Refocusing the Translational Research Paradigm on Problem-solving and Community Engagement: Recommendations from a Critical Review of the Literature

COLLABORATIONS
A Journal of Community-Based Research and Practice

ACTION-RESEARCH

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ABSTRACT

Translational research and problem-solving have direct application to university-based units charged with community outreach and engagement. This article describes a critical review of the literature focused on identifying and developing guidelines that might inform operating procedures of university-based translational research and other problem solving units. This review focuses on the potential use of the translational research model as a strategy to address problems in communities, schools and/or other organizations. It is meant to provide a blueprint for how translational research professionals might conduct their business on behalf of the constituencies they serve. As such, it provides several concrete recommendations that are intended to guide day-to-day practices of translational research professionals and policies of the organizations in which they work.

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KEYWORDS:
Translational research; Community engagement; Problem solving

TO CITE THIS ARTICLE:
Julian, D. A., Baker, E., Correia, A.-P., Qi, R., Ross, M., & Walker, K. (2023). Refocusing the Translational Research Paradigm on Problem-solving and Community Engagement: Recommendations from a Critical Review of the Literature. *Collaborations: A Journal of Community-Based Research and Practice,* 6(1): 3, pp. 1–13. DOI: https://doi.org/10.33596/coll.101

Translational research and problem solving have direct application to university-based units charged with community outreach and engagement. Community outreach and engagement is typically focused on addressing issues that impact society through meaningful partnerships with a variety of stakeholders. The authors argue that the various models, approaches and tools representative of translational research have direct bearing on the character and conduct of university-community partnerships. This article describes a critical review of the literature focused on identifying and developing guidelines that might inform operating procedures of university-based translational research and other problem solving units. The authors do not critique community planning or local problem solving as it has historically been implemented.

Furthermore, this paper does not address long-standing issues related to the efficacy of the planning process, outmoded definitions of community, limitations in the representativeness of stakeholder models of planning and problem solving and disagreement about the definition and use of evidence-based practices. Rather, this review focuses on the potential use of the translational research paradigm as a strategy to address problems in communities, schools and/or other organizations. It is meant to provide a blueprint for how translational research professionals might conduct their business on behalf of the constituencies they serve. Such guidelines are largely absent from the literature. This state-of-affairs relegates problem-solving professionals to trial and error as a mechanism for guiding day-to-day operations. As a service to such professionals, this paper provides a series of recommendations that are intended to guide day-to-day practices of translational research professionals and the policies of the organizations in which they work.

WHAT IS TRANSLATIONAL RESEARCH

Translational research includes various methods for moving innovations and scientifically derived knowledge into routine use in communities, schools and/or other organizations (McCartland-Rubio et al., 2010; National Center for Advancing Translational Sciences, 2015; Woolf, 2008). Problem solving implies a structured process for identifying critical issues, reviewing potential interventions and ultimately, implementing and evaluating preferred solutions (Uzonwanne, 2016). Abernethy and Wheeler (2011) acknowledge a translational research continuum that encompasses knowledge generation, translation and policy formulation. The knowledge generation component, synonymous with research and development, often yields evidenced-based interventions that produce valued outcomes. Translation or implementation refers to the procedures necessary to use evidence-based practices to effectively address problems in communities, schools and/or other organizations while policy formulation focuses on developing and implementing evidence-based practices across multiple jurisdictions (Bogenschneider et al., 2019).

In its most basic form translational research has much in common with community based participatory research (CBPR). It can be argued that CBPR is a means of generating divergent points of view to inform problem solving while translational research is a more all-encompassing concept that subsumes CBPR (Hebert et al., 2009). There are a variety of models or frameworks supporting translational research. For example, Julian et al. (2021) identify eight models or approaches. The authors suggest that current models and approaches are inadequate to support practices focused on solving societal problems through meaningful partnerships with community members and other stakeholders. Much of the current wisdom regarding community engagement consists of vague statements and platitudes about the importance of diverse participation. While not the topic of this review, there is considerable literature related to community engagement (see McCloskey et al., 2011).

However, for the most part, this literature has not been connected to formal models of translational research. Meaningful partnerships with the community must address imbalances in power and influence. That is, community members must have true power and influence to enact policy. Many approaches to translational research emphasize research and a focus on using accumulated knowledge to support the development and implementation of programs, practices and policies. This focus provides little guidance for how problem solving might proceed and, importantly, says little about the roles of university-based researchers and practitioners. Furthermore, such models have little to say beyond general guidelines about the role of community members and people with lived experience in the problem solving process.

A community engaged translational research process must focus on problem solving and the achievement of outcomes endorsed and valued by the community. Thus, much attention must be directed to how and what community members are engaged in problem solving. Furthermore, community-engaged problem solving must conform to accepted principles of community engagement. These principles characterize community engagement as a process controlled by the community. They require community members to occupy positions of authority and, as appropriate, invite professionals to the problem solving table. Community-engaged translational research is a process characterized by high levels of trust and interactions that position the community as the final arbiter of solution selection and course corrections necessary to produce desired outcomes (McCloskey et al., 2011).

SETTING AND RESEARCH QUESTIONS

The authors describe a formal review of the literature designed to provide insight into potential organizational structures and practices that emphasize effective problem-solving and that center the voice of stakeholder communities. The authors highlight practices employed by a center that conducts translational research located in a research-intensive university in the United States. For more than 50 years, the center was a nationally recognized leader in the field of workforce development. Center associates began the quest to realign the center's mission with a translational research focus in the winter of 2018. The initial phases of this effort took the form of staff engagement in a formal, strategic planning process. The strategic plan emphasized the center's role as a purveyor of evidence-based interventions designed to assist partners or clients in solving critical problems. More specifically, the center's mission was expressed as "translating research into practice." The emphasis on translational research was evident. However, there was little in the strategic plan that provided guidance as to what constituted translational research or guidance related to the day-to-day activities of translational research professionals.

The center's identification as a formal translational research entity is a relatively recent event. Furthermore, current language implies that the center aspires to implement an innovative approach to translational research that speaks directly to the roles of translational research professionals and the community members they serve. The authors argue that current models and approaches do not provide guidance for specific organizational structures and policies supporting translational research. It appears that translational research centers that focus on problem-solving need to build on current models and understand relevant organizational practices that might directly inform day-to-day operations. This observation provides a rationale for the review of the literature summarized below.

METHODOLOGY AND SEARCH PROCEDURES

Grant and Booth (2009) defined a critical review of the literature as the analysis and synthesis of material from diverse sources with the aim of producing a model or hypothesis. The authors' literature review focused on select print and digital content created from 2005 to 2019. The publication of a major synthesis of the implementation science literature in 2005 (Fixsen et al., 2005) provided a rationale for the timeframe selected for this review. A preliminary review of selected literature (Julian et al., 2021) resulted in the identification of eight common translational research models or approaches including RE-AIM (Glasgow et. al., 2012), Translational Research or T-Models (Glasgow et al., 2012), Knowledge to Action (Graham et al., 2006), Promoting Action on Research Implementation in Health Services or PARiHS (Kitson et al., 1998), Evidence Based Public Health (EBPH) models (Brownson et al., 2009), Stages of Research Progression Model (Bauman & Nutbeam, 2014), Interactive Systems Framework (Wandersman et al., 2008) and UK Medical Council (MRC) Framework (Craig et al., 2008). The initial review also resulted in the designation of several key words which provided a basis for the more extensive search summarized in this article. The more extensive search was intended to supplement the authors' initial review and add greater detail related to day-to-day functions of translational research professionals.

In the more extensive search, research team members conducted several independent searches of ESBCOHost (Academic Search Complete, ERIC, JSTOR, Business Source Complete, Psychology and Behavioral Sciences Collection, PsycINFO, Science Reference Center, Sociological Collection, SocINDEX, Social Sciences Abstracts, Social Work Abstracts and Vocational and Career Collection) and Google Scholar using an abbreviated list of search terms including *implementation science*, *translational research*, *knowledge transfer*, *quality assurance* and *mental health*, or *workforce*, or *community engagement*, or *wellbeing* or *education*. Researchers focused their review on domains outside of medicine to more fully understand a social sciences perspective. The focus on social science theory and research was achieved by the specific search strategies described above. As indicated in Figure 1, this resulted in the identification of 153 records. Review of references resulted in the identification of 10 additional records.

The articles reviewed described translational research or translational research-like projects conducted in the United States. There was little information in the materials reviewed relative to the demographic characteristics of project participants or the urban or rural character of communities from which participant came. The range of problems addressed was quite extensive. For example, articles addressed issues related to training teachers and physical activity professionals and included descriptions of evaluations of school-based mental health care and other health related issues. Much of the reviewed literature addressed researcher-community relationships and explored techniques related to the problem-solving process.

Two members of the research team reviewed abstracts against four criteria reflecting major values adopted by the center that commissioned this review: 1) identification of a formal problem-solving process; 2) specification of science as an important component of the problem-solving process; 3) identification of the role of translational researchers and/or other professional

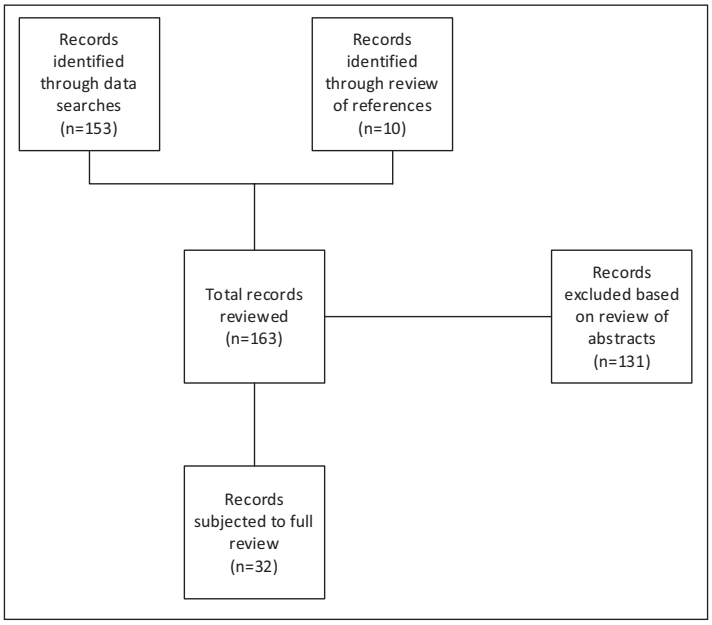

Figure 1 Summary of literature review process.

roles; and 4) acknowledgement of the importance of stakeholder participation in the problem-solving process. Reviewers were trained using several abstracts representative of their task. Training concluded when reviewers obtained 100% agreement in their judgements. Records that were judged to address the four criteria noted above were retained for full review, resulting in the identification of 32 articles.

The authors noted three prominent themes in their review of the literature. First, most records pointed to the importance of collaborative relationships in the translational research process. Second, the translational research process was typically initiated in response to a focal problem and addressed through a formal or informal problem-solving process. Third, problem-solving in the context of translational research usually involved the integration of a variety of professional roles. A summary of key information extracted from the authors' review is indicated Table 1.

LITERATURE REVIEW RESULTS

COLLABORATIVE RELATIONSHIPS AND COMMUNITY ENGAGEMENT

Most of the material the authors reviewed places a high degree of emphasis on the importance of collaboration in the translational research process. Definitions and descriptions of what was meant by collaboration varied from author to author. Many authors focus on the importance of partnerships (Adebayo et al., 2017; Lyon et al., 2018). Castillo et al. (2016) point to the importance of "support." Martinez et al. (2012) and Craven et al. (2016) refer to the representation of diverse perspectives in the problem-solving process. Still other authors present different definitions of collaboration.

Romich and Fentress (2019) suggest that collaboration occurs when stakeholders work together with explicitly described roles. Mold and Peterman (2005) imply that collaboration is characterized by shared mission and values. Maggin et al. (2010) indicate that collaboration occurs when partners contribute and gain equally from relevant interactions. Horowitz et al. (2009) conceptualize collaboration in the context of community based participatory research. In general, communication and recognition of the contributions of partners appeared to be important components of collaboration as described in much of this literature, suggesting that individuals involved in translational research must be well-versed in and capable of facilitating collaborative processes.

While beyond the scope of this review, there are considerable resources available that provide useful guidance and principles informing collaborative problem solving (see Wolff, 2011). Importantly, the literature the authors reviewed provided little guidance as to the role of community members and people with lived experience. The importance of such engagement is well established, however; detailed descriptions of the mechanisms to accommodate citizen involvement are largely absent.

FOCAL PROBLEMS AND THE PROBLEM-SOLVING PROCEDURES

Reviewers identified nine categories of issues or problems (see Table 2) that were described in this literature. The evaluation category included five articles. Griffin et al. (2010) described the evaluation of an intervention designed to promote physical activity in older adults while Bamberg et al. (2010) addressed evaluation capacity of a specific community health coalition. Nadeem et al. (2018) employed a mixed-methods study to evaluate the process used in implementing school-based mental health clinics. Cheung and Duan (2014)

AUTHOR(S)	DEFINITION OF COLLABORATION	PROBLEM-SOLVING STRATEGY	KEY ACTORS AND ROLES
Aarons et al. (2011)	Alignment of stakeholders; Extensive and on-going partnerships between researchers, organizations and consumers	Implementation of interventions in public sector environment	Knowledge generators built evidence based practices. Practitioners trained through facilitated process.
Adebayo et al. (2017)	Attention to need, partnership dynamics, resources and outcomes	Establishment of a formal partnership between community-based organizations and scientific or academic institutions	Researchers and community formed partnership to meet needs and improve health among target population.
Akin et al. (2015)	Frequent and in-depth communication and collaboration	Development and testing of social-emotional well-being and placement stability for children in foster care	University-based researchers, agency-based administrators, supervisors, practitioners and government-based staff engaged in cultural exchange.
Armour (2017)	Two-way communication	Pedagogical cases-Professional learning mechanism for practitioners	Researchers and practitioners (Coaches and Physical Education teachers) formed partnership and established two-way communication.
Bamberg et al. (2010)	Shared ownership and responsibility for outcomes	Building evaluation capacity internal to organizations	Evaluators and organizational staff formed partnership. Evaluators built capacity of organizational staff.
Bogenschneider et al. (2019)	High level of trust	Policy-making process	Stakeholders focused on dissemination of information.
Burns et al. (2019)	Community leadership	Four phase adaptation of EPIS process/ CBPR process	Researchers were partners and supporters of process.
Castillo et al. (2016)	No specific definition	Defining and developing five phase intervention to support school social workers in their work	Stakeholders formed partnership.
Cheung & Duan (2014)	Information exchange	Application of quality assurance information to support decision-making related to health care	Evaluators supported decision-making among local service providers.
Craven et al. (2016)	Recognition of contribution of others and consequences of research; Accountability for doing no harm; Production of benefit to the community; Attention to community decisions; Recognition of different values	Use of positive psychology and indigenous worldview as a basis for an inclusive research process	Researchers and indigenous community formed partnership.
Cremades et al. (2014)	Creation, learning and knowledge transfer	Understanding management as it relates to translational research	Participants created and transferred knowledge.
Dave et al. (2018)	Mutually respectful and reciprocal relationships; Quality and bi-directional relationships	Developing trust in community-academic research partnerships	Knowledge generators and other stakeholders formed equal partnership.
Davis et al. (2014)	Strengthening existing infrastructure and relationships; Balancing research and action; Beginning with topic of interest to the community and fostering boundary spanning and continuity positions	Turning community health coalitions into receptive and effective partners for collaborative research	Researchers appeared to fill leadership role with focus on partnership. Researchers also filled bridging function.
Escoffery et al. (2018)	Capacity building, involvement and documentation	Developing adaptations to evidence-based practices	Stakeholders partnered to develop appropriate adaptations.
Frerichs et al. (2017)	Mutually respectful and reciprocal relationships; Quality and bi-directional relationships	Developing trust in community-academic research partnerships	Knowledge generators and other stakeholders formed equal partnership.

(Contd.)

AUTHOR(S)	DEFINITION OF COLLABORATION	PROBLEM-SOLVING STRATEGY	KEY ACTORS AND ROLES
Gouillart & Billings (2013)	Inviting constituencies to collectively solve problems and exploit opportunities	General model for co-creation of knowledge	Participants identified a problem, located external and internal stakeholders who could help solve problem, created initial platforms such as workshops and/or on-line resources and generated insights from data.
Griffin et al. (2010)	Not explicit definition	Evaluation as a mechanism for developing recommendations for how to implement physical activity programs	Stakeholders formed partnership.
Horowitz et al. (2009)	Engagement and participation; Recognition of strengths and what each partner brings to the process	Community-based participatory research (CBPR) process	Community based participatory research engaged multiple stakeholders, including the public and community providers, who affected and are affected by a problem of concern. This collaborative approach to research involved all partners in the research process and recognized the unique strengths that each brought. CBPR began with a research topic of importance to the community and aimed to combine knowledge with taking actions, including social change to improve health.
Lyon et al. (2018)	Connection and collaboration	Description of future study of inter-organizational alignment across multiple organizations involved in integrated care (e.g., school mental health)	Clinicians and school personnel formed partnership.
Maggin et al. (2010)	Equally contribute to and gain from collaboration; Emphasis on communication	Using science to support policy-making relative to emotional and behavioral disorder and school	Researchers, practitioners and policymakers formed partnership. Process held significant implications for policy making.
Martinez et al. (2012)	Exploitation and lack of mutual respect counter to effective collaboration	Effort to understand diverse perspectives regarding translational research	Stakeholders promoted participation and representation of diverse perspectives.
McKenna & Main (2013)	Involving stakeholders' perspectives and priorities from project conceptualization to completion	Use of key informants as a source of information in research	Researcher recommendations issued for engaging community members.
Mold & Peterman (2005)	Consistent with principles of learning communities; Shared mission and values; Collective inquiry; Collaborative teams; Action orientation including experimentation; Continuous improvement; Results orientation	Establishment of practice-based research networks in primary care settings	Researchers and practitioners engaged as partners. Explicit roles defined for bridging efforts.
Milat et al. (2015)	No explicit definition	Process for scaling up public health interventions	Researchers establish monitoring and evaluation systems, modeled intervention approach, engaged implementers and target community, tailored scale-up approach to the local context, used evidence for program improvement, created infrastructure to support implementation and provided strong leadership.
Nadeem et al. (2018)	Thoughtfulness that went into decision-making; Time taken to make decisions; Inclusiveness and collaboration	Evaluation as potential tool	Researchers lead efforts.
Provenzano-Hass (2017)	No explicit definition	Translational research through an Industrial/Organizational Psychology lens; Interventions defined as mechanism for improving how organization operates	Researchers and/or practitioners managed process.

(Contd.)

AUTHOR(S)	DEFINITION OF COLLABORATION	PROBLEM-SOLVING STRATEGY	KEY ACTORS AND ROLES
Romich & Fentress (2019)	Practitioners and scholars working together with explicitly described roles and public recognition	Policy roundtable	Policymakers positioned to use results of policy roundtables. Knowledge generators functioned as facilitators.
Sedlar et al. (2017)	Engagement and communication with relevant stakeholders	Quality assurance partnership	Knowledge generators provided framework and technical assistance to child welfare officials who provided services.
Seely et al. (2015)	Formal interactions designed to support knowledge generation role	Mentoring network	Researcher and team of mentors engaged in mentored relationship.
Sullivan et al. (2017)	Supportive interactions	Computer modeling as a means of addressing scale-up of programming	Knowledge generators created models that had utility to policymakers.
Westfall et al. (2012)	Process of combining efforts and resources	Formal conference	Knowledge generators and broad range of other partners including representatives of community or service agencies planned and participated in conference.
Younie et al. (2018)	Engagement of partners throughout process; Quality assurance and democratic participation	MESH (Mapping Educational Specialist Know-How System)-Digital tools bringing international networks of educators together to construct new knowledge related to research informed teaching	Knowledge generators and/or practitioners created case-studies that informed practice.

Table 1 Key Literature Reviewed Related to Translational Research Process.

ISSUE	SELECTED EXAMPLES
Evaluation	Bamburg et al. (2010); Cheung & Duan (2014); Nadeem et al. (2018)
Theory	Provenzano-Hass (2017); Dave et al. (2018); Frerichs et al. (2017)
Case Review	Armour (2017); Younie et al. (2018)
Policy Development	Romich & Fentress, 2019; Maggin et al. (2010); Bogenschneider et al. (2019); Sullivan et al. (2017)
Computer Modeling	Sullivan et al. (2017)
Conference Engagement	Westfall et al. (2012)
Research Capacity/Promotion	Seely et al. (2015); McKenna & Main (2013)
Community-Academic Partnership	Mold & Peterman (2005); Craven et al. (2016); Martinez et al. (2012); Akin et al. (2015); Lyon et al. (2018); Davis et al. (2014)
Generic Problem-solving Process	Milat et al. (2015); Aarons et al. (2011); Gouillant & Billings (2013); Horowitz et al. (2009); Escoffery et al. (2018); Cremades et al. (2014); Burns et al. (2019)

Table 2 Issue(s) on Which Translational Research Process was Focused.

proposed a framework to assist stakeholders faced with making decisions about the utility of adopting innovative practices. Finally, Sedlar et al., (2017) reviewed the use of quality assurance tools in a state-wide effort to promote the adoption of evidence-based practices.

The theoretical category included three +articles. Provenzano-Haas (2017) discussed the contributions of Industrial-Organization Psychology to translational research while Dave et al. (2018) and Frerichs et al. (2017) reported research aimed at identifying key variables related to the quality of researcher-community relationships. The case review category focused on the use of pedagogical cases that were disseminated to the field to demonstrate evidence-based practices. This category included two articles. Armour (2017) disseminated case studies for the purposes of training and career development of physical activity practitioners and Younie and colleagues (Younie et al. 2018) focused on research-informed teaching strategies that were illustrated in formal case studies that were disseminated internationally.

The policy development category focused on instances where researchers were engaged with policymakers to inform policy decisions (Bogenschnieder et al., 2019).

Romich and Fentress (2019) described what they referred to as policy roundtables. According to Romich and Frentress, policy roundtables provided the opportunity for researchers and policy professionals to meet in formal sessions to discuss critical issues (e.g., youth financial capability and race and economic security). Sullivan et al. (2017) described a project in which they created a computer simulation model illustrating implementation variables to assist policy professionals in utilizing evidence to select appropriate problem-solving strategies.

In addition to their focus on policy development, Sullivan et al.'s (2017) computer simulation highlighted conditions fostering implementation. Reviewers considered the computer simulation itself as an example of a potential translational research tool. One article was categorized in the conference engagement category. Westfall et al. (2012) described a project focused on successful collaboration aimed at offering the annual *Engaging Communities in Education and Research* (ECER) Conference. This article was retained as part of this review because more than 1,000 individuals attended the ECER conference and developed partnerships and new ideas related to research and product development which appeared to represent a significant aspect of translational research. Two articles were categorized as efforts to build and promote research capacity. McKenna and Main (2013) reported on a project that offered recommendations for using key informants in research and Seely et al. (2015) reviewed the utility of networks as a means of building the capacity of translational researchers.

Community-academic partnerships involved efforts to develop mutually beneficial relationships between university-based researchers and a variety of local community representatives (Akin, Byers, Lloyd et al., 2015). Davis, Aromaa, McGinnis et al., (2014) described their effort to transform health improvement coalitions into research partnerships. Research partnerships were focused on both research and action and considered topics that were deemed important to the community. Finally, categorization in the generic problem-solving category implied identification of a set of steps that might be initiated to address a broad range of issues or problems (Burns, Merritt, Chu et al., 2019; Milat, Bauman & Redman, 2015; Escoffery, Lebow-Skelley, Haardoerfer et al., 2018; Gouillant & Billings, 2013; Cremades, Balbastre-Benavent & Dominguez, 2014; Aarons, Hurlburt & McCue-Horwitz, 2011).

This set of articles suggests that translational research is a formal process that might be applied to a vast of array of problems. Specification and the application of formal problem-solving procedures, ideally informed by community voice, appeared to be a hallmark of the descriptive information provided in this set of articles. Thus, it would appear that translational research organizations must allocate significant resources to using the outputs of research and apply formal procedures to solve problems in local communities, schools and/or other organizations. It also suggests that the translational research mission would be well-served to the extent that translational research professionals become skilled facilitators of formal, community-engaged, problem solving procedures.

TRANSLATIONAL RESEARCH AND PROFESSIONAL ROLES

Records reviewed speak to several professional roles in translational research (see Table 3). Four records define evaluation or quality assurance as a critical professional role. Romich and Fentress (2019) describe the process for implementing evidence-based practices as a critical role. Seely (2015) points to mentoring of translational researchers as an important aspect of the process of moving innovations into widespread use. In this case, mentoring takes the form of access to formal networks of people who are available to assist translational researchers. Not surprisingly, most of the records address research or knowledge generation as a critical role. Finally, planning/problem-solving is a prominent professional role identified in this review. This role focuses on the initiation of a formal process designed to identify a problem and implement and evaluate the success of a specific response or responses.

ROLE	EXAMPLES
Evaluation	Bamburg et al. (2010); Cheung & Duan (2014); Nadeem et al. (2018)
Translation/Implementation	Romich & Fentress (2019)
Mentoring	Seely et al. (2015)
Policy Development	Romich & Fentress (2019); Maggin et al. (2010); Bogenschneider et al. (2019)
Research/Knowledge Generation	Seely et al. (2015); Westfall et al. (2012); Sedlar et al. (2017); McKenna & Main (2013); Craven et al. (2016); Provenzano-Hass (2017); Martinez et al. (2012); Akin et al. (2015); Lyon et al. (2018); Dave et al. (2018); Nadeem et al. (2018)
Planning/Problem-solving	Armour (2017); Romich & Fentress (2019); Mold & Peterman (2005); Milat et al. (2015); Adebayo et al. (2017); Aarons et al. (2011); Gouillant & Billings (2013); Horowitz et al. (2009); Escoffery et al. (2018); Cremades et al. (2014); Burns et al. (2019); Castillo et al. (2016); Younie et al. (2018)

Table 3 Professional Roles in the Translational Research Process.

It is apparent that an ultimate goal of translational research is the resolution of real-world problems. This suggests that translational research organizations and translational research professionals must be skilled problem-solvers and well-versed in the use of problem-solving tools. The set of articles described above points to a variety of tools and associated professional roles including community engagement, research and knowledge generation, planning and problem solving, program design and implementation, evaluation and quality assurance and training and mentoring. Thus, translational research organizations must embrace roles consistent with local problem-solving and equip professionals to fill a variety of other problem-solving roles. This review suggests several foundational recommendations for organizations intent on fulfilling the promise of a community-engaged translational research process that results in meaningfully addressing issues that confront local communities.

RECOMMENDATIONS FOR UNIVERSITY-BASED TRANSLATIONAL RESEARCH UNITS

RECOMMENDATION #1: ADOPTING A TRANSLATION FORWARD TRANSLATIONAL RESEARCH PROCESS

According to Abernethy and Wheeler (2011), translation is one of three major components of translational research (Abernethy & Wheeler, 2011). Translation is best thought of as the set of procedures used to support the implementation of evidence-based practices. In this context, an evidence-based practice, program or intervention is defined based on best available evidence and the experiences of community members and other stakeholders (APA Presidential Taskforce on Evidence-Based Practice, 2006). University-based translational research units should adopt, as a primary mission, engagement of community partners and other stakeholders in the effort to implement evidence-based practices.

This positions university-based translational research units as primarily focused on translation as opposed to translational research in a more general sense. Further, this suggests that the translational research emphasis on research may be a misnomer. Almost all of the articles assessed in the authors' review, focus attention on some issue in the community or at the organizational level that represents a significant problem demanding a solution. It might be most appropriate to think of the translational research process from a problem-solving perspective and to initiate translational research activities in response to identified community and/or organizational issues. Thus, translational research may be a particularly compelling approach for university-based units that have adopted an outreach and engagement mission. Furthermore, this conceptualization positions translation as the driver of the translational research process.

RECOMMENDATION #2: INCORPORATE PROBLEM-SOLVING IN THE PROCESS OF TRANSLATION

There is strong support for implementers of evidence-based practices to solve or address specific problems presented by communities, schools and/or other organizations as a primary role of university-based, translational research units. This suggests the need for a set of procedures that allow for a consistent approach to problem-solving. There are several approaches to problem-solving that might be adopted by university-based translational research units including Strategic Doing (Morrison & Hutcheson, 2014), rational planning (Uzonwanne, 2016), strategic planning (Nolan et al., 2008), community-based participatory research (Minkler et al., 2012) and Plan, Do, Study, Act or PDSA (Reed & Card, 2016) among others.

Formal problem-solving models such as the PDSA and rational problem-solving approaches are viable candidates for such a process. For example, in the planning phase of the PDSA process, a problem is defined, and an intervention designed. In the doing phase, the intervention is implemented along with data-collection designed to assess intervention success. In the study phase, results are compared to the definition of success and, finally, in the act phase, full implementation occurs, or the project is ended or redefined. University-based translational research units should adopt a formal problem-solving process to support the process of translation. Translational research professionals should be trained to use formal problem-solving procedures and should strive for uniform application across applicable projects. This recommendation includes the requirement that problem solving procedures be implemented based on the principles of collaboration (see Wolff, 2011; Himmelman, 2001) and community engagement (see McCloskey et al, 2011).

RECOMMENDATION #3: FORMALIZE PROCEDURES FOR INCORPORATING A VARIETY OF COMMUNITY VOICES

The authors' review of the literature indicates that most authors endorse and value community participation in the translational research process. However, the literature reviewed for this article provides little guidance for how this objective might be achieved in the context of translational research. Accepted principles of community engagement (McCloskey et al., 2011) note that collective self-determination is the responsibility and right of all community members and that no outside entity has the authority to bestow on a community the power to act in its own interest. Other conceptions place a high

priority on shifting power from traditional powerbrokers to the community (Arnstein, 1969). Various authors have noted a variety of approaches to facilitating community involvement in the problem-solving process.

The absence of detailed elaboration of community engagement procedures in the translation research literature is problematic. However, the community engagement literature provides guidelines and practical recommendations. For example, Arnstein (1969), in her classic ladder of participation, points to community engagement practices that incorporate various degrees of power and influence. The lower rungs represent token participation while the upper two rungs represent true community power. Her typology holds up and has relevance to how community engagement occurs, even today. Glass (1979) suggests 12 methods for engaging citizens in community affairs that range from community meetings to analytical techniques such as Delphi. Effective community engagement is highly technical. Thus, it is not surprising that integrating community engagement methodology in translational research procedures has proven to be quite challenging.

Even in the absence of well-defined methods, university-based translational research units should place a high priority on facilitating meaningful community participation and engagement in the process of translation and in translational research more generally. This likely involves use of one or more of the accepted strategies for engaging community members (see Glass 1979). It also requires university-based translational research professionals to develop innovative approaches to incorporating community voice in problem-solving procedures. For example, the authors are currently piloting an approach to planning in the early childhood education arena that centers the voice of community members. This approach, referred to as community-centered planning, positions community members in the formal role of decision makers and their allies in support and implementation roles. A fuller description of community centered planning is currently being developed.

RECOMMENDATION #4: TRAIN PROFESSIONALS TO MANAGE THE PROCESS OF TRANSLATION

The conceptualization of translational research presented here suggests that translational researchers must possess a vast array of skills related to a variety of professional roles. Translational researchers or teams might be expected to possess or have access to up-to-date knowledge related to a variety of issues or problems being addressed in any particular community, school and/or organization. Translational researchers must also possess knowledge and skills consistent with tasks such as assessing issues/problems in the community; identifying evidence-based practices relative to specific issues or problems; and engaging members of the community and people with lived experience in meaningful problem-solving roles. A thorough understanding of techniques related to effective implementation (Fixsen et al., 2005) and evaluation would also appear to be prerequisites for impactful translational research. Finally, the authors' conception of translational research points to the importance of skills related to collaborative problem-solving, advocacy and policy-development.

This array of skills is unlikely to exist in any one individual, suggesting that translational research is a team sport. Translational research teams might be composed of academic researchers familiar with the state-of-the-art relative to any particular issue or problem being addressed. In addition, the translational research team is likely to include professionals whose role is to facilitate community and/or organizational involvement that identifies and implements problem-solving interventions. Of course, when any specific intervention appears to have the potential to address issues across multiple communities or settings, advocacy and policy development are appropriate responses. University-based translational research units should enlist the services of individuals whose skills focus on translation, problem solving, implementation and community engagement. Such professionals should be positioned to work alongside researchers and other knowledge generation professionals.

The authors advance several ideas that might expand the impact of translational research organizations such as the center that commissioned this review. It is important to point out that the translational research process as described here is highly consistent with the mission of many university-based units that subscribe to outreach and engagement missions. As the reader may recall, Grant and Booth (2009) define a critical review as the analysis and synthesis of material from diverse sources with the aim of producing a model or hypothesis. The purpose of this review is to understand the implications of various models and frameworks to support the transfer of innovation and research findings to practice settings. The authors' review suggests an expanded model of translational research and provides potential guidelines for the day-to-day activities of translational research professionals and operations of the units in which they work. More to the point, the authors' conception of translational research raises important hypotheses about the methods and tactics translational research organizations might employ to support local problem solving.

COMPETING INTERESTS

The authors have no competing interests to declare.

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TO CITE THIS ARTICLE:
Julian, D. A., Baker, E., Correia, A.-P., Qi, R., Ross, M., & Walker, K. (2023). Refocusing the Translational Research Paradigm on Problem-solving and Community Engagement: Recommendations from a Critical Review of the Literature. *Collaborations: A Journal of Community-Based Research and Practice*, 6(1): 3, pp. 1–13. DOI: https://doi.org/10.33596/coll.101

Published: 09 March 2023