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Main Article:

Building Sustainable Research Engagements: Lessons Learned From Research With Schools

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Abstract

Engaged scholarship, translational science, integrated research, and interventionist research, all involve bringing research into a practical context. These usually require working with communities and institutions, and often involve community based participatory research. The article offers practical guidance for engaged research.

The authors have experience in doing medical research with schools. There are very few guiding principles or literature to assist the school-based researcher, especially outside of educational research. Practical guidance for all community investigators is in short supply. The dual purpose of this article is to provide a comprehensive framework for conducting school based research and to offer broad-based guidance, and a set of heuristics, for engaged researchers.

Index Terms: engaged scholarship; translational science; school based research; community based participatory research

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1. Introduction

The world of science—medical, health, or the social sciences—seems to be at a convergence in trying to bring research results to practical application. Van de Ven discusses “engaged scholarship” from the perspective of organizational and management studies, in terms of the relationship between theory and practice (Van de Ven, 2007). In the USA, the National Institutes of Health (NIH) has established a Clinical and Translational Sciences Award to create a medical research environment that builds a step by step path from basic research to improved professional practice, with each step feeding the next, in an integrated manner (National Center for Research Resources [NCRR], 2011). Van Kerkhoff suggests the importance of integrated research programs that involve not just scientists but non-scientific partners as well. An integrative approach to research that is more inclusive provides a model for bridging research findings and real world application (van Kerkhoff, 2005).

Engaged scholarship envisions investigators in collaboration with people in many disciplines within their academic institutions, and people outside the institution, both professional and community people. It is a mutual exchange of ideas, research design, and findings, for mutual benefit, but especially to advance the public good (NE Resource Center for Higher Education, 2013). This is much like community based participatory research (CBPR), wherein investigators work in partnership with the community to establish research goals and conduct the investigation (Israel, Schulz, Parker, & Becker 2001).

Translational science is a major priority of the National Institutes of Health (NIH) in their creation of Clinical and Translational Science Awards:

The Clinical and Translational Science Awards (CTSA) program supports a national consortium of medical research institutions that are transforming the way biomedical research is conducted. Its goals are to accelerate the translation of laboratory discoveries into treatments for patients, to engage communities in clinical research efforts, and to train a new generation of clinical and translational researchers. (NCRR, 2011)

It has been estimated that it takes 17 years for 14% of new scientific discoveries to enter routine clinical practice (Westfall, Mold, & Fagnan, 2007). In addition, a study of a 15-year period showed that only 5% of “highly promising” basic science was licensed for clinical use and only 1% was actually used for the licensed therapeutic or preventive intervention (Contopolous-Ioannidis, Ntzani, & Ioannidis, 2003).

Schools provide a tremendous resource and a laboratory for many fields of study, but especially health related study. They have a large number of children in one place, which can be a major practical benefit for investigators. For example, school environments can provide important information in disease transmission and health promotion. Glezen concluded that “the fires of the epidemic are carried by healthy school-age children” (Glezen, 1996). Working with children is socially significant in that research findings can make an immediate and long term difference in the lives of children.

There are very few guiding principles or literature to assist the school based researcher working outside educational research. Farrington et al. wrote of their experiences with two health promotion research projects in Australia (Farrington, McBride, & Midford, 2010). This article is the first to approach this subject. Their findings are consistent with those presented here, but far less comprehensive in approach. Alibali and Nathan discussed their experiences as cognitive

psychologists recruiting students in schools (Alibali & Nathan, 2010). Neither attempted to provide a comprehensive framework or map on how to conduct research in schools successfully. However, they espouse many of the same ideas presented here.

The school is a type of community and thus school based research is related to CBPR. Israel et al. offer a number of recommendations for promoting partnerships for health research and translational science. They highlight the lack of trust between researchers and community members as a major challenge in this type of research:

One of the major challenges in conducting CBPR is the understandable lack of trust that often exists between community members and researchers, based on the long history of research that has had no direct benefit (and sometimes actual harm) and no feedback of the results to the participants involved. (Israel et al., 2001, p. 185)

Israel et al. identify several key issues: planning, creation of trust, comprehensive approaches that extend beyond categorical perspectives and traditional research designs, use of indigenous workers, and training of investigators in CBPR (Israel et al., 2001). The present article provides a model for engaged research, based on a practical application of Israel et al.'s principles.

Engaged scholarship, translational science, integrated research, and interventionist research are bringing research into practice. An investigator engaging in these must get involved with communities or institutions, and engage in CBPR at some level. The purpose of this article is to provide a general framework for conducting research in schools, and to extend the principles of school-based research to provide guidance on conducting research in a community or institution for the purpose of engaged scholarship (and its other manifestations).

2. History and Background of School-Based Research Experience

In 2006, the Center for Public Health Practice (Graduate School of Public Health, University of Pittsburgh, USA) embarked on an ambitious project to explore how a multi-layered non-pharmaceutical intervention could reduce the impact of pandemic flu in a school setting, using seasonal flu as an analog. The project, titled [Pittsburgh Influenza Prevention Project \(PIPP\)](#), Principal Investigator: Dr Donald Burke and Co-Principal Investigator: Dr Samuel Stebbins, University of Pittsburgh), involved 10 schools and required extensive learning on how to work with schools. The investigators of this project had the benefit of team members who had extensive experience working in public health in the community, both in public health research and in public health practice. The project also hired research workers from the school community who knew the school environment and provided valuable lessons on working with schools.

PIPP was a successful partnership between University of Pittsburgh and Pittsburgh Public Schools. The project was also a success scientifically. It demonstrated that children can learn, adopt, and persist in a multi-layer non-pharmaceutical intervention (Stebbins, Stark, & Vukotich, 2010) and that even the youngest students can be successful (Stebbins, Downs, & Vukotich, 2011). In addition, it was shown that schools could have better outcomes, including a significant reduction in influenza A and in total absences (Stebbins et al., 2011). The research guided the response of Pittsburgh and regional schools to the A(H1N1) influenza pandemic.

As a result of their experience, the investigators of PIPP codified the lessons learned and used these to form a School Based Research and Practice Network (SBRPN). SBRPN consisted of investigators at the University of Pittsburgh and Carnegie Mellon University and school districts in Western Pennsylvania (Western PA), USA, who were interested in school based

research. SBRPN communicated with school administrators in Western PA to identify school research interests and issues (Vukotich & Stebbins, 2011). SBRPN conducted focus groups with superintendents, principals, and other school administrators in 41 out of 43 public school districts in Allegheny County, 14 school districts bordering the county, 6 charter/private/parochial systems and the Allegheny Intermediate Unit, which serves Allegheny County. SBRPN created a training program, titled *Research With Schools*, for investigators and their staff, to teach them how to do research in schools. SBRPN also actively helped investigators connect with schools and assisted with the design of “school-friendly” research. SBRPN helped find partners for a PIPP follow-up study, titled [SMART Schools Project](#) (SMART being the acronym for Social Mixing and Respiratory Transmission in Schools).

Lessons learned, which started with PIPP, have been continuously updated based on experiences with other school based investigators and through work with the SMART Schools Project.

3. Framework for School Based Research

School based research can take many forms. The following four categories emerge from a review of the existing research with schools: (i) using data from school records, (ii) generating observational data, (iii) seeking experimental subjects, and (iv) conducting participatory research. These categories may give investigators a framework for thinking about what they want to do and to understand what they are asking of schools.

3.1. Using Data From School Records

School based research may involve merely obtaining datasets from a school, which are then de-identified and analyzed. One aspect of the SMART Schools Project involved obtaining de-identified student schedules to create a model of student movement in a school. This form of school based research is the least involved with the school operations, but should also follow the lessons learned discussed here. At the very least, the investigator should offer to perform related analyses that would be useful to the school, and to share the results of the analysis with the school.

3.2. Generating Observational Data

School based research may involve direct observation of students for studies on diseases, treatments, and prevention, as was also the case for the SMART Schools Project. Any study of children would require looking at the child in the school milieu, because so much time is spent there (Alibali & Nathan, 2010). These studies which focus on children in their school environment can be difficult if they produce no benefit to the school. Such studies may benefit the child and society in ways that may ultimately benefit the school. Investigators must therefore find a way to engage the school, ensuring that there is value to the student, parents, medical personnel treating the student, and, with parental consent, to school counselors. The SMART Schools Project engaged schools by providing “The Germ Show” as requested by schools.

3.3. Seeking Experimental Subjects

School based research that seeks to involve students as experimental subjects can be problematic. Some investigators have approached schools with the messages like: “Let us experiment on your kids.” Obviously this is not likely to be successful. An approach that has shown to be effective is one of creating a learning community about the subject matter of the

research. This involves educating teachers and staff, including school nurses and counselors, parents, and even students about the subject of the research. Training should be eligible for continuing education credits whenever possible. The message is to help them understand the condition being explored, why research is important, and the specific research being proposed. Once the community is educated, knowledgeable school personnel and parents may be motivated to refer students. The approach of “Here’s what we can do to benefit your kids” is more likely to find acceptance and cooperation, even where the ultimate goal is seeking experimental subjects for a study.

The Childhood Anxiety Treatment Study (CATS) (Principal Investigator: Dr Neal Ryan, University of Pittsburgh) has been successful with this approach of creating a learning community. CATS seeks to understand the processes involved in the treatment response for anxiety disorders in youth. CATS provides education to school personnel, including a module which is approved for continuing education credits. It also provides education for parents, running the gamut from Parent Teacher Association (PTA) presentations to workshops. Experimental subjects are obtained through school and parent referrals. Prior to taking this approach, CATS had not been able to cut through school bureaucracy and had little success in engaging schools.

3.4. Conducting Participatory Research

School based participatory research is a partnership: the school is part of the research team, and should be treated as such. PIPP is a successful model of participatory research. PIPP implemented a program of non-pharmaceutical interventions for the prevention of influenza in 10 Pittsburgh Public Schools elementary schools. Five of the ten schools received intensive prevention education and disease surveillance. Five control schools received disease surveillance only. School personnel were responsible for day-to-day implementation of the intervention in the classroom. School staff collected information on absences, which were monitored for influenza like illness (ILI) by PIPP staff. School staff also did surveillance for ILI. PIPP staff went into the homes of students with ILI to test for the flu and teach families how to manage the disease and prevent spreading germs. Eight research articles related to this project have already been published. Recommendations from the study were utilized in the fall of 2009 to help prevent the spread of pandemic H1N1 influenza in many school districts outside of the study group.

As noted by Epps, Crandall’s conditions for effective collaboration apply to school based participatory research:

Crandall’s conditions for effective collaboration are: that the participants possess substantive competency, that both organizations function effectively with clear lines of communication and a minimum of red tape, and that participants possess collaborative competency and a commitment to the task at hand. Suggestions for overcoming barriers include: (1) make data collection profitable to the school districts that collect the data, (2) respect the local districts’ way of doing things, (3) use familiar language or define clearly the terms you use, (4) take the time necessary to comply with the Privacy Act, and (5) do not waste peoples’ time with poor quality research. (Epps, 1980, Abstract)

4. Guidance for Investigators

The following precepts are applicable to any type of research with institutions and communities.

4.1. Understand and Respect Organizational Structure and Culture

For the investigators, it is critical to understand the organization of the community or institution in which they plan to work. Communities may have little structure, and no bureaucracy, but have definite leaders. Understanding who speaks or can speak for the community is crucial. The structure of the community may be learned from having an involvement in the community prior to attempting to engage in research (Israel et al., 2001). Investigators can also gain access to the community through colleagues or through community outreach/diversity programs within their institutions. It may be useful to volunteer at these programs on an ongoing basis to create relationships.

Institutions have bureaucracies. Learning the bureaucracy is critical. Institutions may have conflicts in their bureaucracies, with competition between various segments. This can be due to multiple, competing leadership roles, which occurs especially in hospitals. Understanding and working in this situation can be complex (Nickelsen, 2009).

Schools may be somewhat easier to understand because they generally have a defined, linear structure. Public school districts are governed by elected or appointed school boards, operating much like a commission form of government, with governance over policy, planning, and finance. They hire and fire the superintendent, who is the manager of the school district. School boards may reserve powers or delegate those to the superintendent by legislative action or administrative fiat. School boards may have to approve contractual relationship, such as agreements to conduct research. School districts may have additional layers of bureaucracy—assistant-superintendents, directors of pupil services, support service coordinators—who may also be involved in the process.

Individual schools are run by a principal (headmaster or head of school in private schools). The principal is responsible for everything that happens in the school. Support staff may have reporting relationships to central administration, but they are still responsible to the principal when they are in the school. Every school is different, reflecting the style of the principal.

Schools will have full- or part-time support personnel. These include school secretary who functions as administrative support, but is a key gatekeeper to the school, school clerk who will maintain school records including attendance, school nurse, and school counselor. The school nurse has the health pulse of the school and will be a valuable ally for any medical project. Office staff know where everything is, and are often valuable partners in getting information and understanding how things operate. Working with the school staff requires real respect, listening, and an appreciation for their role and how busy they are. School faculty and staff are not to be taken for granted.

Superintendents and principals are especially busy people. They need to be kept informed, but want messages to be short and to the point. Investigators ought to find a happy medium of communication, without overdoing it. People in universities often assume that the world works on e-mails and text messages, but it does not. People will vary and many people are still phone-centric. The authors' experience is that securing an appointment with school leaders is difficult without a phone call. Judicious use of e-mails, letters, and phone calls is of value.

4.2. Pursue the Approval Process at Right Institutional Level

Investigators are used to dealing with an Institutional Review Board (IRB) process within their institutions. In a broader context, communities do not have IRBs, so legal approval is not a consideration. Obtaining community approval of a sort can only come through communications.

Some institutions have IRBs, which would function much like the IRBs in universities. Hospitals or other similar institutions that conduct research will have an IRB. School districts usually do not have an IRB or even an IRB-like process. Since universities always require IRB approval, the investigator may be able to have the other IRBs rely on the review and approval process of their home institutions. When it is possible to have this reliance, it can save much time and effort.

Applications to conduct research are usually sent to the Executive Director or CEO, who will often have a process for approval. This is usually much simpler than the usual IRB submission. Communicating with lower level staff to obtain approval for research is discouraged in all circumstances, unless they have the authority to approve research.

A superintendent is the CEO equivalent of a school district in the US. Private schools may use the term *headmaster* or *head of school*. The superintendent approves participation in any research project. In some instances, research applications go to the school board for approval. Any other school personnel, including principals, do not have authority delegated to approve research projects. In seeking approval for a research project, it is usually most productive to go to the superintendent, although a principal, teacher, or school nurse may be an ally in this effort.

Some larger school districts have a formal IRB process; many do not. In this case, the superintendent is usually the gatekeeper. Several projects working with SBRPN had success in talking with lower level staff, only to be denied official access. Communicating with lower level staff may be perceived as an attempt to circumvent the system.

Schools would like to see research that minimizes disruption of students, minimizes use of class time, creates little/no work for the school staff, has clearly appropriate consent processes, maintains strict confidentiality, and has direct and obvious value to the school and district (Vukotich & Stebbins, 2011). Investigators should approach schools fully prepared to address these issues.

4.3. Support Institutional Priorities

The mission and priorities of institutions and communities are often different from those of the investigator. The research must find a way to conform to and enhance the mission and priorities of the partner institutions in order to be successful. Non-research components may be added to enhance the integration of research and community goals.

For example, the primary mission of schools is education, not research (Farrinton, McBride, & Milford, 2010). Investigators must become partners in the educational process, by including an educational component. The mission impact need not always be directly educational; the mission can have a secondary impact, such as training teachers, improving the educational environment, or reducing absence days. School administrators are also interested in improving the health and welfare of their students, so research which contributes to this will also be welcome (Vukotich & Stebbins, 2011).

4.4. Develop Long-Term Relationships

Investigators must consider the length and type of relationship with the institution or community. Some institutions will want investigators to do their work and finish quickly. In general, long-term relationships are better with communities and schools. People are tired of having researchers disappear too soon. Schools take a 12-year perspective in educating children, so the investigators can take a clue from this. Discussions with school administrators confirm

this (Vukotich & Stebbins, 2011). Pilot studies are valuable if they can be translated into an operational program. Investigators can also create ongoing communication so that the community can monitor the progress of the research and share the results. Finally, the long term perspective is valuable to the investigator, in that once the investment is made in creating the relationship, the relationship can be recycled and reused for future projects.

4.5. Respect the Rights of Individuals

Any kind of testing, assessment, or survey requires standard informed consent. If one is dealing with people under 18, it is important to note that their parents must consent for them.

In some instances, obtaining informed consent may be an undue burden, or even impossible for the investigator. This is especially true where one has a large sample of people undergoing a “minimal risk” process. This is a common situation in a school, but may also be true for any large institution/organization where the general population of that facility is to be studied. Informed consent may take the form of *opt-in*, where a parent must provide a signed consent, or *opt-out* where they must sign if they do not want their student included. Opt-in is difficult, but not impossible (Fletcher & Hunter, 2003). Opt-in may be required by the school or by the investigators’ IRB. In the SMART Schools Project, the researchers were able to get children to wear small electronic proximity sensors (“motes”), and complete contact diaries using an opt-out process. Parents were sent a letter from the school that included a three-page full disclosure document which met all rules for informed consent. Students who did not return the letter to opt-out were considered to be in the study.

One exception to informed consent is for screening. In cases where screening would be an undue burden on the investigator, full consent may be waived. In PIPP, an absentee surveillance system was set up to determine if the child was absent due to influenza-like illness. Parents were informed of PIPP, and given the opportunity to opt-out of being called, by returning a signed letter. Parents were then contacted for screening purposes whenever their child was absent. If the child had ILI, then the child was enrolled with full consent. Waiver of consent for screening may come into play with children if the screening involves very basic questions or a readily observable condition (such as, when the child is sneezing or coughing).

Opt-in creates a significant burden for the researcher. In the opt-out situation, only those parents with a definite objection will return the form. With an opt-in, even if parents do not object, they have to be motivated to return the form (Fletcher & Hunter, 2003). All of the above issues on waivers and opt-in vs. opt-out are dependent on the approval of the individual IRB and school authorities.

Investigators working in US schools have to be cognizant of the Family Educational Rights and Privacy Act of 1974 (FERPA). This parallels the Health Insurance Portability and Accountability Act of 1996 (HIPPA), but applies to the educational records of students. Schools may release directory information to investigators, but any individual educational record, even something like absence records, requires compliance. The investigator is not required to be FERPA compliant, but the school is (US Department of Education, 2013). The investigators’ IRB could require that all dealings with the school be FERPA compliant. The full regulation is Title 34, part 99, and can be found at <http://www.ecfr.gov/cgi-bin/ECFR?page=browse> (look specifically at sections 99.30 and 99.31).

When dealing with school children, issues of assent come into play. Even if a parent consents for a child under age 18, the child must also assent. This means explaining the research to the child in an appropriate manner and having the child agree to be part of the research. There must

be no coercion, such as overly lavish incentives, intimidation, or making research into a homework assignment. The child has a right to say no to any research activity, and when that is done, the child must be removed from the research.

4.6. Select Staff Compatible With Host Institution

Universities readily embrace the spirit of diversity with programs to recognize, encourage, and create it. True diversity suggests that the institution reflect the population of the community in which it operates. Research teams should strive to hire staff that reflects the community in which they are working. This is also in keeping with community involvement in CBPR. This staff should have a connection to the host institution or school where the research is being done.

4.7. Secure Regulatory Clearances

One should always have clearances when working with children. US Schools will always require clearances for all staff. These will vary from state to state, but will usually include a state criminal clearance, child abuse clearance, and FBI (criminal) clearance. Any child abuse offense will disqualify a person from working in a school. A criminal record may not preclude someone from working in a school. Typically, violent crimes, drug offenses, or crimes against children will disqualify. A conviction for an act committed long ago, especially when one was young, may be overlooked. The school may have guidelines. If they do not, guidance should be sought from the investigators' home university. Investigators should consider clearances for staff whenever they are working with the public. Some universities have staff clearance requirements.

4.8. Adjust Research Schedule to Accommodate Host Institutions' Needs and Priorities

Investigators should be flexible to accommodate the institutions' needs and priorities. In schools, standardized testing, schedule changes, and other things can require changes in the research schedule. Investigators ought to be understanding and polite.

4.9. Use Uniforms and Logos for Better Visibility

Uniforms can be helpful in identifying the research team, and creating awareness of the research and the researchers' presence in the institution or community. These can be as simple as golf shirts with a project or university logo. A project logo will help create branding for the research project and could appear on everything associated with the project. Distinct name tags with the project logo and staff name can also be useful.

Research in the community can sometimes take investigators into areas that can endanger the investigators' personal safety. A stranger in any neighborhood is mistrusted. A uniform can help residents know who the researchers are and what they are doing in their community.

4.10. Participate, Volunteer, and Build Credibility

One may be world-renowned and trustworthy as a researcher, but one may still be a stranger in the neighborhood—in the community, institution, or school. The key to effective collaboration is building trust and doing it as quickly as possible. There could be numerous ways to build trust. Being seen is important. Investigators can provide in-service training in institutions to get to know people. Investigators can provide material and information so that everyone in the institution or community is able to know exactly the research being conducted. Attending periodic meetings with staff or community leaders to provide updates and answer questions

could be useful. Interacting with support and maintenance staff and informing them about the research could also help.

In schools, it is useful to take every opportunity to meet with parents. Schools will often have “meet and greet” sessions in the fall that many parents will attend. There are usually monthly parent and parent-teacher organization meetings. Investigators can attend those with updates and explanations of what is going on. Letters can be sent to parents if possible. Marketing impact can be improved by sponsoring events, bringing food to meetings, and giving business cards to anyone who will take one. Researchers can always teach students about research, which is a multiple win-win. It instructs students about research, it promotes the research project, and it encourages students to pursue careers in research. Researchers can gain trust by offering help, asking “How can I help you?” These ancillary activities, although not directly related to the research, can pay big dividends later.

When first approaching a community or institution, listening and observing are crucial. It is beneficial to do an Internet search of the community or facility. Employee/parent/student handbooks, if available, can be useful guides on organizational rules. When entering into a facility for the first time, researchers should observe how one gains entry to the building, where one goes first (people must often go to a reception desk or the main office), sign in/out procedure, badging, use of restrooms (in schools, a visitor may not be able to use student restrooms), where one can and cannot go, and escort requirements. These rules may evolve over time, and may relax, especially for frequent visitors. The authors made it a point that the principal, or at least the main office was always aware that they were in the building.

In a small project, the principal investigator (PI) will also be conducting the research. In a large project, project coordinators will do much of the work, and be on-site. The PI and other senior research staff should make an effort to be seen, and interact with the community. The PI of PIPP, also Dean of the Graduate School of Public Health, took an afternoon to conduct an in-service training session for school nurses.

PIPP and SMART were large, fully integrated projects that required research staff to be in the school every day over an extended period of time. The research will be most successful if the research staff becomes part of the school community. Most school districts use volunteers, and may have an official designation and rules for such volunteers. Obtaining this designation will help make the research part of the school and give access to certain school records. School volunteer status gave PIPP staff access to parent contact information. As a school volunteer, research staff may be called on to help to do things which are not a direct part of the research, but this helps build credibility and the sense of belonging and giving back to the school.

4.11. Communicate Progress and Results Through Various Channels

Israel et al. found that lack of communication was a major reason for distrust (Israel et al., 2001). Communication should start with having everyone involved know why the research is being done, what will be done, and how the results will be used. This involves stakeholder meetings at all levels. It is valuable to attend as many meetings as possible. Meetings may well be the vaccine protecting the research from future problems caused by misunderstanding.


In schools, this would entail attending teachers’ meetings, PTA or parent council meetings, and even having an assembly with all the children. In addition, creating a flier, briefly explaining the project, has been found to be helpful.

Many communities participate in research and few get the results or benefit of this research (Israel et al., 2001). Every effort should be made to share progress and findings. This can include oral or written reports. A project website can also be valuable for posting information. However, nothing replaces a formal and specific report of progress and findings. This should take the form of a multipage report to the institutional administration, with fairly detailed information. Sharing academic papers is also valuable. Reports to the community should be shorter and simpler, but convey the same information in less detail. Sample reports can be found in the [SMART Schools Project](#) website.

Investigators are reminded that the “reading level” should be kept as simple as possible. Reading level can be measured as part of the spell checker in the widely available *Microsoft Word*®. Figures 1a and 1b show how to display and interpret readability statistics.

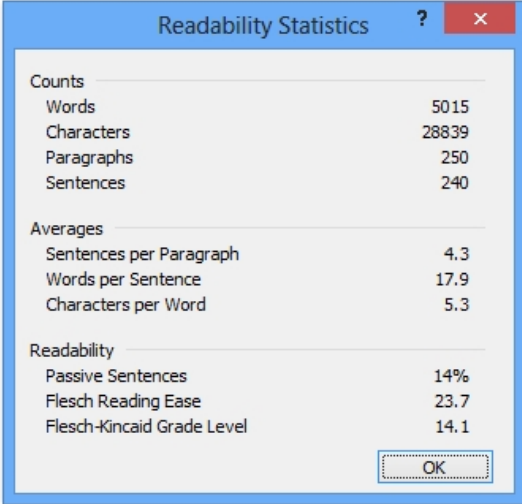
Display readability statistics

Some of the content in this topic may not be applicable to some languages.

1. On the **Tools** menu, click **Options**, and then click the **Spelling & Grammar** tab.
2. Select the **Check grammar with spelling** check box.
3. Select the **Show readability statistics** check box, and then click **OK**.
4. On the **Standard** toolbar, click **Spelling and Grammar** .

When Microsoft Word finishes checking spelling and grammar, it displays information about the reading level of the document.

Figure 1a. Instructions for displaying readability statistics in *Microsoft Word*® documents, taken from the Microsoft website, retrieved November 3, 2013, from <http://office.microsoft.com/en-001/word-help/display-readability-statistics-HP005189601.aspx>



Counts	
Words	5015
Characters	28839
Paragraphs	250
Sentences	240
Averages	
Sentences per Paragraph	4.3
Words per Sentence	17.9
Characters per Word	5.3
Readability	
Passive Sentences	14%
Flesch Reading Ease	23.7
Flesch-Kincaid Grade Level	14.1

Figure 1b. Sample readability statistics of a peer-reviewed research article.

Note. Common interpretation of Flesch Reading Ease scores: 100: very easy to read, 65: plain English, 30: a little hard to read, 0: very hard to read.

4.12. Summary

Table 1 presents a summary of the guidelines and precepts presented above for conducting engaged research in institutions and communities.

Table 1. *Guidelines for Building Sustainable Research Engagements*

Guidelines	Specific Precepts
<p>1. UNDERSTAND THE HOST INSTITUTION</p> <p>(a) Understand and Respect Organizational Structure and Culture (b) Pursue the Approval Process at Right Institutional Level</p>	<p>Learn about the organization/community by reading from various sources. Make connections to the community/organization by networking. The best network is started before the research idea comes into being.</p> <p>Organizations have bureaucracy. The CEO or equivalent must approve research participation. Other leaders may impose conditions. Communities have less structure, but definite leaders. It is crucial to know the relevant people.</p> <p>In communities, research may spring from the grassroots level. There may be competing interests and it is critical to know these because someone may try to undermine the research.</p> <p>Recognize that there are people in support roles who make valuable connections. Listen to everyone.</p>
<p>2. DESIGN RESEARCH TO SERVE THE HOST INSTITUTION</p> <p>(a) Support Institutional Priorities (b) Develop Long-Term Relationships</p>	<p>Investigator's priorities may not be the same as those of the organization/community.</p> <p>Match the focus of research with the mission of the community/ organization.</p>
<p>3. MANAGE RESEARCH PROCESS TO MINIMIZE DISRUPTIONS</p> <p>(a) Respect the Rights of Individuals (b) Select Staff Compatible With Host Institution (c) Secure Regulatory Clearances (d) Adjust Research Schedule to Accommodate Host Institutions' Needs and Priorities</p>	<p>Identify all the approvals needed. Ethics approvals may be needed at both ends. Consider the opt-out process for informed consent in case of "minimal risk" studies.</p> <p>When dealing with children, criminal and child abuse clearances are needed for anyone having contact with children. The child's assent is also needed (despite parental consent).</p> <p>Hire people from the community in which the research is being done.</p> <p>Be flexible and minimize disruption caused by the research.</p>
<p>4. BE VISIBLE AND AVAILABLE TO THE HOST INSTITUTION</p> <p>(a) Use Uniforms and Logos for Better Visibility (b) Participate, Volunteer, and Build Credibility</p>	<p>Make sure that as many people as possible know why the research is being done, who is doing it, what will be done, and how it will be used.</p> <p>Be known in the community/institution where the research is being conducted.</p> <p>Have uniforms and name tags for research staff. This is good advertising for the project and it may also reduce risk for staff working in dangerous areas.</p>
<p>5. COMMUNICATE CONTINUOUSLY</p> <p>Communicate Progress and Results Through Various Channels</p>	<p>Recognize the need for continuous communication and use appropriate means, which may include telephone calls and personal visits.</p> <p>Share knowledge, providing educational opportunities for people in the institution or community. Make academic publications available, even if the grant is completed.</p>

5. Conclusions and Recommendations

While the authors' experience is in schools, these heuristics are applicable to conducting engaged research in any community and institutional setting.

Networking has become a twentyfirst-century buzzword, but networks are critically important to engaged research. In the contemporary scenario, investigators need to sell their work and their universities. Dr Charles Kahle, Chief Technology Officer at PPG Industries tells his thousand PhDs, "We are all in sales!" Engaged researchers should make an effort to be out in the community. They should be building networks and using these networks to extend their research engagements.

Our School Based Research and Practice Network (SBRPN) built relationships between the University of Pittsburgh and schools. Several investigators who worked with SBRPN were previously unable to get into some schools and one had been formally rejected; all are now working in schools, including schools that had rejected them. SBRPN involved being "matchmakers," and were so characterized by a feature article (Hart, 2010). SBRPN took the

time to talk with schools, understanding their needs and interests, and worked with investigators to communicate this to them.

It would be efficient if universities created a clearinghouse to create and maintain ongoing relationships with schools. Investigators can create their own networks on a smaller scale by initiating conversations with school districts even without having a specific research project in mind. They can offer to do in-service training, provide seminars for parents, or doing something that would be beneficial to the school, in exchange for getting visibility in the school district and becoming known by those in power.

Some schools may have a reluctance to engage in research. Some schools have had bad research experiences. Schools have also expressed concerns about “surveys,” especially those associated with market research, because of a concern about how confidential data will be used. Getting schools to do research is a “marketing” task. It requires the investigator to create a product that the schools want and then convince them that they want it.

The proactive approach to schools, seeking them out and communicating with them in advance, has been shown to be successful by SBRPN, and opened the door for the SMART Schools Project. Schools have broad research interests and knowing their interests prior to contacting them can help assure success (Vukotich & Stebbins, 2011). Conducting research with schools can be mutually beneficial.

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