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A Community-Engaged Approach to Translating Research into Practice: A Physical Education Story

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Abstract

Background: The National Institutes of Health's Clinical and Translational Sciences Award program emphasizes the need to speed up the process of putting evidence-based practices into place. One strategy they promote is community engagement; however, few studies describe a process for meaningfully engaging communities in the translation process.

Objective: This article describes steps taken by a university–community partnership to create a plan for implementing evidence-based physical education (PE) practices in rural schools. This partnership's efforts resulted in the acquisition of a $1.86 million grant to implement the plan.

Methods: Qualitative data collected during the planning process were analyzed using content analysis.

Results: Key steps included undertaking a baseline assessment of community needs, reviewing and selecting evidence-based practices, developing a multilevel, community-driven action plan and establishing its feasibility with community stakeholders.

Lessons Learned: These steps could be applied to other health topics across a variety of settings. Several strategies that made the process successful are described. Recommendations are made for expanding the roles of Clinical and Translational Science Awards (CTSAs) and local health foundations in supporting community-engaged translational research.

Conclusions: University–community partnerships have the potential to create plans and obtain large-scale funding for translating evidence-based research into practice.

Keywords

Community-based participatory research, rural education, translational research, physical education, school-university partnerships, public health

Obesity has been identified as the biggest health threat to U.S. children.[1–3] Approximately 3 out of 10 children are overweight or obese and therefore at greater risk for obesity in adulthood,[4,5] as well as chronic diseases such as heart disease, diabetes, some cancers, hypertension, osteoarthritis, gallbladder disease, and disability.[6] Rural populations are at risk for obesity at higher levels than urban populations, regardless of ethnicity, education, or income level.[7]

Research has demonstrated the link between physical activity and reduction in body fat in children and adolescents.[8] Schools are important public health settings in which cost-effective opportunities for physical activity such as recess, classroom activity breaks, and PE can be provided to children.[9] PE consists of structured classes with the goal of giving students knowledge, skills, and attitudes to lead healthy, active lives. PE does not include recess, organized sports, athletic practice time, or athletic games. In rural communities, PE class can sometimes be the sole place where children get structured physical activity owing to few affordable opportunities

outside of school.[7,10] However, PE programs in rural schools are facing cuts owing to budgetary constraints and a value system that prioritizes performance on standardized tests in core academic subject areas to the detriment of nontested subjects.[11] These pressures make it challenging for school administrators to devote energy and attention to providing high-quality PE.[11–14]

High-quality PE that draws on evidence-based practices could achieve important public health effects.[9,15] These evidence-based practices include increased moderate to vigorous physical activity and energy expenditure,[16–18] as well as fitness, sports skills, and academic achievement.[19] These evidence-based practices are captured by the concept of health-optimizing PE, in which the PE curriculum and lessons are focused on health-related physical activity and fitness, all students are active at least 50% of the time regardless of ability, and students' PE experience positively contributes to their overall physical activity levels outside of class. There are a few evidence-based PE programs such as Sport and Recreation for Kids (SPARK), Coordinated Approach to Child Health (CATCH), and Planet Health that have been shown to lead to increased student physical activity.[20] However, most schools have not implemented these programs owing to barriers such as not having enough PE specialists, financial resources, or time in the school day.[21]

To shorten the time it takes to get evidence-based practices put into place, the National Institutes of Health's CTSAs emphasize the importance of researchers cultivating strong collaborative partnerships with communities.[22] Community-based participatory research (CBPR) has the potential to speed up the translation process. CBPR is a partnership between university professors, who, for example, might have expertise in public health research and evidence-based programs, and the community members who are affected by a particular health issue, and understand what is culturally relevant, what has been tried before, and what is likely to be successful.[23] In CBPR, university partners and community members work together through systematic inquiry to create a research plan that balances knowledge generation with community change.[24,25] A rationale for how and why CBPR can speed up the translation process emphasizes community investment in creating change balanced with the university partner's ability to bring evidence-based practices into the conversation.[26] CBPR's potential to translate evidence-based practices into community settings is realized when university partners and community members are valued as equal contributors to the knowledge production process, resulting in greater community ownership and an increased likelihood of an intervention's success for specific settings beyond grant funding.[27] A few studies describe a process for meaningfully engaging communities in translating evidence-based research into practice. These studies[28–30] describe partnerships that are built on principles such as trust, communication, and respect. A bidirectional flow of information is achieved when the community understands the importance of the research and the university recognizes and is responsive to the community's desire for change.

This article describes a CBPR partnership in which university, K–12 school teachers and administrators, and community partners developed a plan and submitted a grant proposal for a professional development intervention to increase the quality of PE instruction and quantity of moderate to vigorous physical activity during PE classes in 14 small, rural, low-income school districts in the San Luis Valley (SLV). The SLV is a 500-square mile area of southern Colorado with approximately 7,500 students of which 70% qualify for free/reduced lunch and 50% are Hispanic.[31] Although the University of Colorado's Rocky Mountain Prevention Research Center has partnered with SLV schools, health centers, and nonprofit organizations to conduct intervention studies on obesity prevention since 1998, this marked a new partnership specifically related to PE.

The authors submitted proposals to the University of Colorado Denver's Colorado Clinical and Translational Sciences Institute and the University of Denver's Public Good Fund to establish this CBPR partnership. Drawing on observations from prior school-based studies and discussions with SLV educators, these proposals described the need for interventions to increase the quality of PE instruction and quantity of moderate to vigorous physical activity during PE classes. The proposals included a roadmap that described an initial plan for improving the quality of PE to build lifelong physical activity habits among SLV students (Figure 1). Intervention Mapping[32] and the Social Ecological Model[33] were used to develop the draft roadmap. The authors proposed the formation of a school–community–university partnership called the San Luis Valley Physical Education Collaborative

(hereafter referred to as the "Collaborative"), which would bring together individuals in the SLV, higher education, and state and national PE organizations. The Collaborative was charged with refining the original roadmap and establishing a community-driven action plan to improve the quality of PE in the SLV. Both proposals were funded totaling $18,000.

STEPS TAKEN TO CREATE THE COMMUNITY–UNIVERSITY PARTNERSHIP

In putting together the Collaborative, it was important to have representation from program adopters (superintendents and principals), end-users (PE teachers), and partners from the local higher education institution in a position to sustain the intervention (Adams State University).[32] There was an opportunity to leverage the Collaborative's mission with LiveWell Alamosa, a community-based initiative focused on promoting physical activity and healthy eating in schools, as well as the community at large. Thus, we invited their director, a community organizer, to join the Collaborative. The two authors and a community health practitioner employed by the Rocky Mountain Prevention Research Center recruited members to serve on the Collaborative. Our first recruit, a PE teacher who served on the steering committee of an earlier Rocky Mountain Prevention Research Center CBPR school-based project, helped us to recruit other PE teachers who possessed valuable knowledge, experience, and skills. They in turn directed us toward others who could serve on the Collaborative. Recruitment steps included the following:

- Generating a list of potential Collaborative members including superintendents, principals, PE teachers, and others who possessed a passion for promoting high-quality PE;

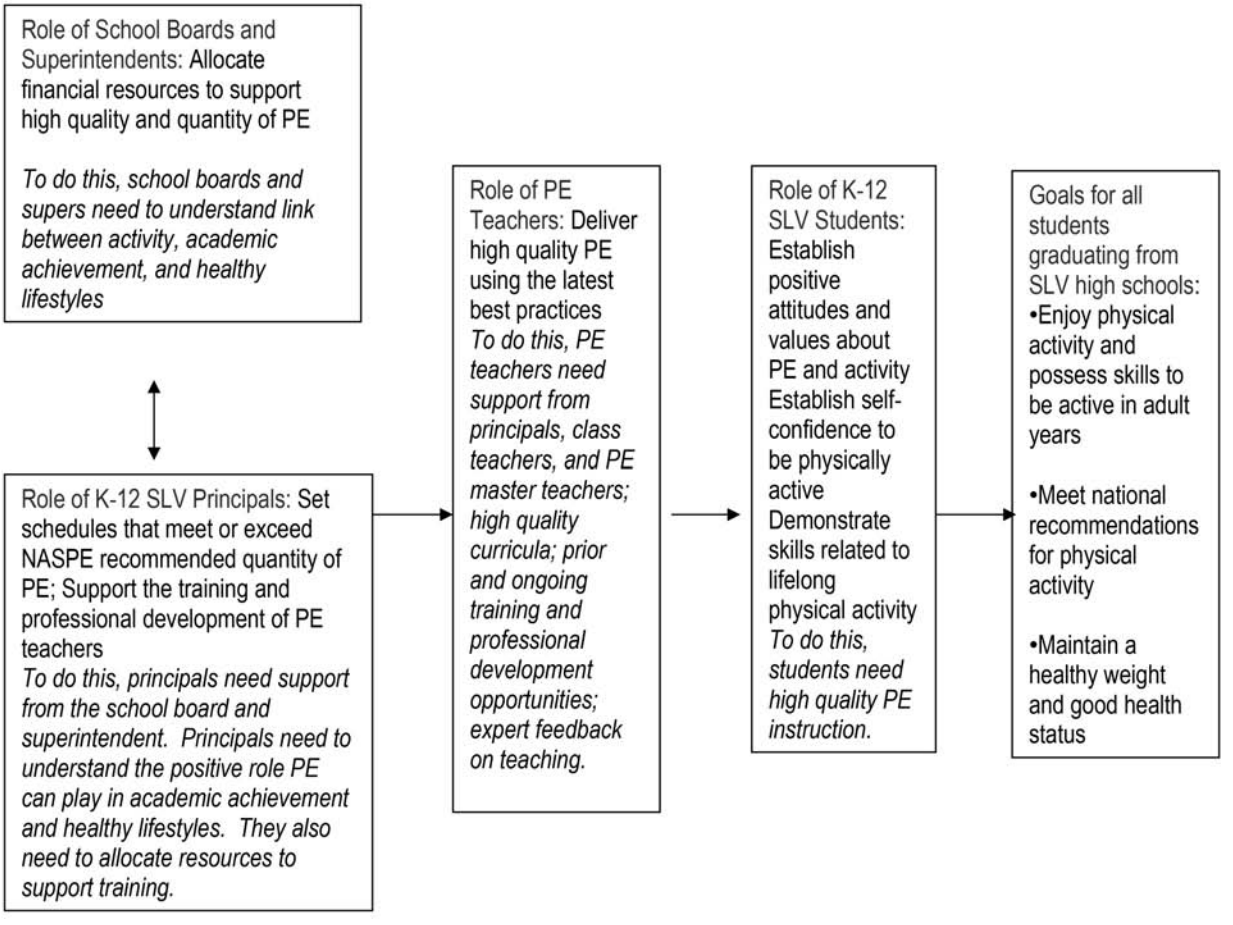

Figure 1. Initial Roadmap to Building Lifelong Physical Activity Habits Among Residents of the San Luis Valley: The Role of K–12 Physical Education

- Creating an information sheet explaining the project goals and Collaborative members' responsibilities including assisting with a systematic study of the state of PE in the SLV to create a community-driven action plan and grant proposal; and
- Sharing this information sheet and meeting with prospective Collaborative members to discuss their potential involvement.

The Collaborative ultimately consisted of 18 members (10 females; 8 males) including 3 school and district administrators, 4 PE teachers, 2 PE professors and 3 PE majors from Adams State University, 2 community health advocates, 2 university researchers, and 2 state and national PE experts. Collaborative members' unique strengths are shown in Table 1.

The Collaborative's planning process resulted in the acquisition of $1.86 million to fund the intervention designed by the partnership. In light of the success in leveraging grant funding, it is appropriate to describe the planning process so that others can learn from this experience. The following question guided the construction of this account: What steps did the partnership take to develop a community-driven roadmap to translate evidence-based PE programs into practice to increase students' moderate to vigorous physical activity during PE class and improve the quality of PE in rural schools?

METHODS

The authors conducted a content analysis[34] of meeting agendas, materials, photographs, e-mails, and meeting minutes, which were filed electronically as they were created. Data analysis consisted of reading through these sources and extracting key activities that took place along with members' contributions in shaping the community-driven action plan. Our university institutional review boards approved all data collection activities.

RESULTS

Over the course of 12 months, the Collaborative held eight 6-hour meetings (Table 2) to refine the roadmap and create a community-driven action plan to improve and sustain the quality of PE. The refined roadmap described the roles and responsibilities of students, physical educators, principals, superintendents, and school boards to achieve high-quality PE so that SLV students graduate with knowledge and skills to pursue lifelong physical activity. That roadmap would then be used to shape the community-driven action plan as the foundation of a grant proposal.

Table 1. Composition of the SLV PE Collaborative

Professional Role	Gender	Knowledge/Areas of Expertise
4 PE teachers (3 elementary, 1 secondary)	3 females; 1 male	Facilitators and barriers influencing quality of PE programs in SLV schools Culture of PE teachers in the SLV
3 school administrators (1 superintendent, 2 principals)	3 males	Colorado state standards Feasibility of professional development initiatives in the SLV
2 Community health advocates	1 female; 1 male	Broad view of physical activity initiatives in the community Cultural issues influencing education in the SLV
2 State and national PE experts (1 state consultant for PE; 1 NASPE program officer)	1 female; 1 male	PE curriculum reform at state and national levels Access to individuals in PE professional development programs (e.g., SPARK)
3 Adams State University PE majors	2 females; 1 male	Student culture in PE teacher education program at Adams State University Experience as student teachers in SLV school PE programs
2 Adams State University PE pedagogy professors	2 females	Evidence-based practices in PE curriculum and instruction, and professional development PE programs in SLV schools
2 Denver-based university researchers (1 public health; 1 PE)	1 female; 1 male	Evidence-based practices in public health, PE, and teacher education Writing large scale grant proposals Infusing CBPR principles into planning process Qualitative research skills

Notes. CBPR, community-based participatory research; NASPE, National Association for Sport and Physical Education; PE, physical education; SLV, San Luis Valley; SPARK, Sports, Play and Active Recreation for Kids.

Table 2. Steps in the Collaborative Research Process

Meeting Goals	Meeting Content	Meeting Outcomes
	Meeting 1	
Lay the foundation for a productive CBPR partnership Introduce members to initial roadmap	Operating practices for effective CBPR partnership Role of PE in student health State of PE in the SLV	Agreement on Collaborative's goals and meeting norms Understanding of initial roadmap Understanding of CBPR principles Understanding of members' perspectives on the state of PE in the SLV
	Meeting 2	
Equip members with knowledge of best practices in PE	Best practices in PE Personal and external determinants needed among key stakeholders in the SLV for high-quality PE	Knowledge of best practices for high-quality PE and their implications for the SLV Additional elements added to original roadmap Agreement on focus of the large scale grant
	Meeting 3	
Investigate and critique evidence-based PE curricula Introduce members to focus group interviewing	Development of vision for PE in the SLV Introduction to evidence-based PE curricula Introduction to role of focus groups	Understanding of national and state PE standards Addressed question: "What would it take to improve the quality of PE in the SLV?" Agreement on key elements of grant proposal: Knowledge of 3 evidence-based PE curricula (EPIC, CATCH, and SPARK) Refinement of roadmap Understanding of focus groups as technique to further illuminate barriers and facilitators for quality PE Determination of focus group sample and interview protocol
	Meeting 4	
Train members in focus group interviewing and deployment	Key elements of evidence-based PE curricula Key elements of focus group interviewing	Determination of SPARK as curriculum for SLV schools Knowledge of conducting focus groups Determination of timeline and staffing plan for conducting focus groups
Focus group interviews conducted with school boards, superintendents, principals, PE teachers, and students		
	Meeting 5	
Apply focus group findings to community-driven action plan	Focus group data analysis	Knowledge of implications of focus group findings for personal and external determinants on community-driven action plan Final refinement of roadmap
	Meeting 6	
Identify funding resources to implement community-driven action plan	Meaning and implications of focus group findings Identification of resources to implement community-driven action plan Preparation for grant writing	Connected community-driven action plan to The Colorado Health Foundation's funding areas Discussed the resources needed to implement the community-driven action plan Development of plan for writing grant proposal and receiving input from members
	Meetings 7 and 8	
Finalize grant proposal	Review drafts of grant proposal	Knowledge of components of grant proposal (implementation and evaluation plan, staffing, and budget)
Grant Proposal Submitted (April 2010)		
Grant Proposal Funded (October 2010)		

Abbreviations: CATCH, Coordinated Approach to Child Health; CBPR, community-based participatory research; EPEC, Exemplary Physical Education Curriculum; PE, physical education; SLV, San Luis Valley; SPARK, Sports, Play and Active Recreation for Kids.

The first two Collaborative meetings established the working relationships that would characterize a productive university–community partnership and identified the issues in need of investigation. Collaborative members ("members") began by establishing meeting norms, decision-making processes, and other ground rules to create healthy group functioning. This step ensured that every member understood how CBPR values/principles would come alive in our work together.

Next, the school administrators and PE teachers shared the current state of PE in the SLV to provide a baseline assessment of community needs. Members learned that most PE teachers received inadequate teacher training, felt isolated, and were not offered PE-related professional development. Administrative-level barriers related to providing quality PE included lack of a developmentally appropriate curriculum, limited funds, inadequate equipment, lack of accountability for meeting state standards, an unwillingness to allocate time for PE, and pressures presented by standardized tests.

Recognizing the schools' accountability pressures, members consulted the Centers for Disease Control and Prevention's report on the association between physical activity and academic outcomes.[35] Then, members discussed PE's potential to promote physically active lifestyles that contribute to chronic disease prevention. Members drew on the latest guidelines from the Centers for Disease Control and Prevention,[36] the Center for Safe and Healthy Schools,[37] NASPE's recommendation that students be active at least 50% of each PE lesson,[13,38] and the new Colorado PE standards.[39] These discussions provided a vision for quality PE in the SLV, namely, the relationship between students' activity levels in PE class and health and academic outcomes.

Using the Social Ecological Model, which draws on the role of the individual in his/her micro-, meso-, exo-, macro-, and chrono systems,[33] and Intervention Mapping,[32] which draws on principles from PRECEDE,[40] members participated in an activity to determine the personal and external determinants that would be needed by SLV stakeholders to improve the quality of PE. First, members were given a quick overview of the Social Ecological Model and concepts from PRECEDE, such as predisposing, reinforcing, and enabling factors. Flip charts were posted around the meeting room with questions such as, "What do San Luis Valley students need within themselves and their school community to be life-long movers?", "What do PE teachers need within themselves and their school community to provide high-quality PE?", and "What do principals need within themselves and their community to embrace and support high-quality PE?" Members formed small groups and took turns visiting each of the flip charts to brainstorm and write down answers to the question. If a group agreed with a comment already on the flipchart, they drew an asterisk next to the item. They also generated new ideas not yet on the flipchart. By the end of the activity, each group provided ideas on all the flip charts. For example, responses to what PE teachers needed within themselves included passion, joy, and inspiration; and reason for being a PE role model. Responses to what they needed from the community included inspiring role models; being valued by classroom teachers; money for PE equipment, training, and professional development; and summer courses. Asterisked items were used to refine the original roadmap. This activity recognized that improving the quality of PE extended beyond individual teachers to the school and cultural context in which they worked.

As a result of the first two meetings, members recognized that there was not only considerable room for improvement in the quality of PE provided to SLV students, but also an exciting opportunity to improve children's health by adopting evidence-based practices shown to maximize physical activity levels in PE classes. Consequently, during meetings three and four, members continued the conversation about program components that could be added to the roadmap such as providing professional development for PE teachers and training for principals on how to evaluate high-quality PE.[41] Members also critiqued two evidence-based PE curricula—SPARK[42] and CATCH[43]—along with an award-winning chronic disease prevention program called Exemplary Physical Education Curriculum.[44] Members reviewed these curricula's websites with three questions in mind: Does the curriculum 1) emphasize instructional practices that provide substantial moderate to vigorous physical activity, 2) have evidence-based research support, and 3) match the instructional levels possessed by the majority of SLV PE teachers? After discussing their critiques, members felt that SPARK (including the curriculum, equipment, and workshops) was the best fit for the current state of PE in the SLV.

However, members expressed concern that SPARK would not be enough to improve the quality of PE instruction because the majority of SLV PE teachers would need on-going support

after the workshops to acquire the knowledge, skills, and efficacy to plan and deliver it. They also noted the importance of ensuring that PE teachers have the flexibility to retain certain aspects of their existing program while simultaneously implementing SPARK. Furthermore, they felt that school and district administrators would need knowledge, skills, and efficacy to recognize and evaluate high-quality PE instruction and also knowledge about evidence-based practices and their connection to learning/academic achievement. Although the initial roadmap mentioned PE teacher support, an additional component provided much more specificity about the nature and purpose of this support: two master PE teachers who, as on-site coordinators, would visit each PE teacher and their principal multiple times during the school year to reinforce concepts and instructional practices introduced at the SPARK workshops.

The Collaborative's next major task was to develop a multilevel, community-driven action plan to set the stage for the grant proposal. Members decided that focus groups with key stakeholders would provide more detailed data clarifying the feasibility of implementing evidence-based practices, like SPARK and site coordinator support, to improve PE quality. In addition, focus groups offered an opportunity to build awareness of and excitement for the possibility of a grant to support high-quality PE in the SLV. Consistent with CBPR principles, members conducted and analyzed focus group interviews. To ensure that interviews were conducted uniformly, the authors trained members in ethical issues (e.g., obtaining informed consent and confidentiality), focus group interviewing techniques (e.g., asking good questions, ensuring full participation of interviewees, and effective listening), recording conversations (e.g., using the recorder and note taking), and summarizing focus group discussions (e.g., noting dominant ideas or themes).[34] This content was included in an eight-page manual developed by the first author and given to members before the training. After doing "practice focus groups" and receiving feedback on their interviewing techniques during the training day, members were paired up (i.e., one questioner, one recorder) and asked to conduct 11 focus groups (2 with school board members, 1 with superintendents, 2 with principals, 3 with PE teachers, and 3 with students). Efforts were made to ensure gender balance and representation from schools throughout the SLV. After members obtained informed consent, participants were asked 12 questions about the current status of PE in SLV schools, how to remove barriers and strengthen facilitators influencing PE quality, and the feasibility of implementing evidence-based practices contained in the community-driven action plan. At the conclusion, each participant received a $20 gift card.

In meetings five and six, members undertook a content analysis of their focus group summaries using the following guiding questions which they themselves developed: What issues stood out? What did people seem to be saying consistently? What kinds of people seemed to be saying what kinds of things and under what kinds of conditions? How do the findings support or extend the roadmap? This process was a chance for members to correct, modify, or affirm the roadmap. Furthermore, the dialogue ensured that there was a high level of agreement about the meaning and implications of the findings and that the refined roadmap was grounded in the reality of SLV schools. The findings also confirmed that the intervention needed to occur not just at the level of PE teachers' curricular and instructional practices, but also with principals, superintendents, and school boards—stakeholders whose understanding of and support for the value of quality PE in promoting academic achievement and building lifelong physical activity would be crucial for any improvements in PE to be sustained. Thus, the focus group findings were integrated with the best practices from the literature in the final roadmap. This intersection of community and academic knowledge provided us with a clear sense of the interventions that needed to occur,[12,22] which, in turn, formed the content of the grant proposal to a local foundation. The final roadmap is shown in Figure 2.

The last two Collaborative meetings focused on reviewing drafts of the grant proposal to The Colorado Health Foundation. Discussions centered on the implementation, staffing, and budgetary implications of the proposed San Luis Valley Physical Education Academy[45] (see Table 3).

During these two meetings, several members helped refine components of the grant proposal together including the budget and evaluation plan. The 3-year, $1.86 million proposal included two intervention components, the San Luis Valley Physical Education Academy[45] and Assess, Identify, Make it Happen (AIM).[12,46] The proposal was fully funded with $1.2 million of the $1.86 million covering the Academy and the rest funding AIM.

DISCUSSION

This article describes a step-by-step approach for university–community partnerships to develop action plans for putting evidence-based practices into place. The Collaborative's focus was on quality PE; however, several aspects of the approach could be applied to other health topics across a variety of settings.

Two universities made an $18,000 investment for university researchers to work with community partners to develop a translation plan. This initial investment led to the acquisition of a $1.86 million grant. A key factor related to the Collaborative's success was meaningfully engaging university and community partners' complimentary skill and knowledge sets to shape the plan. University researchers, PE professors, and state and national PE experts were able to bring information about evidence-based practices, national recommendations for PE, and success stories, whereas the SLV-based PE teachers, district and school administrators, and community health advocates possessed in-depth knowledge of the pressures and opportunities facing SLV schools and the extent to which a range of intervention ideas would be an appropriate fit with school community values and practices. Information exchange, mutual respect, active listening, and co-learning were core values integral to the Collaborative's success.

A variety of strategies were used to engage university and community members' voices throughout the process. A memorandum of understanding was established to ensure that regular meetings took place with a consistent group of committed individuals. Money was provided to community members as a stipend for their participation and/or to put toward substitute teacher pay. Meeting attendance was high in part because each day included an outcome-oriented agenda, nourishing food,

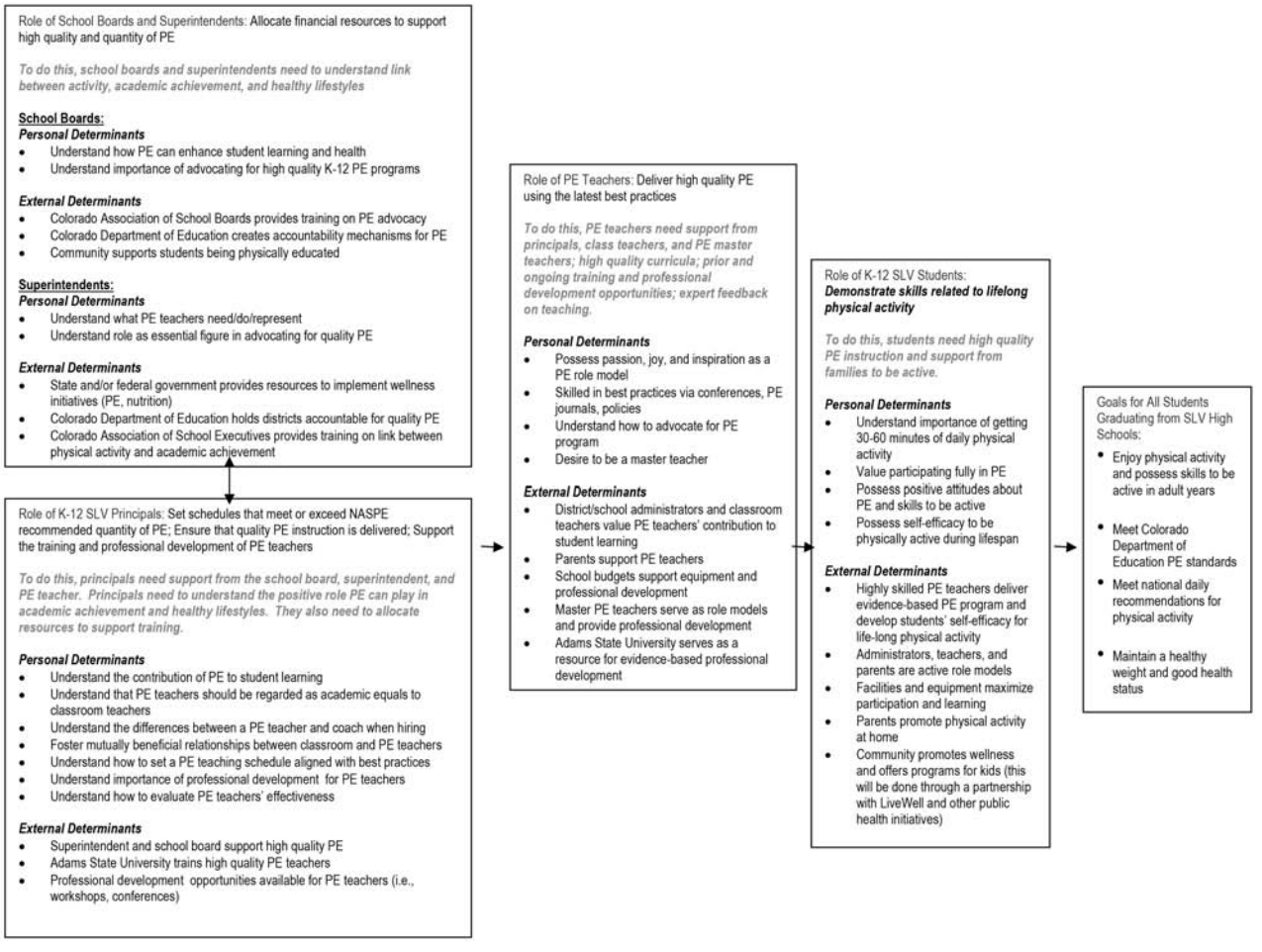

Figure 2. Final Roadmap to Building Lifelong Physical Activity Habits Among Residents of the San Luis Valley: The Role of Physical Education

physical activity breaks, and time to get to know each other on a personal level. Meetings were designed to bring out members' ideas and opinions through activities such as the flip charts in meeting three. The roadmap (Figure 2) served as an anchor for the Collaborative to return to as a reminder of its purpose and plan. It also served as a visual way to show members how their ideas were being integrated into the community-driven action plan. The Social Ecological Model[33] coupled with Intervention Mapping[32] created a mechanism for Collaborative members to brainstorm key resources needed for high-quality PE to be attained. Questions such as, "What do PE teachers need to do to ensure students receive high-quality PE instruction?" and "What do PE teachers need within themselves and from their immediate environment to do those things?" offered a structure for members to provide specific suggestions that ultimately were included in the grant proposal.

Community members demonstrated willingness and ability to analyze and select evidence-based practices so long as university members structured the task by identifying evidence-based PE curricula, finding websites describing the PE curricula, and arranging for state and national experts to provide input on the pros and cons of each option. Community members also demonstrated a willingness and ability to conduct focus groups with key stakeholders. However, it was important that university partners provided them with training and practice opportunities. In summary, the Collaborative's commitment to using CBPR principles facilitated a plan that was ultimately funded to translate evidence-based practices into school settings.

There were other factors contributing to the Collaborative's success. The researchers had strong, established, and credible relationships with several Collaborative members as a result of the School Environment Project, a 5-year initiative funded by the Centers for Disease Control and Prevention that addressed physical activity and healthy eating in 10 SLV elementary schools. Thus, there was already a foundation of mutual trust and commitment to address school-based health initiatives. Also, the second author had a professional

Table 3. Components of the Grant Proposal for the SLV PE Academy

Community-Identified Barriers to High-Quality PE	Program Component Included in the Grant Proposal	Purpose of Program Component	Roadmap Outcome
Developmentally inappropriate PE curriculum in SLV schools	SPARK PE Program Manual	Provide common PE program across SLV school districts	All SLV PE teachers implement SPARK curriculum and instructional strategies
Underresourced PE programs	SPARK PE Equipment	Enable PE teachers to implement SPARK units and lessons with fidelity	Increase student enjoyment of PE
PE teachers' lack of knowledge of effective curriculum and instructional strategies	SPARK workshops and booster sessions	Introduce PE teachers to SPARK activities and instructional strategies	Increase students' levels of moderate to vigorous physical activity during PE
Lack of ongoing mentoring and professional development given to PE teachers to support high-quality instruction	Monthly PE Academy site coordinator visits with PE teachers	Enhance PE teachers' capacity to implement SPARK content and instructional practices acquired in the workshops and booster sessions	Increase PE teachers' knowledge, skills, and efficacy in SPARK program
Principals' lack of knowledge of effective PE curriculum and instructional strategies and of PE's impact on student achievement and building physically active lifestyles	Monthly PE Academy site coordinator visits with principals	Enhance principals' knowledge of the link between physical activity and academic achievement and principals' capacity to recognize and support high-quality PE	Increase principals' knowledge and skills to conduct accurate evaluations of PE teachers Increase principals' knowledge about evidence-based practices and their connection to academic achievement
Lack of local infrastructure to provide ongoing professional development and sustain high quality instruction	SLV PE teachers' community of practice and local professional development opportunities	Promote a professional dialogue among SLV PE teachers	Increase PE teachers' ability to advocate for PE's contribution to student achievement and building physically active lifestyles

Notes. PE, physical education; SLV, San Luis Valley; SPARK, Sports, Play and Active Recreation for Kids.

relationship with a project officer from The Colorado Health Foundation. When the officer learned of the pilot funds from the Colorado Clinical and Translational Sciences Institute, she called the author to express interest in receiving a proposal describing the community-driven action plan.

The main challenge to doing this work was finding ways to engage the community in writing the grant proposal, a task made even more difficult owing to the university partners being located 4 hours away from the SLV. Community members held full-time positions and had limited time, prior grant writing experience, and interest in writing the proposal. Although the community partners' contributions did not include writing sections, their ideas were included in the narrative and budget (e.g., full-time equivalent and salary ranges for personnel to be hired).

In addition to these lessons learned, there are other implications for practice. CTSAs can play a key role in speeding up the process of putting evidence-based practices into place by providing seed grants for university and community partnerships to co-create community-driven action plans and strengthening relationships with local foundations who may be interested in funding plans on a larger scale. Because of the promotion and tenure challenges faced by university faculty who do community-engaged work,[47] CTSAs can play a leadership role in shifting the university value system and culture so that faculty are rewarded for their community-engaged efforts to address serious public health issues. Similarly, local foundations can support faculty by allowing grant monies to be used on research and not just program implementation and evaluation.

In conclusion, university and community partnerships hold strong promise for working together to speed up the translation promise. Since receiving the larger grant, the Collaborative established the San Luis Valley Physical Education Academy and succeeded in increasing the quality of PE instruction and students' activity levels by implementing the SPARK curriculum across all 14 school districts in the SLV.[48] Future research is needed on ways universities and K–12 schools can work together to implement a range of evidence-based practices known to increase student health behaviors during the school day.

REFERENCES

1. Institute of Medicine of the National Academies. Accelerating progress in obesity prevention: Solving the weight of the nation. Consensus Report [updated 2012]. Available from: http://www.iom.edu/Reports/2012/Accelerating-Progress-in-Obesity-Prevention.aspx/
2. Koplan JP, Liverman CT, Kraak VI. Preventing childhood obesity: Health in the balance. Washington (DC): Institute of Medicine. 2005.
3. Spradlin T, Gard G, Huang V, Kopp B, Malik A. Childhood obesity and nutrition issues in the United States: An update on school-based policies and practices [updated 2012]. Policy Brief, Center for Evaluation & Education Policy. Available from: http://www.ceep.indiana.edu/projects/PDF/PB_V10N1_2012_EPB.pdf
4. Biro FM, Wein M. Childhood obesity and adult morbidities. Am J Clin Nutr. 2010;91(5):1499S–505S.
5. Gutin, B, Yin, Z, Humphries, MC, Barbeau, P. Relations of moderate and vigorous physical activity to fitness and fatness in adolescents. Am J Clin Nutr. 2005;81(4):746–50.
6. Centers for Disease Control and Prevention. Youth risk behavior surveillance—United States, 2009. Morbid Mortal Wkly Rep. 2010;59:ss–5:1–142.
7. Patterson PD, Moore CG, Probst JC, Shinogle, JA. Obesity and physical activity in rural America. J Rural Health. 2004; Spring:151–159.
8. U.S. Department of Health and Human Services. 2008 physical activity guidelines for Americans [updated 2009]. Washington (DC): Author. Available from: http://www.health.gov/paguidelines/guidelines/chapter2.aspx
9. Sallis JF, McKenzie TL, Beets MW, Beighle A, Erwin H, Lee S. Physical education's role in public health: Steps forward and backward over 20 years and HOPE for the future. Res Q Exerc Sport. 2012;83(2):125–35.
10. Phillips CD, McLeroy KR. Health in rural America: Remembering the importance of place. Am J Public Health. 2004; 94(10):1661–3.
12. Belansky ES, Cutforth N, Chavez R, Crane LA, Waters E, Marshall JA. Adapted intervention mapping: A strategic planning process for increasing physical activity and healthy eating opportunities in schools via environment and policy change. J Sch Health 2013;83:194–205.
13. National Association for Sport and Physical Education. Physical Education is critical to educating the whole child [updated 2009]. Reston (VA). Available from: http://www.aahperd.org/naspe/standards/upload/Physical-Education-Is-Critical-to-Educating-the-Whole-Child-final–5–19–2011.pdf
14. Robert Wood Johnson Foundation. Active education: Physical education, physical activity, and academic performance [updated 2009]. Available from: http://www.activelivingresearch.org/files/ALR_Brief_ActiveEducation_Summer2009.pdf
15. Institute of Medicine of the National Academies. Educating the student body: Taking physical activity and physical education to school [updated 2013]. Washington (DC). Available from: http://www.iom.edu/~/media/Files/Report%20Files/2013/Educating-the-Student-Body/EducatingTheStudentBody_Insert.pdf
16. McKenzieTL, Nader PR, Strikmiller PK, Yang M, Stone, EJ, Perry CL, et al. School physical education: Effect of the Child and Adolescent Trial for Cardiovascular Health. Prev Med. 1996;25:423–31.
17. McKenzie TL, Prochaska JJ, Sallis JF, LaMaster K. Coeducational and single-sex physical education in middle schools: Impact on physical activity. Res Q Exerc Sport. 2004;75:446–9.
18. Sallis JF, McKenzie TL, Alcaraz JE, Kolody B, Faucette N, Hovell MF. The effects of a 2-year physical education program (SPARK) on physical activity and fitness in elementary school students. Am J Public Health. 1997;87:1328–34.
19. McKenzie TL., Sallis JF, Rosengard P. Beyond the stucco tower: Design, development, and dissemination of the SPARK physical education programs. Quest. 2009;61:1–15.
20. Sallis JF, Carlson JA, Mignano A. Promoting youth physical activity through PE and after-school programs. Adolesc Med. 2012;23:493–510.
21. Lounsbery MAF, McKenzie TL, Trost SG, Smith NJ. Facilitators and barriers to adopting evidence-based physical education in elementary schools. J Phys Act Health. 2011;8(Suppl 1):S17-S25.
22. National Institutes of Health. Clinical and Translational Science Awards Consortium Community Engagement Key Function Committee Task Force on the Principles of Community Engagement. Principles of community engagement. 2nd ed. Bethesda (MD): National Institutes of Health; 2011.
23. Israel, BA, Schulz, AJ, Parker, EA, Becker, AB. Community-based participatory research: Policy recommendations for promoting a partnership approach in health research. Educ Health. 2001;14(2):182–97.
24. Green LW, Mercer SL. Can public health researchers and agencies reconcile the push from funding bodies and the pull from communities? Am J Public Health. 2001;91(12):1926–9.
25. Minkler M. Community-based research partnerships: challenges and opportunities. J Urban Health. 2005;82(2 Suppl 2): ii3–12.
26. Faridi Z, Grunbaum JA, Gray BS, Franks A, Simoes E. Community-based participatory research: necessary next steps. Prev Chronic Dis [serial online; cited 2007 Jul]. Available from: http://www.cdc.gov/pcd/issues/2007/jul/06_0182.htm
27. Wallerstein N, Duran B. Community-based participatory research contributions to intervention research: The intersection of science and practice to improve health equity. Am J Public Health. 2010 Apr;100(Suppl 1):S40–6.
28. Baquet CR, Bromwell JL, Hall MB, Frego JF. Rural community-academic partnership model for community engagement and partnered research. Prog Community Health Partnersh. 2013;7(3):281–90.

29. Cohen DJ, Crabtree BF, Etz RS, Balasubramanian BA, Donahue KE, Leviton LC, et al. Fidelity versus flexibility: translating evidence-based research into practice. Am J Prev Med. 2008 Nov;35(5 Suppl):S381–9.

30. Minasian LM, Carpenter WR, Weiner, BJ, Anderson DE, McCaskill-Stevens W, Nelson, S, et al. Translating research into evidence-based practice: The National Cancer Institute's Community Clinical Oncology Program. Cancer. 2010 Oct; 116(19):4440–9.

31. Colorado Department of Education. Fall pupil membership. Available from: http://www.cde.state.co.us/cdereval/rvprioryearpmdata

32. Bartholomew LK, Parcel G, Kok G, Gottlieb N. Planning health promotion programs: An intervention mapping approach. 2nd ed. San Francisco: Jossey-Bass; 2006.

33. Bronfenbrenner, U. The ecology of human development: Experiments by nature and design. Cambridge (MA): Harvard University Press; 1979.

34. Patton MQ. Qualitative research and evaluation methods. 2nd ed. Thousand Oaks (CA): Sage; 2002.

35. Centers for Disease Control and Prevention. The association between school-based physical activity, including physical education, and academic performance [updated 2010]. Atlanta: Author. Available from: http://www.cdc.gov/healthyyouth/health_and_academics/pdf/pa-pe_paper.pdf

36. Centers for Disease Control and Prevention. Strategies to improve the quality of physical education [updated 2010]. Atlanta: Author. Available from: http://www.cdc.gov/HealthyYouth/physicalactivity/pdf/quality_pe.pdf

37. National Association of State Boards of Education. Preventing childhood obesity: A school health policy guide [updated 2009]. Available from: http://www.rwjf.org/content/dam/web-assets/2009/01/preventing-childhood-obesity-

38. National Association for Sport and Physical Education (NASPE) and American Heart Association (AHA). 2006 Shape of the Nation Report: Status of physical education in the USA [updated 2006]. Available from: http://heartland.org/policy-documents/2006-shape-nation-report-status-physical-education-usa

39. Colorado Department of Education. Colorado Academic Standards: Comprehensive Health and Physical Education [updated 2009]. Available from: http://www.cde.state.co.us/cohealthpe/statestandards

40. Green LW, Kreuter MW. Applications in the community setting. In Health promotion planning: An educational and ecological approach. Mountain View (CA): Mayfield; 1999. p. 262–318.

41. Prusak KA, Pennington T, Vincent *SD*, Beighle A, Morgan C. Systemic success in physical education: The East Valley phenomenon. J Teach Phys Educ. 2010;29(1):85–106.

42. Sport and Recreation for Kids (SPARK). Available from: http://www.sparkpe.org

43. Coordinated Approach to Child Health (CATCH). Available from: http://catchusa.org

44. Belansky ES, Cutforth N, Delong E, Ross C, Scarbro S, Gilbert L, et al. Early impact of the federally mandated Local Wellness Policy on physical activity in rural, low income elementary schools. J Public Health Policy. 2009;30:S141–60.

44. Michigan Fitness Foundation. The Exemplary Physical Education Curriculum (EPEC). Available from: http://www.michiganfitness.org/epec

45. Cutforth N, Belansky ES. Improving the quality of physical education in rural schools. PE LInks4U. 2011;13(2). Available from: http://www.pelinks4u.org/articles/cutforthBelansky2_11.htm

46. Belansky ES, Cutforth N, Chavez RA, Waters E, Horch, K. An adapted version of intervention mapping (AIM) is a tool for conducting community-based participatory research. Health Promot Pract. 2009;11(2):1–16.

47. Commission on Community-Engaged Scholarship in the Health Professions. Linking Scholarship and Communities: Report of the Commission on Community-Engaged Scholarship in the Health Professions. Seattle: Community-Campus Partnerships for Health; 2005. Available from: http://depts.washington.edu/ccph/pdf_files/Commission%20Report%20FINAL.pdf

48. Belansky ES Cutforth, Kern BD, Scarbro S. Disseminating evidence-based physical education practices in rural schools: The San Luis Valley Physical Education Academy. Manuscript in preparation.