Editorial

The Impact of Leadership and Research on Decision Making: Forming Collaborations and Shared Partnerships

Ann Eshenaur Spolarich, RDH, PhD

There is an old saying that "two heads are better than one." Certainly, there are many opportunities for health care providers to participate in collaborative work efforts, including for conducting original research.[1] The decision to participate on a collaborative research team is often based on practical considerations (eg lack of access to a specific patient population, health science librarians, or biostatisticians) or simply because it makes sense to bring together individuals who have different areas of expertise and/or backgrounds in health care with shared interests. Interprofessional collaborative teams are becoming much more commonplace in academic and health care settings to examine clinical problems from multiple perspectives.[2]

In research, there is an underlying assumption that collaboration produces greater outcomes. However, studies have shown that even small differences in work effort by one or more individuals on a team lead to large differences in the degree of effectiveness. Team leaders must be able to define work expectations, as well as encourage and monitor the efforts of all participants to ensure that efficiency does not suffer and that project outcomes are successful.[1]

Researchers have to make choices when offered opportunities to collaborate. Joining a collaborative team has implications for each individual on the team, who must weigh the risks and benefits before making the decision to participate. Most choices revolve around credit allocation, such as who will be the project leader or the lead author on subsequent publications. These decisions should be made prior to the initiation of the project to prevent future disagreements and adverse working relationships after the project is under way. For many scientists, giving away the chance for sole ownership or lead authorship on a project may be a major trade-off made in exchange for greater efficiency and a faster rate of completion.[2,3]

For early investigators, making the choice to collaborate also poses an ethical dilemma: will the opportunity for learning new skills and mentorship gained by working with established scientists enhance scholarly productivity, or will serving as a junior member of a team of established scientists limit the degree of recognition received in proportion to the amount of work effort invested? Early investigators have to carefully weigh these considerations and the impact their choices have on their career advancement. Indeed, there are times when collaboration may hinder an individual's planned path for advancement, especially if a supervisor demands the individual's participation for the good of the organization. Ultimately, the individual has to determine the rate of return of the time and effort devoted to achieving the team's goals and the value of the collaborative experience.

The literature that examines values in science is limited, as most of the work focuses on individual scientists' decision-making instead of within the framework of collaboration. It is accepted that a shared social value for the attainment of new knowledge exists among individual scientists. However, other factors may influence the value placed upon the knowledge gained from a collaborative project, such as the culture of the environment in which the project takes place, and social and moral values of the individuals who comprise the project team.[4] Investigators should remember that the goal of collaboration is to obtain results as opposed to merely participating on collaborative teams.[5]

Collaboration is more common in the natural sciences, and has become the social norm among scientists in these fields. This behavior is in part due to the necessity to join forces to successfully compete for funding for basic science research.[6] The culture of research at the bench is very different from that of the social sciences. Basic scientists are trained within a team context from the very beginning of their education, moving from research apprenticeships and internships through graduate school and postdoctoral work, working underneath the auspices of the established investigator who serves as the Principal Investigator on the project (PI). It is the PI who sets the goals for the project, and the team works together to achieve these goals. Along the way, student team members are given opportunities to build their own skills, by giving poster presentations and coauthoring papers related to the project. However, skill development among these student investigators is highly dependent upon the time and talents that

the established investigator devotes to mentorship.

Most researchers in dental hygiene are trained in the social sciences, where collaboration is much less frequent and, when available, tends to occur on a much smaller scale within the context of educational training. The mentor/mentee relationship still exists, but is much less structured as compared to what students experience within the basic sciences. Also, collaboration is more likely to occur with other dental hygienists, and the size of the team is also likely to be smaller. Early career dental hygienists, especially graduate dental hygiene students, may be given opportunities to collaborate with other professionals within the university setting or within the health care setting in which they are employed (eg hospital); however, it is more difficult for these novice investigators to find teams that they can readily join who have shared interests. Further, dental hygiene researchers who are early in their careers often lack an available mentor at their work setting who has enough experience to guide them with their scholarly pursuits. There is a tremendous need to foster leadership development in our field with grant writing, study design, project management, and authorship.

Collaboration is critical for growing the knowledge base that supports dental hygiene education and practice. Working together enables researchers to maximize the utilization of limited resources, capitalizes on existing skill sets of experienced investigators, and allows for expansion of both the scope and depth of proposed projects. Collaborative efforts also may allow for enhanced efficiency in addressing prioritized topics identified through published research agendas.[7,8] Recently, members of the National Center for Dental Hygiene Research and Practice (NCDHRP), the American Dental Hygienists' Association (ADHA) Council on Research, the Canadian Dental Hygienists' Association (CDHA) Research Advisory Committee, and leadership from the ADHA, the CDHA, and the International Federation of Dental Hygienists (IFDH) came together to discuss strategies to advance dental hygiene science and to identify shared priorities.[9] Discussions continue as to how best to work together on projects to improve the health of the communities that we serve.

Dental hygiene educators and leaders within the profession must partner with the dental hygiene research community to disseminate knowledge gained through research. Knowledge changes very quickly, but translation and adoption of new knowledge are slow. Tremendous progress has been made with the acquisition of new knowledge gained through original research, as evidenced by the expansion of the number of issues of the *Journal of Dental Hygiene*, and the increase in the number of journals devoted to dental hygiene.[10] However, getting dental hygienists to read journal articles is still a major challenge. Socialization to reading research papers must begin with dental hygiene students, with an emphasis placed on how that knowledge supports their decision-making. More effort is needed on the part of the leadership within the research community to encourage knowledge translation so that the adoption of this knowledge can be measured through changes in education and practice.

The NCDHRP was originally established to create and train interprofessional collaborative research teams. The mission of the NCDHRP is to promote the health of the public by fostering the development, implementation, and dissemination of oral health research; establishing an infrastructure to support dental hygiene research; and strengthening the scientific foundation for the discipline of dental hygiene. Three of the goals of the organization support the concept of collaboration:

1. Create and facilitate opportunities that promote leadership and scholarship;

2. Foster research efforts that address the objectives of oral health research agendas; and

3. Promote the translation of research evidence so that it is meaningful and useful in dental hygiene education and practice.

The NCDHRP regularly hosts conferences to bring members of the global dental hygiene scientific community together to explore commonalities in research interests, learn from each other, and to foster future collaborations.[9] An underlying goal of these conferences is to build collegial relationships among oral health researchers and representatives from academia, health care organizations, government, and industry. The intent of these conferences is to provide both the networking and intellectual support needed to systematically and purposely advance progress made toward addressing identified research priorities.[9]

The number of dental hygienists who self-identify as researchers continues to grow, which is imperative if we are to firmly establish a strong research infrastructure for the profession. Creating a critical mass of trained researchers is essential to this effort.[11] However, simply increasing the number of individuals engaged in dental hygiene research is not enough. Ongoing efforts are needed to further enhance the culture of research by keeping research efforts in front of the members of our dental hygiene professional organizations, by sharing research activities with leaders of dental hygiene organizations, by encouraging dental hygiene theory development, and by engaging key stakeholders in knowledge translation and adoption. Participation on interprofessional collaborative teams will also help to ex-

pand the reach of dental hygiene research projects through promotion of oral health within initiatives aimed toward improving general health.

Successful collaboration in dental hygiene allows investigators to:

- explore unique problems,
- examine problems from different perspectives,
- encourage risk-taking and critical thinking,
- challenge existing paradigm concepts,
- build "think-tank" and forecasting skills,
- capitalize on the expertise of others,
- gain access to critical resources,
- share workloads and job responsibilities,
- successfully compete for funding,
- develop new skill sets,
- work more efficiently and effectively, and
- disseminate knowledge to the broad scientific community.

Henry Ford once said, "Coming together is a beginning; keeping together is progress; working together is success."[12]

Ann Eshenaur Spolarich, RDH, PhD
Professor and Director of Research, Arizona School of Dentistry and Oral Health; A.T. Still University; Associate Director, National Center for Dental Hygiene Research & Practice

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