

# Advocates and Researchers Working Together to Improve School Health Education

## Authors:

Joseph Donnelly, PhD

Professor  
Department of Public Health  
University Hall 4161  
Montclair State University  
1 Normal Ave.  
Montclair, NJ 07043  
Telephone: (973) 655-7119  
Email: donnellyj@montclair.edu

Michael Young, PhD, FAAHB, FASHA, FAAHE, FSSSS

Chief Operating Officer  
Center for Evidence-Based Programming  
51 Harbor View  
Laguna Vista, TX 78578  
Telephone: (501) 617-8400  
Email: evidence\_based@yahoo.com

Katherine J. Roberts, CPH, EdD, MPH, MCHES

Adjunct Full Professor  
Teachers College Columbia University  
525 West 120<sup>th</sup> Street, Box 114  
New York, NY 10027  
Telephone: (212) 678-6607  
Email: Kjr20@tc.columbia.edu

## ABSTRACT

**Purpose:** This article discusses the need for continued evaluation of health education interventions/curricula and provides tools and resources to facilitate the selection of appropriate, evidence-based interventions/curricula for school health education programs. **Methods:** We review the literature related to the evaluation of school health education programs, provide a review of the basics for understanding evaluation design and results, and identify resources for selecting effective curricula. **Conclusions:** There is a need for additional rigorously designed evaluations of school health education programs. School health educators and other advocates for school health education must have a basic understanding of evaluation design and how to interpret research results. **Recommendations:** Advocacy efforts should encourage the adoption of health education programming based on research efforts demonstrating its effectiveness. Advocates and university researchers should work together to ensure

*rigorous evaluations of programs are undertaken, and to advocate for resources and funding to conduct these evaluations.*

**Key Words:** School Health Education, Advocacy, Evaluation

## INTRODUCTION

The COVID-19 pandemic has caused wide disruptions in students' lives, affecting their academic performance as well as their physical, mental, and social-emotional health. School closures have significantly impacted school meals and school-based physical, social, and mental health services. The disruptions to education will adversely affect the health of this entire generation of children (The Lancet, 2021). Therefore, it is now more important than ever that schools embrace the Whole School, Whole Community, Whole Child (WSCC) model, which emphasizes the connection between health and learning and the importance of evidenced-based school policies and practices (Lewallen, Hunt, Potts-Datema, Zaza, & Giles, 2015). One of the components of the WSCC is formal, structured health education programming, based on curricula which address the National Health Education Standards and incorporate the characteristics of effective curricula (Lewallen et al., 2015).

It is well understood that health education programs can play an important role in helping young people make positive health decisions and improve various health outcomes (Sharma, 2016). While many health educators believe strongly in the power of health education, they are also increasingly expected to be advocates for school health education. For example, the National Commission for Health Education Credentialing, Inc. has recognized advocacy as a professional responsibility for health educators and identified specific advocacy competencies (Grim & Escoffery, 2021). To be responsible advocates, health educators need the skills to identify relevant health education research, and to both understand, and correctly represent research findings.

School health education programs should include health education curricula/interventions that meet the components of the WSCC model.

Additionally, selected curricula should be ones that have been found to be effective in producing desired, outcomes with populations similar to the program's specific target group.

## PURPOSE

This article discusses the need for continued evaluation of health education interventions and curricula and provides tools and resources to facilitate the selection of appropriate, evidence-based interventions and curricula for health education programs. By "evidence-based" we mean programs that have gone through rigorous evaluations, and peer-review, and have been shown to have positive effects on identified outcome variables.

## METHODS

### Literature Review Related to the Evaluation of School Health Education Programs

For years, commentators have deplored the lack of evaluation of school health education programs. For example, more than 50 years ago Sellery and Bobbit (1960) expressed negative views concerning the lack of evaluation of school health programs. Kann, Telljohann, and Wooley (2007) noted that only two-thirds of school districts that required the teaching of health education evaluated their health education curricula. Among the curricula or programs that have been evaluated, the quality of published evaluation studies is often poor (Stewart-Brown, 2006). Additionally, many program evaluations are not published, and programs are often implemented without regard for evaluation. Schools use commercially available programs that have not been evaluated, programs that have had inadequate evaluations, and even programs that have been evaluated but have been shown to be ineffective (Chandra-Mouli, Lane, & Wong, 2015). Thus, in advocating for health education, it is not enough to simply advocate for health education programs, advocacy should focus on health education programs that have been

rigorously evaluated and have documented evidence of effectiveness.

The majority of published evaluations of health education interventions have focused on specific health topic areas, rather than the evaluation of more comprehensive approaches to health education. In large part, this is because funding implementation and evaluation of health education programs, is often limited to specific areas. For example, the Substance Abuse and Mental Health Service Administration (SAMHSA)'s National Registry of Evidence-Based Programs and Practices (NREPP) which listed effective, science-based interventions for behavioral health issues was active for 20 years from 1997 – 2017 (Green-Hennessy, 2018).

NREPP did not include comprehensive approaches to health education. It did include programs that addressed alcohol, tobacco, and other drug use. A number of programs that were on this list are widely used in schools across the country. Other research reviews have identified effective sexuality education programs (Chandra-Mouli et al., 2015). Additionally, it can sometimes be difficult to assess quality of specific program evaluations, based on the information provided. Note, when the terms “effective programs” or “effective” instruction are used, they refer to programs and/or instruction that produce positive change. There are some published articles that provide the results of the implementation of a comprehensive health education program (Errecart et al., 1991; Young, Kelley, & Denny, 1997), but we have not located a review of effective programs similar to those available for drug education or sexuality education.

Such reviews, lists and registries provide some consumer guidance; for the selection of programs that have documented evidence of effectiveness, they provide a good starting place for program selection. However, a closer examination of such listings reveals that some of the listed programs do not have any peer-reviewed published evaluations, or they have published evaluations that do not include long-term follow-ups, or evaluations that have other substantial shortcomings. In addition, research results have sometimes been misinterpreted, overstated, or misrepresented which can affect those who do not have the understanding or skills to disentangle the truth (Boutron & Ravaud,

2018). Therefore, to further the cause of health education advocacy, there is a need to understand the components of research and evaluation design and how to interpret the results.

### Review of the Basics to Understanding Evaluation Design and Results

It is important for consumers and health education advocates to have some understanding of evaluation—both in design and interpreting results. This is especially important as misinformation about health is considered epidemic (Krishna & Thompson, 2021). The ability to understand, appraise and apply the results of scientific studies deserves some review because of how critical it is in analyzing program results and identifying effective programs. Here we address three key points: (1) significant differences, (2) control groups, and (3) length of follow-up.

**Significant differences.** (1) If an evaluation of a health education program yields statistically significant differences, how big a difference is that? Answer: A statistically significant difference indicates there is a difference between the groups that are compared that is greater than zero. It doesn't indicate how big the difference is. (2) But if a program reports significance, or probability of .001, that is a bigger difference than a significance of .04, right? No, it indicates that we can have greater confidence that a difference does indeed exist, but it does not indicate the size of the difference. If we want to know how big the difference is, we also need to examine effect sizes.

**Control groups.** (1) In addition to a group receiving the program, was there also a control group, a group that did not receive the program? The control group allows us to see what happened in the absence of the program. Without a control group, we are unable to determine if significant differences, or lack of differences, we might see in program participants can be attributed to the program. (2) How were the evaluation participants assigned to groups (i.e., program or control)? Ideally, participants are randomly assigned to groups. This is used to eliminate bias that might exist if groups are formed in some other fashion – for example letting prospective participants choose whether they want to participate in the program or not. (3) Was a true control group used, or did the

evaluation compare a new program with “current practice”? This is important because, if there are significant differences between an intervention and a true control group (in favor of the intervention group), then the evaluation indicates the program is better than nothing. If there is a true control group and the evaluation shows no significant differences, then doing nothing is just as good as doing the program. If the program is compared with a current practice condition and there are significant differences (in favor of the intervention) then the new program is producing better results than the existing program. If there is no difference between the new program and the existing program (and this is an important point), this does not mean the new program did not work. It worked just as well, or as poorly, as the existing program; no better, but no worse.

**Length of Follow-up.** What difference does a follow-up make? If the program works, it works. If it doesn't, then it doesn't, right? If an evaluation examines participants before the program, and then again immediately after the program, it shows us the immediate effects of the program, but it tells us nothing about the effects of the program over time. It may be there are large and significant differences between the intervention (program) group and the control group immediately after the program is completed. Will those differences still be there in six months, in a year, or longer? Without a long-term follow-up this is unknown. Additionally, if we are trying to influence behavior, it is difficult to tell anything about some behavioral effects without a long-term follow-up.

For example, a school district implemented a program for fifth graders to prevent tobacco use. At the end of the two-week program there was no difference between program participants and the control group in the number of participants who indicated they were current smokers. The school officials decided the program did not work so they discontinued the program. Another school district implemented the same program and showed the same results immediately after the program. However, they also followed these students through the seventh grade. At the end of the seventh grade there were significantly more students in the control group who reported they were current smokers than did students who received the program. A similar situation exists for programs that encourage young people to

postpone sexual involvement. Two fairly well-known sex education programs showed no difference between the program and the control group at post-test or at a short-term follow-up, but in both studies, there was a difference, in favor of the program group, at the 18-month follow-up (Denny & Young, 2006; Kirby, Barth, Leland, & Fetro, 1991).

In both the smoking evaluation and in the sexual involvement evaluation, there were few program or control participants engaging in the behavior at the time the program was taught. A long-term follow-up allows the evaluator to see what happens over time. It is likely that at least some control participants, who have not received the program, will, over time, begin initiating the behavior. If the program works, then within the same time period, fewer program participants will begin initiating the behavior.

### **Evaluation and Health Education Advocacy**

In order to most effectively advocate for health education programs in schools, there needs to be both transparency with all stakeholders and accuracy in the representations of evaluation results. When representing a particular program's results or selecting a program or curriculum, the following should be asked: 1) If a particular program, or a specific type of program, has been shown to produce positive results in one or more studies, will similar results be achieved when the program is implemented in the future? Not necessarily; however, we can certainly have more confidence in a program that has a track record of producing positive results than one that has not previously shown significant, positive effects. (2) Can we provide assurance to parents, based on previous research results showing a program produced positive behavior changes, that their child will also receive this benefit from participating in the program? Not necessarily; even when a program shows positive results, this does not mean that every participant experienced positive results. We can tell parents that previous research shows that, as a group, participants receiving the program did better than participants in the control group. Thus, we anticipate that students, who receive this program in the future, will be more likely to achieve these results than students who do not receive this programming.

Is all that we have been saying here constitute an argument against advocacy efforts? No, that

is not what we are saying. Without strong advocates at the national, state, and local level, students will have limited access to quality school health instruction. In touting the benefits of health education, however, advocates must correctly represent the research. It may come as a surprise to a few of you, but not everyone supports the idea of providing young people with comprehensive health education. They may not have a problem with students learning about the importance physical activity and healthy eating, but view education about some health topics as inappropriate. Indeed, less than 10% of states, districts and schools required the teaching of all 14 health education topics in the middle or high schools (Kann et al., 2007). When we use research to support advocacy efforts, as we should, we better get it right. We should present our material as if every word we say about program effectiveness will be carefully scrutinized by people opposed to our efforts, because it likely will be.

Advocacy efforts should encourage the adoption of health education programming based on research efforts demonstrating its effectiveness, but it should also address the need for additional funding for the implementation and rigorous evaluation of comprehensive school health education programming. This is an argument for more and stronger research to address the effects of school health education. Rigorous evaluations of programs yielding positive results, published in peer-reviewed journals, can lead to wider dissemination of effective programs.

University health educators who have research responsibilities should reach out to schools and partner with them in developing and field-testing new programs and/or conducting evaluations of existing programs, using rigorous research designs. NIH funding is becoming more difficult to secure for school health education research, but there are agencies that do issue funding announcements for programming that is at least a part of comprehensive health education. Schools, and community agencies who work with schools in implementing health education programs, should welcome, and seek out, opportunities to work with university partners in evaluating programs. If schools, advocates, and researchers will work together they can maximize the opportunities that students have to

participate in effective school health education programs.

### **Review of Resources for Selecting Effective Curricula**

It is the responsibility of the state, school districts, and respective schools to provide students effective curricula to be utilized within comprehensive health education programs. Schools, and school health education teachers, should be able to select effective/proven curricula based on empirical research that has determined the program to be effective within the chosen population.

National Health Education Standards (Joint Committee on National Health Education Standards, 2007) and statewide standards may allow for flexibility in teachers teaching from their own material/curricula; however, there is often no guidance provided as to what programs are effective, or any requirement for educators to use evidence-based programs (EBP) or curricula. While it is helpful to know the end goal and what content one is responsible for teaching and having students learn, there are clearly more and less effective means of getting to that end goal. Educators need tools and resources for choosing the most effective health education curricula.

Fortunately, there are some resources to provide guidance to schools and health educators. For example, The Centers for Disease Control and Prevention (CDC) have identified 15 characteristics of effective health education curricula that educators can use as a guide in selecting curricula (Centers for Disease Control and Prevention, 2019).

The CDC has also developed the Health Education Curriculum Analysis Tool (HECAT), which focuses on nine health content areas, and is a tool to help schools analyze whether their health curricula align with these nine Key Knowledge and Skill Expectations, which subsequently align with the National Health Education Standards (Centers for Disease Control and Prevention, 2012). These are tools and resources of which schools and educators should be aware, to assess health education curricula.

Another resource for school health educators is Health SMART (Schrag, 2017), a comprehen-

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sive K-12 health education program whose design was based on HECAT and is in alignment with the CDC's guidance on effective health education curricula. Health SMART covers six major components of health education that address areas of potential risk. This program can be a great resource for school health educators who are looking for a comprehensive approach to health education topic areas. Health SMART can be considered an evidence-informed program because it incorporates the key features research has identified in those programs that have been found to be effective in changing risk behaviors; however, there has not yet been a rigorous research study of this comprehensive K-12 health education program. For that reason, the publisher, correctly, does not call the program evidence-based.

Another good resource for finding effective substance use prevention programs is SAMHSA. Although NREPP was suspended in 2018 (Green-Hennessy, 2018), SAMHSA recently released its Evidence-Based Practices Resource Center which provides information and tools needed to incorporate evidence-based practices into their communities or clinical setting (SAMHSA, 2021). Additionally, the Pennsylvania Department of Drug and Alcohol Programs (2021) provides a listing and description of drug prevention programs, and Athena's (2021) Excellence in Prevention Strategies includes a listing and description of programs based on the National Registry of Evidence-Based Programs and Practices, Oregon's list of evidence-based programs, and work from the Pacific Institute for Research and Evaluation. The Institute of Education Sciences' What Works Clearinghouse (WWC) (2021) has a searchable registry, as does the Blueprints for Healthy Youth Development (2021) which includes interventions with outcomes demonstrated in the domains of behavior, education, emotional wellness, positive social relationships, and health.

## CONCLUSIONS

There is a need for additional rigorously designed evaluations of school health education programs. School health educators and other advocates for school health education must have a basic understanding of evaluation design and how to interpret research results.

## RECOMMENDATIONS

It is essential that school health education programs use effective, evidence-based curricula, thus providing students the best opportunity to learn from such materials and foster healthier behaviors. While there are a variety of factors influencing what curricula are chosen (age, applicability, demographics, user-friendly, likeability, etc.), the primary reason must be whether or not a particular program has demonstrated that it is effective. Thus, advocacy efforts should encourage the adoption of health education programming based on research efforts demonstrating its effectiveness. One should ask, does the program not only increase knowledge, attitudes, and skills, but also increase healthy behaviors? We should not be swayed because everyone else is using a particular program. If a school has been using it, and no positive results have been demonstrated through research studies, it is best to look for a more effective program. We must avoid teaching the same ineffective program over and over and expecting a different outcome. We owe it to all the young people we teach and want to positively impact.

The responsibility for teaching and adopting evidence-based programs belongs to the universities teaching future school health educators, local school districts, state departments of education, and health educators themselves. All of these parties have a role in ensuring that students receive the most impactful programs that will foster healthier behaviors. Health educators need to be educated and empowered to: 1) identify effective programs, 2) understand the importance of using effective/evidence-based programs, and 3) know where to obtain such materials. Additionally, advocates and university researchers should work together to ensure rigorous evaluations of programs are undertaken, and to advocate for resources and funding to conduct these evaluations.

It is our goal in this article to encourage advocacy not just for comprehensive school health education, but for adoption of effective, evidence-based health education programs. Additionally, we want to spur action among health educators collectively. The present status of health education will not change, unless we make changes in programming to clearly produce

positive, substantial results in our students' health knowledge, attitudes, and behaviors. Thus, for those of you who are currently serving as health educators, or advocating for health education programs, we encourage you to review the materials that are currently being used, and ask whether these curriculum materials are evidence-based and are making a difference in the lives of students. If they are not, you can and should advocate for a change in program materials or curricula, not only for the sake of current students, but to ensure that future students will have the opportunity to enhance their physical, mental, and social-emotional health.

## REFERENCES

- Boutron, I., & Ravaud, P. (2018, March 13). Misrepresentation and distortion of research in biomedical literature. *PNAS*. Retrieved June 19, 2021, from <https://doi.org/10.1073/pnas.1710755115>.
- Centers for Disease Control and Prevention. (2019, May 29). Characteristics of effective health education curricula - sher. Retrieved June 13, 2021, from <https://www.cdc.gov/healthy-schools/sher/characteristics/index.htm>.
- Chandra-Mouli, V., Lane, C., & Wong, S. (2015). What does not work in adolescent sexual and reproductive health: A review of evidence on interventions commonly accepted as best practices. *Global Health: Science and Practice*, 3(3), 333-340. <https://doi.org/10.9745/ghsp-d15-00126>
- Denny, G., & Young, M. (2006). An evaluation of an abstinence-only sex education curriculum: An 18-month follow up. *Journal of School Health*, 76(8), 414-422. <https://doi.org/10.1111/j.17461561.2006.00135.x>
- Errecart, M. T., Walberg, H. J., Ross, J. G., Gold, R. S., Fiedler, J. L., & Kolbe, L. J. (1991). Effectiveness of TEENAGE Health Teaching MODULES. *Journal of School Health*, 61(1), 26-30. <https://doi.org/10.1111/j.17461561.1991.tb07855.x>
- The Athena Forum. (2021). Excellence in prevention strategy list. Retrieved June 19, 2021, from <https://www.theathenaforum.org/EBP>
- Green-Hennessy, S. (2018). Suspension of the national registry of Evidence-Based programs and practices: The importance of adhering to the evidence. *Substance Abuse Treatment, Prevention, and Policy*, 13(26), 1-4. <https://doi.org/10.1186/s13011-0180162-5>
- Grim, M., & Escoffery, C. (Eds.). (2021). *The Health Education Specialist: A Companion Guide for Professional Excellence-2020* (8<sup>th</sup> ed.). Whitewall, PA: National Commission for Health Education Credentialing, Inc.
- Centers for Disease Control and Prevention (CDC). (2012). Health education Curriculum analysis Tool 2012. Retrieved June 19, 2021, from [https://www.cdc.gov/healthyyouth/hecat/pdf/hecat\\_cover.pdf](https://www.cdc.gov/healthyyouth/hecat/pdf/hecat_cover.pdf).
- Institute of Education Sciences. (2021). What Works Clearinghouse. Retrieved June 19, 2021, from <http://ies.ed.gov/ncee/wwc/>
- Kann, L., Telljohann, S. K., & Wooley, S. F. (2007). Health education: Results from the School Health Policies and Programs Study 2006. *Journal of School Health*, 77(8), 408-434. <https://doi.org/10.1111/j.17461561.2007.00228.x>
- Kirby, D., Barth, R. P., Leland, N., & Fetro, J. V. (1991). Reducing the risk: Impact of a new curriculum on sexual risk-taking. *Family Planning Perspectives*, 23(6), 253. <https://doi.org/10.2307/2135776>
- Krishna, A., & Thompson, T. L. (2019). Misinformation about health: A review of health communication and misinformation scholarship. *American Behavioral Scientist*, 65(2), 316-332. <https://doi.org/10.1177/0002764219878223>
- Lewallen, T. C., Hunt, H., Potts-Datema, W., Zaza, S., & Giles, W. (2015). The whole school, whole community, whole child model: A new approach for improving educational attainment and healthy development for students. *Journal of School Health*, 85(11), 729-739. <https://doi.org/10.1111/josh.12310>
- Pennsylvania Department of Drug and Alcohol Programs. (2021). DDAP Prevention Program Listing. Retrieved June 19, 2021, from <https://www.ddap.pa.gov/Documents/DataSyst>

m/PrevAgency\_DDAPPventionProgram Listing.pdf

Blueprints for Healthy Youth Development. (2021). Providing a registry of experimentally proven programs. Retrieved June 19, 2021, from <https://www.blueprintsprograms.org/>.

SAMHSA. (2021). Understanding the HealthSmart approach to health education - part 1. ETR Blog. Retrieved June 13, 2021, from <https://www.etr.org/blog/understanding-the-healthsmart-approach-to-health-education-part-1/>.

Schrag, S. (2017). Understanding the HealthSmart Approach to Health Education - Part 1. Retrieved June 13, 2021, from <https://www.etr.org/blog/understanding-the-healthsmart-approach-to-health-education-part-1/>

Sellery, C. M., & Bobbitt, B. G. (1960). Evaluation of Health Education and Health Services in the Los Angeles city schools. *Journal of School Health*, 30(2), 81-85. <https://doi.org/10.1111/j.17461561.1960.tb06955.x>

Sharma, M. (2016). *Theoretical Foundations of Health Education & Health Promotion* (3<sup>rd</sup> ed.). University of Nevada, Las Vegas.

Stewart-Brown, S. (2006). What is the evidence on school health promotion in improving health or preventing disease and, specifically, what is the effectiveness of the health promoting schools approach? World Health Organization Regional Office for Europe: Copenhagen.

The Lancet. (2021). Covid-19: The intersection of Education and health. *The Lancet*, 97(10271), 253. [https://doi.org/10.1016/s0140-6736\(21\)00142-2](https://doi.org/10.1016/s0140-6736(21)00142-2)

Young, M., Kelley, R. M., & Denny, G. (1997). Evaluation of selected life-skill modules from the contemporary health series with students in grade 6. *Perceptual and Motor Skills*, 84(3), 881-818. <https://doi.org/10.2466/pms.1997.84.3.811>