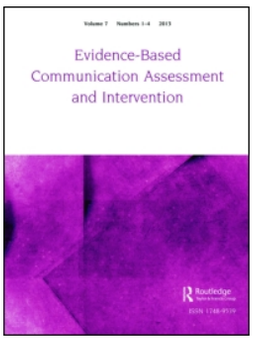

Evidence-Based Communication Assessment and Intervention

ISSN: 1748-9539 (Print) 1748-9547 (Online) Journal homepage: http://www.tandfonline.com/loi/tebc20

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To cite this article: Lesley B. Olswang & Howard Goldstein (2017) Collaborating on the development and implementation of evidence-based practices: Advancing science and practice, Evidence-Based Communication Assessment and Intervention, 11:3-4, 61-71, DOI: 10.1080/17489539.2017.1386404

To link to this article: https://doi.org/10.1080/17489539.2017.1386404

Evidence-Based Communication Assessment and Intervention, 2017
Vol. 11, Nos. 3–4, 61–71, https://doi.org/10.1080/17489539.2017.1386404

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EBP Advancement Corner

Collaborating on the development and implementation of evidence-based practices: Advancing science and practice

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Abstract
Implementation Science has recently gained considerable attention for the discipline of Communication Sciences and Disorders as a promising means for closing the research–practice gap by proactively facilitating the use of evidence-based protocols in practice. One of the pillars of Implementation Science is collaboration between researchers and stakeholders. This article describes the benefits of researcher–stakeholder collaboration, along with the challenges. Different types of collaborative approaches are provided with specific examples. Guidelines for creating and sustaining successful collaborations are provided. The article concludes with an appeal for more research that brings together the talents and expertise of researchers and other stakeholders in conducting scientifically rigorous and practically important studies in ways that improves the likelihood of adoption and sustained use of evidence-based practices.

Keywords: *Collaborative research; Evidence-based practice; Implementation science*

Communication Sciences and Disorders, among many other disciplines, is recognizing the need to close the research–practice gap. This recognition has spurred interest in Implementation Science and an emphasis on encouraging researcher–stakeholder collaborative research. Researchers seeking to promote application of their findings in practice are recognizing the paramount need for collaborating with community stakeholders (Olswang & Prelock, 2015). Similarly, community practitioners are increasingly appreciating the value of conducting research in their settings as a way to contribute evidence that addresses accountability of services to individuals with communication disorders (Campbell, Camden, & Missiuna, 2016; Crooke & Olswang, 2015). Bringing together the worlds of research and practice will advance both science and practice. This effort promises to inspire more impactful research questions and more advanced methods for producing evidence that ultimately is employed in practice (evidence-based practice), improving services and the life outcomes of individuals with communication disorders. This article will provide a rationale for the importance of collaborative research between academic researchers and community stakeholders, define and illustrate collaborative research relationships, and offer guidelines and resources for forming strong, successful researcher–stakeholder partnerships.

Source of funding: Preparation of this manuscript was in part supported by a Research Partnership grant supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305H160034 to the University of South Florida. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.

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RESEARCH–PRACTICE GAP

As has been well articulated in health care, one of the major obstacles preventing evidence from entering practice is the typically long research pipeline. Current dogma estimates that it takes approximately 17 years to move an idea from discovery to application (Green, Ottoson, García, & Hiatt, 2009). This traditional path has advanced knowledge regarding the efficacy of interventions and mechanisms of change. However, the emphasis on carefully controlling the conditions under which the evidence is obtained also has contributed to the research-to-practice gap. Researchers' efforts to ensure internal validity when investigating the efficacy of interventions by definition sacrifice external validity (Green, 2008; Krathwohl, 2009). Protocols evaluated under conditions that control for threats to internal validity, such as features of delivery and setting variables, often compromise the generalizability of the protocol to "real-world" environments. This set of circumstances can make application of evidence-based protocols into practice settings challenging. Not surprisingly, a lack of attention to systems needed to facilitate high quality implementation may weaken the effects of evidence-based protocols when they are delivered in natural environments rather than the controlled conditions under which the protocols were originally investigated. One reason this situation may occur is because obtaining and sustaining fidelity of evidence-based protocols is difficult to achieve and often deteriorates in routine contexts (Harn, Parisi, & Stoolmiller, 2013). Implementation Science researchers have begun to identify a number of factors that may promote or hinder successful implementation of new evidence-based protocols in practice, for example, complexity of the protocol (Grol & Wensing, 2013), practitioner attitudes about change (Aarons, 2004), and organizational barriers (Grol, Wensing, Eccles, & Davis, 2013). The clear problem is that the traditional research pipeline excels in pursuing new discoveries and testing their efficacy, but the research–practice gap becomes a major hindrance to capitalizing on these scientific achievements.

In addition to these shortcomings of the traditional research pipeline, a major philosophical stance impedes efforts to increase evidence-based practice. The traditional research pipeline relies on documenting evidence of efficacy and disseminating this knowledge through journal articles and conference presentations. This has been called the "push" approach for moving evidence into practice (Fixen, Naoom, Blasé, Friedman, & Wallace, 2005). As such, evidence is expected to eventually enter practice through practitioners' efforts to access, interpret, and apply new knowledge with their clients. Thus, the burden falls on the practitioner to drive implementation. With recent interest in Implementation Science, a more proactive approach has been attracting favor (Fixen et al., 2005; Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004). This approach actively engages the researcher with critical service delivery stakeholders (e.g. administrators, practitioners, caregivers, clients) to scientifically examine the process of implementing evidence into practice. Importantly, this active process requires researchers and stakeholders, particularly practitioners, to work together to optimize results. Rather than the researcher "pushing" evidence into practice, the researcher and relevant stakeholders collaborate to identify clinical questions of mutual interest and pursue research collectively, thus "pulling" evidence into practice.

BENEFITS AND STRUGGLES OF COLLABORATIVE RESEARCH PARTNERSHIPS

Value

Collaborative research acknowledges the importance of both science and service and recognizes the value of utilizing the expertise of both the researcher and practice stakeholders in bringing about durable change (Van de Ven, 2007). Researchers and significant stakeholders working together are more likely to create circumstances that lead to evidence-based practice, and thus improve desired outcomes for clients. Glasgow and colleagues (2012) recognize collaboration as one of the core tenets for advancing implementation research and closing the research-to-practice gap. The assumption is that the challenges associated with emphasizing scientific rigor versus service relevancy will be reduced if the perspectives of the researcher and relevant stakeholders are combined throughout the investigative process. That is, the research–practice gap can be ameliorated if efforts to better balance internal and external validity are addressed as new protocols are developed and tested. As such, a proactive context for change is created, whereby the service setting is committed and engaged in innovation from the beginning (Grol, Ouwens, & Wollersheim, 2013). Adoption of this approach in the health care arena is evidenced by the creation of the Society for Implementation Research Collaboration, which began as a National Institute of Mental Health conference series in 2010 with the purpose of formally "bringing together researchers and stakeholders committed to evaluating the implementation of complex evidence-based behavioral health interventions" (Lewis et al., 2016, p. 1). The growth of this group (currently numbering over 1000 members) and the success of their work demonstrate the value of research collaboration as a promising effort to close the research–practice gap.

However, support for this research paradigm is not unanimous. Opponents argue that academic researchers and community stakeholders come from two different worlds. They have "different priorities and preoccupations, are subject to different sorts of pressures, and work to very different timescales;" the result may lead to a "clash of cultures" (Martin, 2010, p. 212). Certainly, this statement raises an important issue and it illustrates some of the skepticism and challenges surrounding collaborative research (Kieser & Leiner, 2012). Like social relationships in general, establishing collaborative research relationships will have its tests, but the benefits for science and service appear to justify the effort.

Roles

Understanding the expertise of academic researchers and community stakeholders and what their different professional perspectives bring to the research enterprise helps us appreciate the value of collaborative research (Epstein, 2009; Lewis et al., 2016; Robson, 2002). Because the partners play different roles and offer different contributions, the multiple perspectives enhance the collaborative relationship. The development of shared expectations and appreciations for the various roles and contributions of researchers and stakeholders is essential for establishing a truly productive collaboration (Martin, 2010; Kieser & Leiner, 2012).

Academic researchers by training and experience bring expertise about scientific methods for documenting valid outcomes; as such they will have strong views about "good research." They are charged with generating hypotheses and judging results by controlling variables that can threaten validity. Researchers are driven to find some

semblance of truth regarding a particular phenomenon. Researchers will be acutely sensitive and attentive to the details of the protocol under investigation, including key elements of an intervention, issues regarding delivery dosage and fidelity, and methods for measuring outcomes. Motivation for the researcher will be valid, credible, and reliable results. Thus, the researchers' roles in collaborative research include scientific inquisitor, guide, skeptic, and monitor. The researcher continually will refer back to the research questions and guide decision-making with an eye toward finding valid evidence for targeted outcomes.

A varied group of community stakeholders may be involved in the therapeutic process, including administrators, clients, families, and practitioners. Practitioners, as primary service delivery providers, are most likely to be the collaborator with the academic researcher, particularly when questions directly address aspects of assessment or intervention in the service delivery system. In this article, we focus on practitioners to represent community stakeholders. They bring unique perspectives to the collaborative partnership, including representing the perspectives of clients, families, and administrators. Practitioners possess intimate and practical knowledge about disorders, service delivery systems, and therapy routines in clinical settings. The practitioner is uniquely positioned to understand many of the nuances and the strengths and limitations of their service delivery system. They also understand their clinical populations and factors such as the variability in client characteristics and associated client needs and priorities. Practitioners appreciate the demands and stresses facing caregivers, as well as associated challenges in planning and delivering services. Because practitioners represent different disciplines and educational backgrounds, they will in turn differ in beliefs about their services. Hence, they will vary in their preferences and styles in how they deliver services. Finally, practitioners recognize and must respond to organizational pressures impacting service, including caseload size, billing, and regulatory policies. Essentially, the practitioner must unravel these intricacies when serving clients. Given the practitioners' expertise and experiences, they have a unique role in collaborative research as "real-world" guide, identifying typical routines, operational challenges, and functional needs of clients and families. Because practitioners are the intervention implementers, all aspects of service delivery must ultimately be filtered through their skills, perceptions, and preferences (Fixsen, Blase, Naoom, & Wallace, 2009). As such, research may not be high on practitioners' priority lists, nor will the rigors of research easily surpass their focus on clients and the clinical process.

Given the respective expertise of researchers and practitioners and their differing roles, the value of collaboration in research that is designed to change and improve practice should be obvious, but so too should be the challenges. Successful collaborative research relies on mutual respect between the researcher and the practitioner, and appreciation for each other's knowledge and skills. Ultimately, a key to success is full commitment to the common goal of learning how to effectively and efficiently improve the lives of people with communication disorders.

COLLABORATIVE RESEARCH DIRECTIONS

The origin of collaborative research questions can be from academic researchers or community stakeholders. In the traditional approach described above, an idea typically begins in the laboratory and follows the research pipeline through efficacy, effectiveness, to implementation. This traditional

approach typically involves practitioners as recipients of evidence, or perhaps endorsers or informants, but seldom as co-researchers until, perhaps, investigations are studying implementation itself (Martin, 2010). In this issue, Campbell and Douglas (2017) discuss implementation strategies for successfully moving evidence-based innovations into practice. Their discussion clearly reflects the significance of stakeholders working with researchers to guarantee the adopting and sustaining of change in practice. If the ultimate goal of the research is to impact practice, we argue that even in researcher-driven investigations, researcher and practitioner partnerships should begin early in the pipeline. Even in the scenario where applied research is primarily being conducted under controlled conditions, practitioner involvement during protocol development is likely to affect decisions about the trade-off between internal and external validity. Early involvement of practitioners will improve the likelihood that evidence addresses the needs of the community and the probability that evidence-based protocols will be adopted into practice and sustained over time (Green, 2008; Green & Glasgow, 2006).

One specific illustration of involving practitioners in the research process is having them contribute to the documentation of social validity in developing evidence-based protocols (Goldstein, 2016). This approach is rare, as most investigators conduct social validity assessments by gathering consumer perceptions only at the end of their involvement in studies. This limits opportunities to make adjustments in aspects of intervention protocols that are perceived as more and less acceptable and sustainable. There are at least three aspects of social validity assessment to consider. In one form of social validity, researchers gather data that provides a normative basis of comparison for evaluating outcomes. In a second form, researchers assess consumers' satisfaction with the goals and procedures undergoing investigation. In the third form, researchers assess the degree to which relevant stakeholders perceive and value changes in behavior that are functionally related to the intervention under investigation. One cannot expect that gathering satisfaction and perceptions from practitioners will always yield positive results. Indeed, care should be taken to avoid halo effects expressed by friendly or invested consumers. Productive collaborations between researchers and practitioners, on the other hand, are more likely to generate honest, thoughtful feedback to support social validity. This type of ongoing collaboration should enhance interventions and engender improvements in the utility and practicality of services for people with communication disorders and their families.

Collaborative research need not, and should not, originate solely from researchers. The discipline needs to acknowledge and be receptive to investigating research questions that originate in practice. Questions generated from the community are likely to reflect problems or issues that arise in daily practice (Robson, 2002). Additionally, investigators might study existing protocols in practice with the potential of documenting evidence to support or improve them. Research originating from practitioners may attract more enthusiastic engagement among stakeholders (Brownson & Colditz, 2012; Westfall, Mold, & Fagnan, 2007). We suspect that there are many examples of innovative research ideas that originated as the brainchild of practitioners. No shortage of opportunities exists for researchers to partner with practitioners in solving challenging practical problems. For example, ideas and questions may emerge from attempts to address a concern that has perplexed a clinical practice, such as long clinical wait-

ing lists as addressed in research by Campbell et al. (2016). Other ideas and questions may arise from wanting to better understand the actual needs of stakeholders in their practice settings or appreciating their day-to-day decisions and routines. For example, Crooke and Olswang (2015) conducted a practice-based research study to document needs and treatment preferences for facilitating social thinking in high-functioning children with autism spectrum disorders.

The researcher's role in community-driven research is more than providing guidance for conducting experimental evaluations. This is illustrated in a collaboration described by Goldstein, Schneider, and Thiemann (2007). Researchers were intrigued by an innovative strategy teachers were using to teach sociodramatic play and encourage social interaction among preschoolers with autism and typically developing classmates. The teachers identified roles for three children to play activities such as going to the doctor (i.e. doctor, nurse, and patient) or going camping. They taught the roles and later provided the materials for the theme during free playtime. The researchers and teachers recognized and discussed several of the shortcomings in the approach, such as a lack of equity in the roles and adapting roles to children with different language levels. The researchers suggested a theoretical perspective on social scripts that seemed to help the team understand mechanisms underlying improvements in social behavior and why successive scripts were learned more and more quickly (Nelson, 1981). Over the course of several experiments (Goldstein & Cisar, 1992; Goldstein, Wickstrom, Hoyson, Jamieson, & Odom, 1988), refinements in the treatment protocol produced better and more generalizable outcomes for children and teaching tactics that added simplicity and value to the teachers implementing the intervention. Moreover, benefits were realized in the social skills of the typically developing children as well as the children with autism. Through an iterative development process, this researcher–practitioner collaboration improved both the practice of teaching social communication to children with autism and their peers, but also extended knowledge of the implications of social script theory. Whether the research originates in the researcher's laboratory or in the community, the collaborative research process will serve to enhance practice by recognizing the importance of balancing scientific rigor with the practicality of real-world application.

COLLABORATIVE RESEARCH GUIDELINES

In health care, efforts to improve knowledge translation and knowledge utilization have been instrumental in encouraging researchers and relevant stakeholders to work together to solve service delivery issues. Federal agencies in the U.S. and abroad have launched initiatives to foster collaborative research efforts. In the U.S., this was reflected in the NIH Roadmap for Medical Research launched in 2004 (https://www.niehs.nih.gov/funding/grants/announcements/roadmap/index.cfm).
More recently, the Patient-Centered Outcomes Research Institute (PCORI) has funded collaborative research since 2012 to help patients, caregivers, clinicians, employers, insurers, and policy-makers make better-informed health decisions (www.pcori.org). Across the Atlantic Ocean, in 2008 the National Institute of Health Research in the United Kingdom created a five-year project entitled "Collaborations for Leadership in Applied Health Research and Care" to explore the benefits of partnerships between academic researchers and clinical

stakeholders for improving knowledge translation and health care delivery.

Such efforts have resulted in increased interest in understanding the collaborative research process and the variable nature of successful partnerships. Heaton, Day, and Britten (2015) have analyzed four such projects to identify characteristics of collaborative teams that have been successful in increasing the uptake of evidence-based interventions in health care. Their research, which used qualitative methods entailing interviews with researchers and community stakeholders, found that closer collaborations resulted in better implementation of evidence in practice (Heaton et al., 2015). Closer collaborations were defined by mechanisms that emerged in the interviews, which were extrapolated into five basic rules for forming successful collaborative partnerships, illustrated in Table 1. Heaton et al. argue that partners: (1) apply principles of coproduction, (2) develop teams with facilitative leaders, (3) harness the team's respective assets, (4) nurture adaptation, and (5) always remember that the end user is the final arbiter.

Following their initial study, Heaton, Day, and Britten (2016) went on to demonstrate that these rules aligned with principles of "coproduction theory" (Ostrom, 1996). They defined coproduction as a foundational concept to "describe people who contribute to or collaborate in the production of the public services that they use" (Heaton et al., 2016, p. 3; adapted from Ostrom, 1996). Originally, conceived as a theory to explain how input from various stakeholders can facilitate the production of goods and services, the theory has been interpreted in the context of applied research (Martin, 2010). The principles of coproduction, for example, active agents; equality of partners; reciprocity and mutuality in partnerships; transformative nature of the coproduction process, closely correspond to the rules and mechanisms described by Heaton and colleagues (2016). Appreciating the theoretical foundation for the success of collaborative research serves to enhance its conceptual appeal and logical value for implementation research.

Others have offered suggestions and some cautions when engaging in collaborative research. Initiating and forging strong researcher–practitioner partnerships requires plans, personal commitments, and investments in time (Campbell et al., 2016). Creating a memorandum of understanding at the beginning of a project can facilitate the co-development of a plan and control expectations for collaborators. Further, a memorandum of understanding can help to minimize later disagreements about concerns, beliefs, and conflicts that may surface (Campbell et al., 2016). Time is a tremendous challenge for the community partners as they are incorporating research into their practice demands. Being cognizant of time pressures in planning and addressing this obstacle in the memorandum of understanding can be helpful.

Another challenge when participating in collaborative research is communication. Kieser and Leiner (2012) argue that proponents of this research approach tend to downplay the differences in knowledge and expertise between researchers and community stakeholders, which can, in turn, lead to difficulties in communication. Specifically, they use psycholinguistic concepts associated with communication and systems theories to support their hypotheses and offer some examples from less than successful collaborative projects to corroborate their arguments. They suggest that the collaborative process is harder than one might originally realize, and that more research is needed to determine how to

Table 1. Five rules and associated mechanisms identified for forming a collaboration that facilitates the implementation of evidence in practice (adapted from Heaton et al., 2015)[a]

Rules	Summary of mechanisms
Rule 1: "Base applied research on coproduction through closer collaboration" (Heaton et al., 2015; p. 1487)	Researchers and stakeholders should work together at all stages in the design and execution of research. Stakeholders are at the heart of the project, driving the research to address practice issues of relevance to service. Stakeholders and researchers identify a common, agreed upon research focus, around which they are committed. Stakeholders and researchers are open to various types of knowledge and find potential in mixing them. Stakeholders and researchers find the collaborative process generative, leading to new ways to work together
Rule 2: "Establish small strategic teams led by strong facilitative leaders" (Heaton et al., 2015; p. 1487)	Core leaders with solid professional reputations within and outside of the practice, and possess enthusiasm for the research, are critical for enabling, electrifying, and maintaining the project. A core team of invested partners will best accomplish the research goals
Rule 3: "Harness and develop respective assets" (Heaton et al., 2015; p. 1487)	Researchers and stakeholders must recognize, utilize, and cultivate respective talents of team members, which in turn will inspire new ones
Rule 4: "Promote relational adaptive capacity" (Heaton et al., 2015; p. 1487)	Successes within limited settings and populations are shared by the team, which in turn will encourage generalization and sustainability of change on a larger scale
Rule 5: "Remember-the end user is king!" (Heaton et al., 2015, p. 1487)	Partners recognize that the ultimate goal of change will only happen if stakeholders are actively involved throughout the research process, from design to execution, demonstrating that the "real-world" demands must be recognized

[a]Some terminology describing mechanisms has been changed to better reflect concepts and issues in Communication Sciences and Disorders.

best overcome some of the communication challenges that arise. However, they conclude by encouraging researchers and practitioners to explore a variety of ways to work together to maximize outcomes, and emphasize the importance of mutual respect and open communication.

Finally, successful collaborative partnerships will recognize and appreciate the iterative research process in which they are participating. Collaborative research by nature relies on ongoing engagement as evidence-based protocols are tried in practice settings with varying results. Team members will constantly be revisiting issues and prior decisions, and recognizing that modifications often are required, as illustrated in the work of Goldstein and colleagues (Goldstein et al., 2007; Goldstein & Olszewski, 2015). This receptiveness to "glitches" and subsequent adjustments can be challenging for both the researcher and the practitioner, but the circumstance will positively create shared responsibility and accountability, which becomes an asset to success. "Real-world" research requires flexibility in thinking and doing (Robson, 2002), and

using emerging problems as fodder for finding better solutions.

As this review of guidelines suggests, collaborative research is not easy. Substantial effort is required by all team members, but the benefits for improving the implementation of evidence-based protocols in practice will be considerable. The guidelines provided offer solid recommendations for optimizing success when investing in the collaborative process.

CONCLUSIONS

We have outlined a number of ways in which researcher–practitioner collaborations may advance clinical science and practice in the discipline of Communication Sciences and Disorders. It is important to emphasize that there is no one way to enhance evidence in practice. We are not suggesting that traditional approaches be abandoned, because we recognize that a much larger pipeline of intervention development and evaluation research is needed. Efficacy research, for example, represents a small percentage of articles published in the discipline (Hegde, 2003; Olswang & Bain, 2013). This aspect of scientific discovery is critical as we strive to determine whether treatments produce desired effects and if so to estimate the extent of effects with various populations and contexts.

Stokes (1997) provides a convincing argument that research that advances fundamental understanding while also producing practical innovation should be most valued. His alternative conceptualization to the basic versus applied research continuum creates a matrix with two dimensions that differentiates research that is inspired by a quest for knowledge and research that is inspired by considerations of use. He refers to "use-inspired basic research" as Pasteur's quadrant. Stokes' perspective reminds us of the need to advance our science by also seeking to understand the mechanisms underlying behavior change while solving important practical problems.

We also have argued that we cannot continue to rely on a "produce and hope" stance, if we want to speed up the diffusion of knowledge and narrow the research-to-practice gap. The growing popularity of Implementation Science gives us hope for seeing more examples of research that combines intervention and implementation development concurrently. The longer researchers wait to involve end users the less likely an easy to implement and sustainable intervention will result. When multiple stakeholders, including researchers, are ultimately responsible for developing interventions and implementation, a systems approach to research results. This systems approach must recognize needs and demands of the clinical setting along with scientific rigor. We believe that partnerships between scientific clinicians and clinical scientists can engender a stimulating environment of inquisitiveness and practicality. The truth is, collaborative research is a "win-win situation" for all participants. Researchers are motivated by wanting their evidence-based findings used in practice; stakeholders are motivated by wanting to provide the best services to their clients. By bringing together both sides of the equation (researchers and stakeholders, particularly practitioners), the ultimate goal of improving service delivery in communication sciences and disorders will be achieved. The collaborative team will foster varying perspectives that in turn, will spark creativity in solving problems and rethinking approaches to practice. Partnerships defined by mutual respect and effective communication are needed to spur more experimentation to determine what makes meaningful differences in the lives of people with

communication disorders. True partnerships between researchers and practitioners and associated stakeholders are likely to be instructive, humbling, fun, and only occasionally frustrating.

Declaration of interest: No potential conflict of interest was reported by the authors.

REFERENCES

Aarons, G. (2004). Mental health provider attitudes toward adoption of evidence-based practice: The evidence-based practice attitude scale (EBPAS). *Mental Health Services Research, 6*(2), 61–74. doi:10.1023/B:MHSR.0000024351.12294.65

Brownson, R. C., & Colditz, G. A. (2012). Furthering dissemination and implementation research: The need for more attention to external validity. In R. Brownson, G. Colditz, & E. Proctor (Eds.), *Dissemination and implementation research in healthtranslating science to practice* (pp. 305–326). New York, NY: Oxford University Press.

Campbell, W., Camden, C., & Missiuna, C. (2016). Reflections on using a community-based and multisystem approach to transforming school-based intervention for children with developmental motor disorders. *Current Developmental Disorders Reports, 3*(2), 129–137. doi:10.1007/s40474-016-0081-y

Campbell, W., & Douglas, N. (2017). Supporting evidence-based practice in speech-language pathology: A review of implementation strategies for promot- ing health professional behavior change. *Evidence-Based Communication Assessment and Intervention*. Published online 11 Sept 2017. doi:10.1080/17489539.2017.1370215

Crooke, P., & Olswang, L. (2015). Practice-based research: Another pathway for closing the research–practice gap. *Journal of Speech, Language Hearing Research, 58*, S1871–S1882.

Epstein, I. (2009). *Clinical data-mining*. New York, NY: Oxford University Press.

Fixen, D., Naoom, S., Blasé, K., Friedman, R., & Wallace, F. (2005). *Implementation research: A synthesis of literature*. Tampa, FL: University of South Florida, The National Implementation Research Network, (FMHI Publication #231).

Fixsen, D. L., Blase, K. A., Naoom, S. F., & Wallace, F. (2009). Core implementation components. *Research on Social Work Practice, 19*(5), 531–540.

Glasgow, R. E., Vinson, C., Chambers, D., Khoury, M. J., Kaplan, R. M., & Hunter, C. (2012). National institutes of health approaches to dissemination and implementation science: Current and future directions. *American Journal of Public Health, 102*, 1274–1281.

Goldstein, H. (2016). Where does social validity measurement fit into identifying and developing evidence-based practices? In M. A. Romski & R. Sevcik (Eds.), *Examining the science and practice of communication interventions for individuals with severe disabilities* (pp. 299–312). Baltimore, MD: Paul H. Brookes.

Goldstein, H., & Cisar, C. L. (1992). Promoting interaction during sociodramatic play: Teaching scripts to typical preschoolers and classmates with disabilities. *Journal of Applied Behavior Analysis, 25*(2), 265–280. doi:10.1901/jaba.1992.25-265

Goldstein, H., & Olszewski, A. (2015). Developing a phonological awareness curriculum: Reflections on an implementation science framework. *Journal of Speech, Language, and Hearing Research, 58*(6), S1837–1850. doi:10.1044/2015_JSLHR-L-14-0351

Goldstein, H., Wickstrom, S., Hoyson, M., Jamieson, B., & Odom, S. L. (1988). Effects of sociodramatic script training on social and communicative interaction. *Education & Treatment of Children, 11*(2), 97–117.

Goldstein, H., Schneider, N., & Thiemann, K. (2007). Peer-mediated social communication intervention. *Topics in Language Disorders, 27*(2), 182–199. doi:10.1097/01.TLD.0000269932.26504.a8

Green, L. W. (2008). Making research relevant: If it is an evidence-based practice, where's the practice-based evidence? *Family Practice, 25*, 120–124. doi:10.1093/fampra/cmn055

Green, L., & Glasgow, R. (2006). Evaluating the relevance, generalization, and applicability of research. *Evaluation & the Health Professions, 29*, 126–153.

Green, L., Ottoson, J., García, C., & Hiatt, R. (2009). Diffusion theory and knowledge dissemination, utilization, and integration in public health. *Annual Review of Public Health, 30*, 151–174. doi:10.1146/annurev.publhealth.031308.100049

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *Milbank Quarterly, 82*(4), 581–629.

Grol, R., & Wensing, M. (2013). Characteristics of successful innovations. In R. Grol, M. Wensing, M. Eccles, & D. Davis (Eds.), *Improving patient care* (2nd ed.). (pp. 79–90). Oxford: Wiley.

Grol, R., Ouwens, M., & Wollersheim, H. (2013). Planning and organizing the change process. In R. Grol, M. Wensing, M. Eccles, & D. Davis (Eds.), *Improving patient care* (2nd ed.). (pp. 64–76). Oxford: Wiley.

Grol, R., Wensing, M., Eccles, M., & Davis, D. (2013). *Improving patient care* (2nd ed.). West Sussex: Wiley.

Harn, B., Parisi, D., & Stoolmiller, M. (2013). Balancing fidelity with flexibility and fit: What do we really know about fidelity of implementation in schools?. *Exceptional Children, 79*(2), 181–193.

Heaton, J., Day, J., & Britten, N. (2015). Inside the "Black Box" of a knowledge translation program in applied health research. *Qualitative Health Research, 25*(11), 1477–1491. doi:10.1177/1049732315580104

Heaton, J., Day, J., & Britten, N. (2016). Collaborative research and the co-production of knowledge for practice: An illustrative case study. *Implementation Science, 11*(20), 1–10. doi:10.1186/s13012-016-0383-9

Hegde, N. (2003). *Clinical research in communicative disorders: Principles and strategies* (3rd ed.). Austin, TX: Pro-ED.

Kieser, A., & Leiner, L. (2012). Collaborate with practitioners. *Journal of Management Inquiry, 21*(1), 14–28. doi:10.1177/1056492611411923

Krathwohl, D. R. (2009). *Methods of educational and social science research: The logic of methods*. Long Grove, IL: Waveland.

Lewis, C., Darnell, D., Kerns, S., Monroe-DeVita, M., Landes, S., Lyon, A., … Comtois, K. (2016). Proceedings of the 3rd Biennial Conference of the Society for Implementation Research Collaboration (SIRC) 2015: Advancing efficient methodologies through community partnerships and team science. *Implementation Science, 11* (Suppl. 1), 1–38. doi:10.1186/s13012-016-0428-0

Martin, S. (2010). Co-production of social research: Strategies for engaged scholarship. *Public Money and Management, 30*(4), 211–218.

Nelson, K. (1981). Social cognition in a script framework. In J. H. Flavell & L. Ross (Eds.), *Social cognitive development: Frontiers and possible futures* (pp. 97–118). Cambridge: Cambridge University Press.

NIH Roadmap. (2004). Retrieved April 22, 2017, from http://www.niehs.nih.gov/funding/grants/announcements/roadmap/

Olswang, L., & Bain, B. (2013). Treatment research. In L. A. Golper & C. Fratalli (Eds.), *Outcomes in speech-language pathology* (2nd ed.., pp. 245–264). New York, NY: Thieme.

Olswang, L., & Prelock, P. (2015). Bridging the gap between research and practice: Implementation science. *Journal of Speech, Language, Hearing Research, 58,* S1818–S1826. doi:10.1044/2015_JSLHR-L-14-0305

Ostrom, E. (1996). Crossing the great divide: Coproduction, synergy, and development. *World Development, 24*(6), 1073–1087.

Robson, C. (2002). *Real world research* (2nd ed.). Malden, MA: Blackwell.

Stokes, D. E. (1997). *Pasteur's quadrant – Basic science and technological innovation*. Washington, DC: Brookings Institution.

Van de Ven, A. H. (2007). *Engaged scholarship: A guide for organizational and social research*. Oxford: Oxford University Press.

Westfall, J., Mold, J., & Fagnan, L. (2007). Practice-Based Research – "Blue Highways" on the NIH Roadmap. *Journal of the American Medical Association, 297*(4), 403–406.