Building Research Infrastructure in Schools of Social Work: A University Perspective

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This article addresses strategies for research infrastructure development in social work by building on the profession’s work of the past two decades and by drawing on the experiences of the larger university environment. The article provides a set of recommendations for the next generation of social work research, which is likely to be highly interdisciplinary, focused on implementation of scientifically based programs, and called on to articulate its societal and economic contributions.

Key words: future of social work research; history of research development; intellectual property; research infrastructure; research universities

Over the past three decades, social work has been concerned with building its research infrastructure. Research infrastructure is defined as the physical and human resources for research within the business, research, and academic environment of the university program. In this article, we identify strategies that universities have used over the past 60 years to increase research capacity across science disciplines. We use these as a springboard to consider the enhancement of social work research infrastructure in today’s university environment.

Since the birth of the modern university following World War II, research has become an increasingly prominent part of American universities’ missions (Geiger, 1990). From the 1940s through the turn of the century, dramatic investments in science were made in American universities. Federal agencies dramatically increased funds for university-based research to support the attainment of national goals such as national defense; efficiency in food production; the race to the moon; vibrant cities; and reducing the effects of disease, especially those of cardiac disease and cancer (Friedman, 2005; Geiger, 2004). The investment in research reflected American values, including optimism that industrial and scientific goals could be reached with national, state, and private investments; competitiveness with the Soviet Bloc during the Cold War; and confidence in rational empiricism as the route to solving human problems.

In this article, we identify the strategies and rationale used by other disciplines to develop research infrastructure, consider what motivates institutional investments in research infrastructure, and discuss the challenges for social work to build research infrastructure at a point in time after major university research infrastructures have been established. We make recommendations for improving research infrastructure within program missions, and we point toward future research trends that will affect social work, with the aim of positioning our profession to move forward quickly.

Physical and Life Science Research Infrastructure Development

Facilities
In the physical and life sciences, the basic research infrastructure is the laboratory. In the second half of the 20th century, American universities poured huge amounts of funds into science laboratory construction. Over the past several decades, the cost of instruments in these laboratories has escalated to the point at which it often costs millions of dollars to purchase, maintain, and run a laboratory that includes sophisticated equipment. One approach that universities have taken to balance cost with quality of facilities is to set up shared core facilities (Angeletti et al., 1999). These are constellations of equipment, technical staff to operate sophisticated equipment, and operating costs associated with the equipment, which are shared among a group of investigators.
This can be a cost-efficient strategy for providing access to expensive instrumentation when there are many investigators who use the equipment.

**Human Capital**
Without a pool of scientists who are trained in the latest technologies and scientific inquiry, science cannot advance. In the physical and life sciences, the human capital development path for scientists entails undergraduate and graduate training in science, with increasing specialization and original research in graduate programs. Attainment of the PhD is followed by an extended career development and education through postdoctoral fellowships. Postdoctoral fellowships prepare scientists to become independent investigators. The lineage of the scientist’s pedigree is celebrated in these fields of science, with the doctoral and postdoctoral adviser laboratories listed on the curriculum vitae (American Academy of Arts and Sciences, 2008).

**Scientific Support Teams**
With advances in technology and equipment, major science enterprises today rely on highly trained staff to carry out the technological functions of the laboratory. Start-up packages for scientists include costs for postdoctoral fellows or research associates, who also hold PhDs. Such staffing structures also increase educational and training opportunities because these research associates and postdoctoral fellows work under the guidance of the faculty member’s laboratory.

**Intellectual Property**
University research is strongly linked to economic development (Hasselmo, 2004). The Bay–Dole Act (P.L. 96–517) gave universities control of the intellectual property, the inventions, resulting from federal funding support. With intellectual property protection, universities began to lay claim to their roles as regional, national, and international economic engines. One of the more profound implications of research centers is the spin-off effect (MIT Entrepreneurship Center, 2008), the link between scientific discovery and industrial and economic success. Research efforts of faculty and students associated with research centers led to new fields of technology, employment opportunities, and significant economic benefits.

Protecting the economic value of research is an important aspect of research infrastructure. Intellectual property protection includes support for costly legal processes such as patent application and protection and contractual agreements between research partners and collaborators. It also includes bringing technologies and inventions to the marketplace.

**Collaboration in Knowledge Production**
One of the most interesting developments in 21st century science is that the most influential scientific achievements have been produced by clusters of scientists rather than by individual scientists or laboratories. Wuchty and colleagues (2007) found that across all fields, including the social sciences, more frequently cited knowledge has been produced by larger groups of collaborators than has been less frequently cited knowledge.

Furthermore, collaboration is extending beyond interdisciplinary boundaries. Cutting-edge life science research now spans biology, chemistry, and physics. Social research has been increasingly linked with genomics and neuroscience. Federal research support has promoted research collaboration through research centers and other mechanisms (National Institutes of Health [NIH], 2008). Many science initiatives in universities are now advanced through creation of interdisciplinary research centers and through cluster hiring, another way to promote collaboration in science through bringing together a number of scientists with related interests (Yamamoto, 2008). It is increasingly apparent that the knowledge of tomorrow will be created by teams of scientists from multiple disciplines.

**SOCIAL SCIENCE AND SOCIAL WORK RESEARCH INFRASTRUCTURES**
An American Association for the Advancement of Science (2008) analysis found that 44% of the federal research budget supports health research, but only a small fraction of those funds, 4%, supports non-health-related and social science research, and social work represents only a small fraction of that amount. Social science, and specifically social work research, tends to have a less-developed infrastructure when compared with the physical and life sciences. It commands a lower proportion of the federal budget and is typically less well supported with scientific facilities when compared with other natural or physical sciences. Because most social work research does not require traditional specialized laboratories or equipment, the need to develop social work research infrastructure is typically less apparent to university
administrators. This position of low scientific vis-
ibility represents a significant challenge for social
work programs to identify resources for research
infrastructure development.

Social work education began to focus on research
infrastructure in the 1970s with the National Re-
search Conference in San Antonio, Texas (Fanshel,
1980). Creation of the National Institute of Mental
Health (NIMH) Task Force on Social Work Re-
search (Austin, 1991, 1999) brought dramatically
increased attention to infrastructure for social work
research to enable social workers to develop fed-
ernally funded research and knowledge about the social
problems on which the profession intervenes. The
past two decades have brought strong increases to
the engagement of social workers in the research
enterprise, yet the profession still represents less
than 0.5% of research funded by NIH (Task Force
on Administrative Research Infrastructure within
Social Work Education Programs, 1997; Austin,
1999). Since the early 1990s, there have been many
articles on building research infrastructure in social
work (Holloran & Thompson, 2005; D. K. Padgett,
2005; Task Force on Administrative Research
Infrastructure within Social Work Education Pro-
grams, 1997; Zlotnik, Biegel, & Solt, 2002). These
articles cover many ideas, including strengthening
national research networks through an organization
of social work researchers, creating a national office
that promotes social work research with federal
funders, building capacity within schools of social
work through mechanisms such as writing groups,
and building a stronger culture for research within
schools of social work.

Implications for the Next Generation of
Social Work Research Infrastructure

Social work is building its research infrastructure
later than are many other science and professional
fields; therefore, it is challenging for social work
to command university-supported infrastructure
investments, particularly if social work is not already
seen as a strong research unit on campus. Today’s
university leaders want to invest in strength and
distinction (Bok, 2003). If the social work program
is not viewed as a productive research unit, it must
identify resources from outside the university and
improve productivity to compete strategically for
university investment. The following recommenda-
tions can aid social work programs to build research
infrastructure within today’s university climate.

Recommendation 1: Define the
Program’s Research Mission within
the Institution’s Mission

Most university missions include aspects of teach-
ing, service, and research. The “engaged university”
is a mission theme for many institutions of higher
education (Bok, 2003; Boyer, 1990). Social work is
uniquely positioned to lead engaged scholarship, and
to the extent that it does so the more likely it is that
the university administration will see the value in
investing in its research infrastructure.

One platform for engaged research is through
university–community partnerships. One example
is the collaborative research model developed at the
University of Wisconsin–Milwaukee, Helen Bader
School of Social Work, Center for Addiction and
Behavioral Health Research. The center, in part-
nership with the Medical College of Wisconsin,
Mount Sinai Regional Medical Center, Aurora
Health Care, and several community-based behav-
ioral health care agencies led to a program of com-

munity-based research that has been translated into
models of best practice (Zweben & Begun, 2004).
Training modules based on the research-based best
practices have been disseminated widely.

Recommendation 2: Set Research
Priorities

To strengthen infrastructure, especially given the
limited resources that most schools of social work
face, it is important to establish research priorities.
This is usually the work of a governance group at
the social work program level. The governance body,
in conjunction with the research leadership of the
university and social work program, should examine
strengths and weaknesses, opportunities, and threats
and identify areas of existing research strength and
future potential for research success. For example,
partnership with a nonprofit or public agency can
provide an opportunity to link to faculty expertise
and identify resources to build a research program
in the needed area. Many schools have pursued
such partnerships as a strategy to build research
infrastructure.

Priority setting must be based on institutional
and program missions, goals, and objectives. It is
essential to identify the institution’s and the social
work program’s niche within the community and
the institution. By addressing institutional priori-
ties, a coherent research agenda can be developed,
realized, and funded.
Recommendation 3: Invest in Human Capital

Research Preparation. One advancement within social work in the past decade has been the profession’s emphasis on enhancing the quality of the research education of social work doctoral students (Group for the Advancement of Doctoral Education in Social Work, 2003). This effort has been aided by several authors (Capshew, 2005; Forte, 1995; Morse, 1999; Royse & Rompf, 1992) who have developed teaching methods for improving quantitative and qualitative reasoning in social work. On the basis of our personal experience, a barrier to improving doctoral training is the low level of research preparation in most social work master’s programs. It is difficult to establish research specializations in master’s programs because of the extensive content required in MSW education (Council on Social Work Education, 2008). However, the development of summer research workshops and research fellowships for MSW-level students might help alleviate this pipeline issue.

Continued Research Training. Following strong PhD preparation, ongoing research training must be a priority for social work faculty. This includes expanding the number of postdoctoral research opportunities through mentoring, inviting assistant professors to serve as coinvestigators on senior faculty grants, supporting applications for NIH K-awards, and developing a research development plan as part of the portfolio of an assistant professor. Well-trained and experienced researchers are the core research infrastructure.

One area in which the profession has made dramatic strides in the past decade is offering advanced methods and grants skills workshops at national conferences. The Society for Social Work and Research (SSWR) and the Institute for the Advancement of Social Work Research (IASWR), in sponsoring these workshops, have provided strong leadership for human research capital building. Social work programs interested in building infrastructure should complement these opportunities through supporting faculty to attend workshops offered by many universities in summer months, online training, seminar series, and interdisciplinary workshops at the university.

Recommendation 4: Invest in Scientific and Administrative Facilities

Social work has not traditionally concentrated on facilities as a critical aspect of building research infrastructure. Facilities enable the faculty member to conduct state-of-the-art research and to allocate time efficiently among competing demands of teaching, research, and service.

Research Centers. Does the process of building research infrastructure in social work require the creation of research centers? Centers may be founded by a single entrepreneurial faculty member who has links to external research funding. Some are created by faculty who are interested in advancing interdisciplinary work and who want a greater degree of autonomy from their academic department. Others are created as a result of strategic priority setting as a decision to build distinctive strength in that area of research. The Social Work Research Development Centers sponsored by NIMH and the National Institute on Drug Abuse (NIDA) in the 1990s and early 2000s represented unprecedented funding opportunities to create distinctive focuses of research excellence, and they worked best when the social work program had the capacity and made the strategic commitment to that area of social work scientific discovery. Although some social workers criticized these infrastructure development programs as too narrowly focused for social work’s mission, they serve as a model for resource investment for infrastructure development in social work.

Leadership is critical to research center operation (Eveland, 1982). The director must be able to work with the collaborators inside and outside of the university, to obtain funding, to conduct funded research, and to establish and run a center. A strong director is the leader for building a program of research that carries out the center’s vision. The ideal director is a respected scientist, able to motivate others to prepare grant proposals, and is an excellent manager and communicator across disciplines and institutions.

Ironically, research centers typically create more, rather than fewer, financial pressures for the social work program. This should be viewed positively; although from within the program these pressures feel burdensome and can exacerbate perceived competition between research and other aspects of the program’s mission. Without a core of permanent funding, centers face financial and programmatic uncertainty. Permanent endowment or base funding provides important infrastructure stability to a center and better enables a center’s program to withstand periods of external funding lapses and to build a base that enables the center to develop new...
Scientific initiatives at the same time it is carrying out its funded projects. Permanent state or endowment funding can be used to boost the success of external funding by providing funds for preliminary research, key research faculty or staff positions, bridge funding, conferences, and incentive funding for grant applications or other research development activities on the part of the director or other affiliated faculty.

**Shared Core Facilities.** Core facilities that include shared equipment and staff expertise could be developed for social work research. Although social work does not require instrumentation that costs millions of dollars, shared facility development can support some of the often weak aspects of social work research infrastructure. These include the latest social science research quantitative and qualitative technologies; data analysis capacity; administrative staff support; project staffing in particular areas, such as computer-assisted interviewing, database construction and utilization, scanning technologies, geographic information methodologies, quantitative analysis, and qualitative research methodologies that include computer voice recognition software and computer-assisted interviewing software methodologies. These methodologies require sophisticated hardware and software equipment. They also require skilled expertise to choose, operate, and maintain the specialized equipment. These are skills that even the most sophisticated social work researchers may not possess and cannot keep current, given constantly emerging technology options. As an example, at the University at Albany, several professional schools and social sciences units are collaborating to create shared core facilities in the area of evaluation research. The facilities will include a survey core, a database core, and a data analysis core.

Core facilities pose management challenges. Sustaining the operating costs of facilities is one challenge. Another is deploying excess capacity; the amount of unused time that the facility is operating. Unless a substantial amount of research is done at the core facilities, they will operate at a loss. Strategies for efficiency in core facilities include deploying the facilities across different disciplines within the university, selling excess capacity to other research groups in business and at other universities, and having reasonable charge-back cost structures for facilities usage so that operating costs can be sustained.

A related idea is to develop core facilities that multiple social work programs could use. Social work is a small enough field that with strategic planning involving research organizations, such as SSWR, IASWR, the National Association of Deans and Directors of Social Work, and the Council on Social Work Education, shared core facilities could be built to support research across the profession. In this way, social work programs could band together across the country to share and expand facilities that many programs could use, even those that are too small to warrant development and sustenance of core facilities of their own.

**Administrative and Budget Supports.** The program director must allocate adequate travel, research support staff, budget management, and secretarial support for research. Important sources of support for these items are the indirect cost that grants generate and the release time funds beyond teaching replacement that are generated by grants. Most universities return a portion of the indirect costs that are generated by funded research to the academic units that generate the funds. The purpose of indirect funds is to support the research and administrative infrastructure that is necessary for research. The program may also choose to share indirect costs generated by grants with research partners, such as community-based agencies, for the purpose of supporting their ability to participate in research collaboration. Adequate research infrastructure entails administrative support for budget preparation, use of budgeted resources after the grant is funded, and monitoring of the grant budget over time.

A successful example of assisting in the sustainability of a research center occurred at the University of Wisconsin–Milwaukee, Helen Bader School of Social Welfare. To maintain the long-term viability of the research initiatives within the school, a policy was adopted that returned 5% of all indirect cost return to the principal investigator. This policy provided ongoing financial support to the researcher and school-based research centers during any gaps in funding.

**Recommendation 5: Identify and Protect Intellectual Property**

At first blush, building the economy and protecting intellectual property may seem to be remote concerns for social work research, but, in fact, economic concerns increasingly affect the conduct of social work research and resulting social work services. With the rise of evidence-based services, the standard for fidelity and adherence to scientifically based programs is training and certification, usually by a
proprietary entity that licenses and certifies use of the program. In some cases, a business or nonprofit spin-off rather than a university-sponsored organization disseminates an established intervention technology. One example is the Communities that Care Program, developed by J. David Hawkins and Richard F. Catalano, which empowers communities to use advances from prevention science to guide their prevention efforts (Communities that Care Community Planning System, 2008). This program is based on a public health model that helps communities promote the positive development of children and youths. After several years of rigorous testing and marketing of the program by the University of Washington School of Social Work, Social Development Research Group, the copyright has been transferred to the Substance Abuse and Mental Health Services Administration and is now part of the Center for Substance Abuse toolkit. Another example is the work of Karol Kumpfer in the development, evaluation, and marketing of her family program. The Strengthening Families Program was developed as part of a NIDA research grant in the early 1980s and is currently marketed through the Department of Health Promotion and Education (2008) at the University of Utah.

There are proven approaches for creating and sustaining such spin-off companies. Relatively few social work researchers have created this type of spin-off business. Financial and time commitment conflicts of interest must be considered and monitored when a faculty member's research program leads to a business that will advance and develop its products and programs. Contracting and licensing terms are important in protecting intellectual property.

Social work programs should encourage more spin-off companies. Resources within social work for spin-off businesses are agency partners who might be in a position to create subsidiaries, profit or nonprofit as appropriate, which develop and deliver the products from a research effort. Examples of social work spin-off technologies include measurement tools, training programs, manuals, and fidelity protocols. Other forms of intellectual property include the copyrighted instruments and publications. Copyright permissions may be granted freely in exchange for a citation. Software is another example of proprietary social work technology. Our point is that intellectual property and its protection will become an increasingly important concern for social work researchers.

Social work programs should gain knowledge and experience in protecting intellectual properties. Strategies to move forward include obtaining consultation from the campus's technology transfer officer and providing faculty development opportunities to raise awareness and to increase capacity to protect social work intellectual properties such as treatment protocols and training or measurement tools through mechanisms such as copyright, and licensing.

BUILDING THE NEXT GENERATION OF RESEARCH INFRASTRUCTURE FOR SOCIAL WORK

Trends in U.S. Research Funding
Because many countries worldwide are successfully developing their research infrastructures, research funding must be a mainstay of the U.S. economy if it is to remain competitive. Substantial projected future growth of U.S. research funding is necessary, despite current and projected deficits that are due in large part to the military actions in Iraq and Afghanistan.

Interdisciplinary Collaboration
With the advancements in the field of genetics and neuroscience, understanding human behavior is becoming more holistic. Complex and compelling linkages between explanations for human behavior and conditions are being identified. Examples include the research of Cicchetti, Rogosh, and Toth (2006), which shows the linkages between maternal–child interaction and brain development of infants and toddlers. This generation of neurological–biological–social studies shows that the biological–behavioral connection is bidirectional. Human experience affects biology as biology affects human experience and behavior.

Challenges for the profession include the development of a knowledgeable professoriate that is able to partner in biological–psychological–social research. To be positioned to advance the next generation of research, social workers should develop partnerships with biologists and health experts. One way to build these relationships is to participate in university health or interdisciplinary initiatives. If an institution has a health research center, relationship development with its key investigators is one strategy toward building interdisciplinary teams that ensure social work participation in the new generation of research on human problems and their solutions.
Community Participatory Research

In the engaged university, research is increasingly driven by the voice of the community in defining the research agenda and in conducting the research. Social workers are community participation experts. An inclusive orientation is an important asset in the conduct of community participatory research. Social workers are in a favorable position to involve marginalized communities, not only as subjects of research, but also as drivers of the directions of inquiry, setting the agenda for equity and justice and effective dissemination of relevant outcomes.

Implementation Research

Implementation of scientifically based interventions is another emerging priority for social work research funding. Because the evidence base is growing in many fields of social work practice and human services and because the findings repeatedly indicate that practitioners do not use evidence-based practices to the fullest extent and that experimentally based interventions do not produce the same effect sizes in natural service settings as they do in experimental settings, NIH is sponsoring a trans-NIH priority on implementation research (NIH, 2006). This represents a unique opportunity for social work researchers, who are familiar with the realities of service settings and who are also experts in the latest scientific evidence regarding particular client problems.

CONCLUSION

Social work has made considerable progress in developing its research productivity in the past 20 years. Advancing to the next level of research productivity requires stronger research preparation of the professoriate to engage in interdisciplinary research using the latest research technologies, the definition of strategic research goals, finding the place of the profession among other disciplines that have already established their research presence, securing funding to invest in social work research infrastructure, balancing priorities within the missions of particular programs, and a sustained commitment to making the profession a research-based profession.

REFERENCES


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