor of pharmacy) as the entry-level degree for the profession—gained greater traction. Nevertheless, it took until 1992 for pharmacists to finally resolve the debate, implementing plans to eliminate the bachelor's degree in pharmacy and establish the professional doctorate as the entry-level degree program.

Composed primarily of male scientists, engineers, and practitioners, the overwhelming majority of whom were white, these other science, technology, engineering, and mathematics (STEM) disciplines have, like nursing, had to confront a history of systemic racism and racial and social inequities in higher education. Understanding how nursing leaders chose to construct their discipline, determined which knowledge and thus which type of research had value,

and selected who was invited to participate in that epistemological project provides important lessons for other STEM disciplines.

First, the multiple educational pathways into nursing that the profession was compelled to maintain have contributed to increasing numbers of racially and ethnically minoritized, rural, and low-income nursing students. This in turn has improved access to higher levels of education, particularly among historically marginalized and underrepresented populations. Recent government data indicate that nurses of color “are slightly more likely than their white counterparts to obtain a baccalaureate or higher degree during their careers.”

Second, the way nurses defined their discipline—toward the agency of the patient—created an important model for focusing STEM disciplines

on solving societal problems by understanding society itself. Nurses recognized that important factors in determining the effectiveness of any clinical intervention include how patients experience and respond to illness, how and why they make decisions about their health, and the social and physical environments in which they live. In STEM disciplines, rarely is it sufficient to create an intervention without also considering how people make decisions about whether and how to use the intervention. For example, engineers who build a new bridge also need to factor in how people will use the bridge; a bridge that is unused or overused is unlikely to solve the problem it was created to solve.

Finally, as STEM disciplines are called upon to support diversity, inclusion, and equity in higher education and careers, nursing's history makes clear that the choices made by health care professions and disciplines in the past—and, equally, in the present—have profound implications not only for who gets to work as a health care professional, but also for who has access to health care and how those with access experience the care they receive. So too, the professions and the disciplines that underpin them are critical to challenging discrimination and effecting change in the health care system.

Dominique A. Tobbell is the Centennial Distinguished Professor of Nursing and the director of the Eleanor Crowder Bjoring Center for Nursing Historical Inquiry at the University of Virginia. She is the author of Dr. Nurse: Science, Politics, and the Transformation of American Nursing (University of Chicago Press, 2022), from which this essay is adapted.