



Program Evaluation

conducted by Triere Research Group

Health Promotion Wave

Health Promotion Wave (HPW) is a comprehensive health education program for grades PK-12. It features alignment with the National Health Standards, teacher professional development, teaching materials that include a wide range of activities and assessments, and attention to the learning styles of students in each grade level. The broad goal of the program is to develop **health literacy in children who through specific learning activities gain the knowledge, skills, and behavior in all areas critical to healthy living.**

Intended Population

HPW offers a health curriculum for students in pre-kindergarten through high school. The curriculum features age-appropriate materials for each grade level. The developers of HPW considered students' cognitive and emotional development in developing this instructional program. The HPW curriculum offers a wide range of inquiry-based, hands-on activities and literature to accommodate students at every academic level and learning style.

Goals & Rationale

The goals of HPW are:

1. Students will comprehend important concepts related to maintaining their personal and mental health, nutrition and fitness, the use of alcohol, tobacco and other drugs, managing stress, understanding human growth and their own sexuality, contributing to a healthy family life, practices to reduce the risks of various diseases, particularly HIV/AIDS, preventing injuries and other safety-related issues, preventing violence, and contributing toward community and consumer health.

2. Students will demonstrate the ability to practice health-enhancing behaviors, including but not limited to personal hygiene practices, eating a well-balanced diet, exercise, refraining from risky behaviors, avoiding and reducing threatening situations, and adopting safety-enhancing practices.
3. Students will communicate effectively with their peers, family members, and others to enhance their personal and mental health.
4. Students will analyze real-world situations with health implications and make health-promoting decisions, such as peers using illegal drugs, bullying, interacting with individuals with infectious diseases, and sexual relations.
5. Students will be able to access health information and evaluate information for its validity.
6. Students will analyze the influence of societal factors on health, including cultural differences, media, and information from peers.
7. Students will set goals for their own personal health and well-being and make decisions that will enhance these.

These goals are consistent with both the National Health Education Standards and the guidelines of the Centers for Disease Control and Prevention. They reflect the difficult problems faced by today's K-12 students who must make choices that will affect their entire lives.

Theory & Conceptual Underpinnings

The theoretical basis for HPW is derived from contemporary research on how individuals make decisions about health-related behavior, how teachers can structure instruction in ways that promote critical thinking about personal decision-making, and how students interact with their peers and others to engage in more or less healthy choices.

At the time HPW was developed (1989) adolescent morbidity and mortality statistics had increased steadily for decades. Today, in 2004, these figures continue to be disturbing. Motor vehicle fatalities, homicides, and suicide claim the lives of adolescents and young adults more than any other demographic group. In addition, other recent health statistics present other troubling trends. The use of illegal substances, including the “designer” drugs and oxycontin, have emerged, as well as large numbers of young people consuming alcohol, despite the increases in legal drinking age in the United States. Death rates for motor vehicle traffic injuries, the leading cause of injury deaths for adolescents, increase markedly with age, doubling between ages 15 and 16 years. Sexual activity and the likelihood of sexually transmitted disease also increase with age through the teen years. Obesity continues to increase among children and adolescents with the National Center for Health Statistics reporting 15 percent of American students in elementary and secondary school to be obese in the most recent data (<http://www.cdc.gov/nccdphp/dnpa/obesity/>). Psychological problems also result in various other health problems including eating disorders, suicide ideation and depression. In addition, it’s clear that academic achievement is related to health (<http://www.csba.org/is/ch/linkages.htm>). Children and adolescents who are physically active, eat a nutritious diet, sleep an adequate number of hours, do not drink alcohol or use illegal drugs, and are generally healthy are also the students who achieve in elementary and secondary school.

One model to understanding the cycle of health-related behaviors is that of Dr. James O. Prochaska and his colleagues. In research that began in the 1970’s, Prochaska studied individuals modifying addictive behaviors. These individuals move through five distinct stages from precontemplation (unawareness), contemplation, preparation for change, action (the most active stage where behaviors are changed) to maintenance. In HPW, students are encouraged to examine their own behaviors as well as those of others to recognize the consequences of decisions on their personal and mental health.

Recent reports have reinforced the important role of school health education in addressing critical public health problems. For example, a 2000 Surgeon General's report, *Reducing Tobacco Use*, concludes that educational strategies can postpone or prevent smoking onset. The Institute of Medicine has concluded that comprehensive sex and HIV/AIDS education programs can be effective in reducing high-risk sexual behaviors among adolescents. Further, schools are one important component of community-wide violence prevention. Finally, the Centers for Disease Control and Prevention's 1996 Guidelines for School Health Programs to Promote Lifelong Healthy Eating indicate that "school-based nutrition education can improve the eating behaviors of young persons" and the CDC's 1997 Guidelines for School and Community Programs to Promote Lifelong Physical Activity Among Young People state that "comprehensive health education, which includes instruction on physical activity topics, can complement the instruction students receive in comprehensive physical education." (Kann, Brener and Allensworth, 2002).

As a comprehensive health education program, HPW deals with these disparate issues in a unified manner. Teachers are empowered with the best information available on health and related issues, including regular on-going communication between adopting teachers and HPW staff. Because problem behaviors often occur together in clusters, share many of the same risk and protective factors, and can be addressed by similar strategies, Payton, Wardlaw, Graczyk, Bloodworth, Tompsett, and Weissberg (2001) state there is growing national support for a comprehensive, coordinated approach to the prevention of risk and promotion of positive youth development. Such comprehensive initiatives typically target multiple outcomes, are multiyear in duration, coordinate school-based efforts with those in families and the larger community, and include environmental supports so children have opportunities to practice positive behaviors and receive consistent reinforcement. HPW is such an approach. (Health is Academic, 1998)

In the elementary school years, HPW provides teacher friendly, health literacy program to meet the needs of every student. Materials include a combination of course materials for teachers, students and parents, award winning literature, videos, software, posters and interactive games. For middle school students, HPW is highly interactive program that acknowledges the particular issues students at this level face from a developmental perspective. HPW equips high school students with the life management skills they need to succeed as young adults. The learning continues as conflict resolution, effective communication, goal setting, decision making, interviewing and budgeting are covered through an interactive and age appropriate curriculum. All the levels are consistent with the guidelines of the Centers for Disease Control and the National Health Education Standards.

In one sense, health is a series of decisions influenced by individuals' knowledge of concepts and their attitudes and values, as well as societal and educational factors. HPW encourages critical thinking about those decisions, including analysis of problem situations, evaluation of the effects of specific behaviors as disparate as diet and drug abuse, and metacognitive strategies to support students' continuing decision-making from childhood to adulthood. HPW utilizes strategies such games, role-playing and simulations to engage students' interest and provoke their thinking about situations that may confront them.

In summary, HPW incorporates features of effective teaching and learning. Attention to student engagement, attention to higher order thinking such as analysis and evaluation, assessment of student learning and well-prepared teachers are the hallmarks of HPW.

Hypotheses

1. Students receiving HPW instruction will demonstrate higher gains in health-related knowledge than comparable students who receive health instruction through standard, textbook-based instruction.
2. Students receiving HPW instruction will demonstrate how their knowledge influences health-related decisions.

Program Description

Information today is expanding at breathtaking rates and the ability to apply new learning in the classroom is crucial. Nowhere is this more visible than in the field of health. While the volume of knowledge is exploding, society is placing ever greater demands on teachers to ensure that the next generation benefits from the gains we have made; whether it be resolving conflicts, drug use prevention, disease prevention, intentional and unintentional injuries, or managing stress.

One major challenge in health education is in incorporating instruction in positive lifelong habits into an already busy school day. Twenty years of research tells us that the traditional approach to health education has not worked (Seffrin, 1990). Children must be actively engaged in the learning process to retain the information presented. Health Promotion Wave is the embodiment of that premise.

The teaching methods used throughout the HPW program are based on proven and demonstrated instruction techniques designed to impart knowledge and develop skills. Each segment weaves the most current knowledge into a variety of activities that foster the active learning so necessary for success. As a result, students become actively engaged in the learning process, and they develop the ability to internalize the critical health values they will need the rest of their lives. As students learn to work together, a mutual responsibility is fostered which creates respect amongst the class.

Reliable teaching methods, combined with specifically developed instructional tools, are the cornerstone of the HPW curriculum. The lessons and activities are designed to build positive attitudes, engage and motivate students, reduce conflict and promote cooperation and respect.

Core Curriculum

The core curriculum is the foundation of the HPW program. All materials necessary for implementation are included in this package and include the Teacher Manual, Student Activities, Assessments, Parent Activities, and Transparencies.

Comprehensive Curriculum

Teaching health requires educators to cover a broad range of topics. To help teachers bring them to life, Health Wave researched, developed, and assembled additional resources into the Comprehensive Curriculum. Special Activities are incorporated throughout to solidify program learning with follow-up discussion questions and the integration needed for successful application. The Resources of the Comprehensive Curriculum include literature, videos, software, cassettes, skill-based games, posters, and other age-appropriate resources.

Evaluation Design

The initial evaluation of HPW compared students participating in the program in grades K-8 to comparable students who were receiving a textbook based health instruction. The evaluation design is a classical quasi-experiment with control group (Cook and Campbell, 1979). Random assignment of individuals to experimental and control conditions was not possible as the evaluation targeted teachers and students in sites where HPW had been adopted for all students. Therefore, the comparison group was selected to be as similar as possible to the participating students in terms of demographics such as gender, ethnicity and socio-economic status.

Further, this evaluation employed a pre-post approach. The scores of students in the HPW group and comparison group on the pre-test were compared for statistical equivalence before the statistical testing of the post-test comparison. Insofar as the two groups displayed statistically equivalent pre-test scores, an analysis of covariance was conducted to compare post-test scores, adjusting for initial differences. When the pre-test differences were statistically significant, dependent T-tests were used to examine the degree to which HPW and comparison students gained in targeted health-related domains.

Data were examined as well for assumptions of these parametric procedures such as normality of distributions and heterogeneity of variance.

Grade-level specific measures were used to measure the effects of the 2 health education conditions. These measures were assessed for reliability (internal consistency and stability) and found to be adequate (r 's ranging 0.7 to 0.9). Expert review of the alignment of test items with the stated objectives of the various units in the HPW curriculum and the control curriculum provided evidence of content validity. Experts included both health educators and elementary teachers who taught health as a part of a unified elementary curriculum. A pilot test provided further evidence of the content validity of the assessments. The items were objective in their format, being mostly multiple choice with four selection options. All test items were assessed for readability as well. For younger children, many items included graphic images to augment text, in order to facilitate comprehension. With the comparability of the HPW and comparison groups, the validity of scores from these measures can be seen as comparable, as the reading levels of the 2 groups were equivalent (based on the matching of the two groups). Table 1 displays the number of items by grade level in the assessments.

Table 1

Grade Level	Number of Items in Health Assessment
1	35
2	35
3	30
4	30
5	35
6	41
7	40
8	41

The samples for the evaluation were convenient clusters, representing schools in the Northeastern United States. Based on the demographics, this sample can be considered representative of students in that region and, to a certain extent, the United States. The majority of students were middle class in their socio-economic status, although there were students in each group who met federal standards for poverty (eligible for free or reduced meal prices).

Table 2 displays grade level information about the samples. The two samples were matched on the basis of socio-economic status, age, and indicators of academic achievement and poverty (e.g., free lunch eligible).

Table 2

Grade Level	HPW Participants	Comparison Students
1	33	13
2	61	24
3	39	44
4	60	38
5	63	44
6	22	35
7	63	44
8	32	32
Totals	336	265

The primary analytic approach was analysis of covariance (ANCOVA), with the pre-test score as the covariate. Pre-test scores for the two groups were compared to assess the prerequisite assumption of heterogeneity of variance, necessary for ANCOVA. When this assumption was not tenable (significant differences between the 2 groups on the pre-test), then dependent t-tests were used to assess the statistical significance of the 2 groups' gains. The level of significance was set at $\alpha < 0.05$. As the sub-tests scores were not independent of each other, descriptive statistics were computed to describe the gains in the sub-domains for each grade level. Both descriptive and inferential results are given in the next section, Evaluation Outcomes.

Evaluation Outcomes

Figures 1a and 1b display the pre-post total scores of the HPW and comparison groups for each grade level (see Appendix A for more descriptive statistics). Both means and standard deviations are reported. The F-ratio and the associated probability of statistical equivalence are displayed for those grade levels where the groups were statistically equivalent on the pre-test. In Grades 2 & 4, where this assumption was violated, the results of the dependent t-test for pre-post gains in the HPW group are given. In these two grade level groups, the pre-post gain for the comparison group was statistically non-significant ($p > 0.05$).

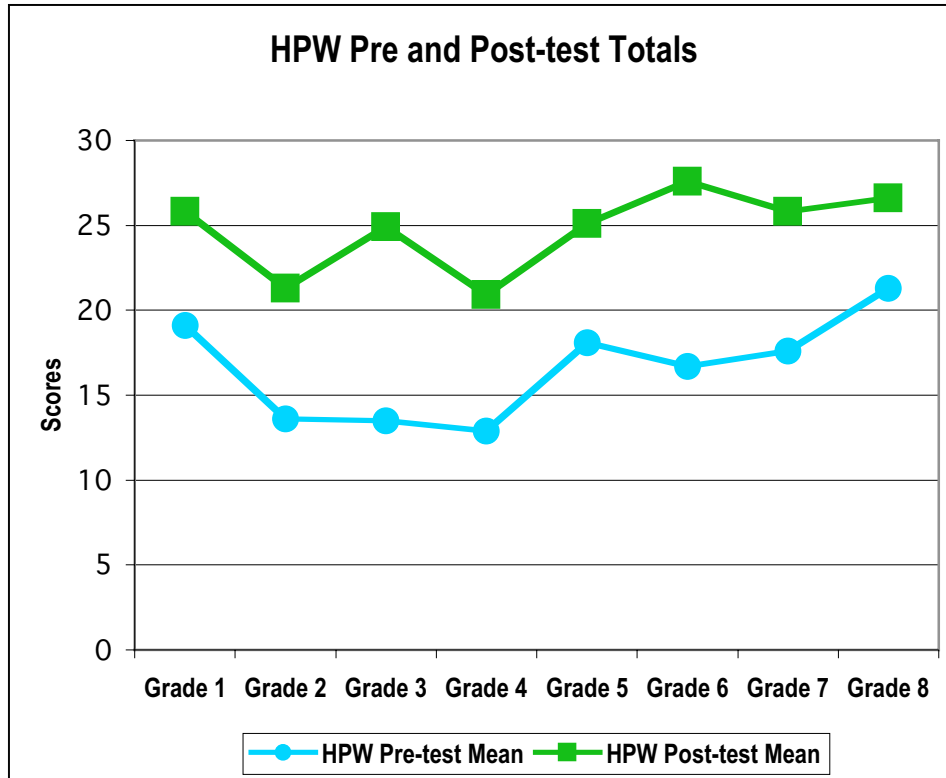


Figure 1a

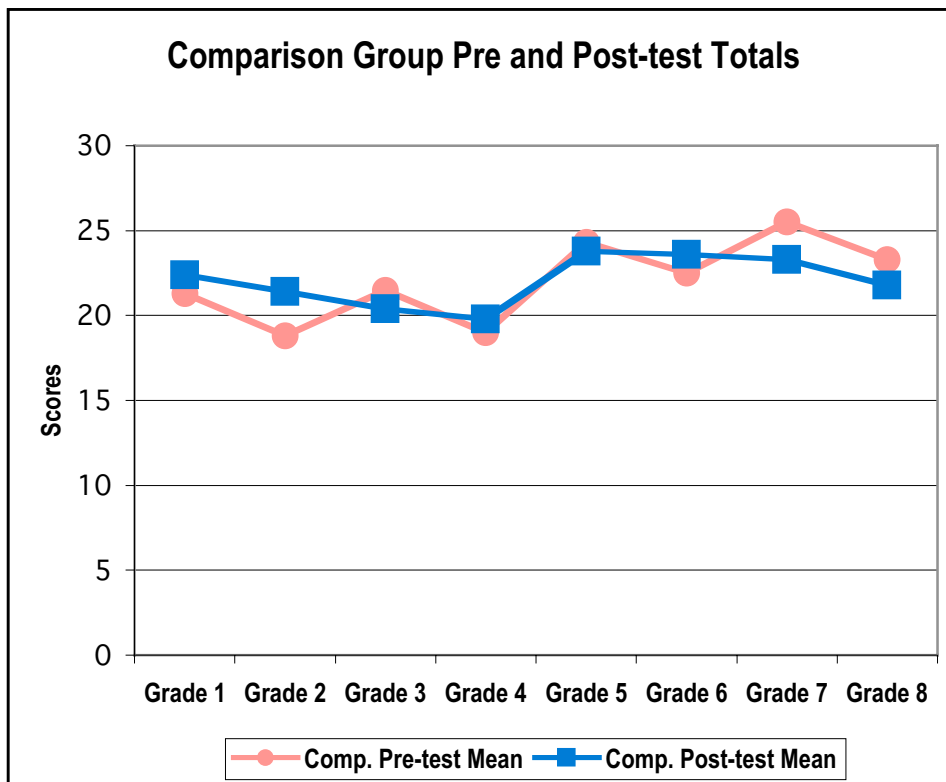


Figure 1b

ANCOVA was used to compare the HPW group to the comparison group while adjusting for pre-test scores. In several grades the assumption of heterogeneity of variance was not tenable. These were Grades 2 and 4. In both of these grade levels, the comparison group exceeded the HPW at the pre-test at a statistically significant level. Therefore dependent t-tests were conducted to assess the statistical significance of pre-post changes for both groups.

Overall, the post-test achievement of the HPW groups significantly exceeded that of the comparison group for virtually all grade levels. In the case of Grades 2 and 4 the post-test scores were equivalent and ANCOVA revealed no statistically significant differences between the HPW and comparison students. This result actually confirms the statistically significant gain made by the HPW group in both these grades, as the initial level of achievement was significantly lower for the HPW group. Thus, for all grade levels, HPW students made statistically significant gains and achieved more learning relative to their grade level peers. Additional support for the effectiveness of HPW is shown by the **declines** in achievement for the comparison groups. While these results were not statistically significant, the lack of change from the pre to post test under the normal practice of health education is troubling at best and buttresses the importance of HPW as a comprehensive multiple-grade-level program.

In addition to comparing overall scores, the pre-post gains in each sub-domain assessed were compared for the 2 groups. Figures 2-9 display the mean of pre and post-test scores for each domain for the HPW groups by grade level (see Appendix B for more descriptive statistics). These scores were correlated and neither ANCOVA nor dependent t-tests were viable analytic choices to assess the statistical significance of the gains made in each sub-domain. However, these descriptive results do support the effectiveness of the HPW curriculum in critical areas of student health.

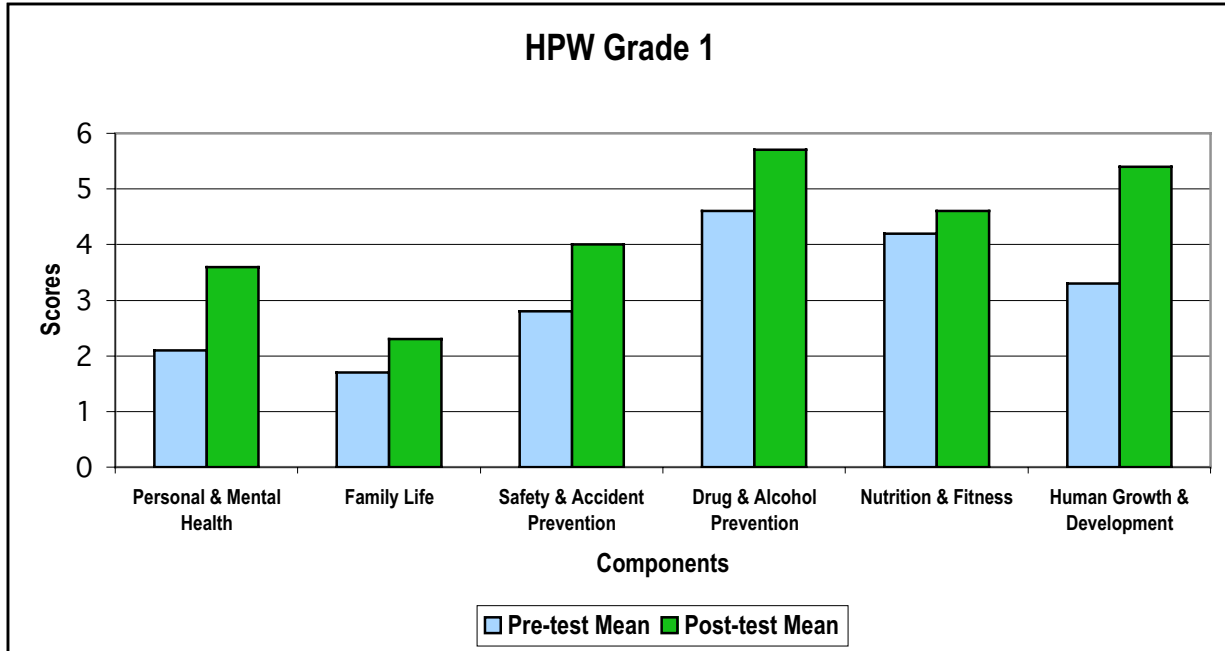


Figure 2

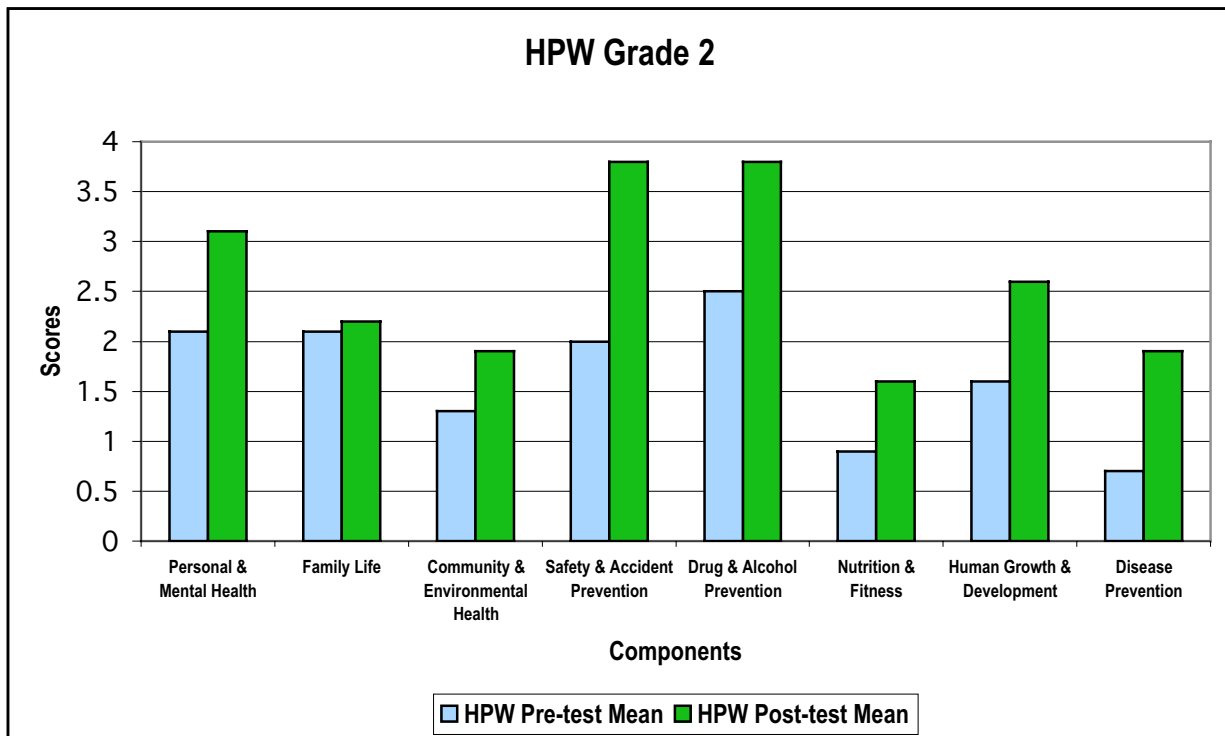


Figure 3

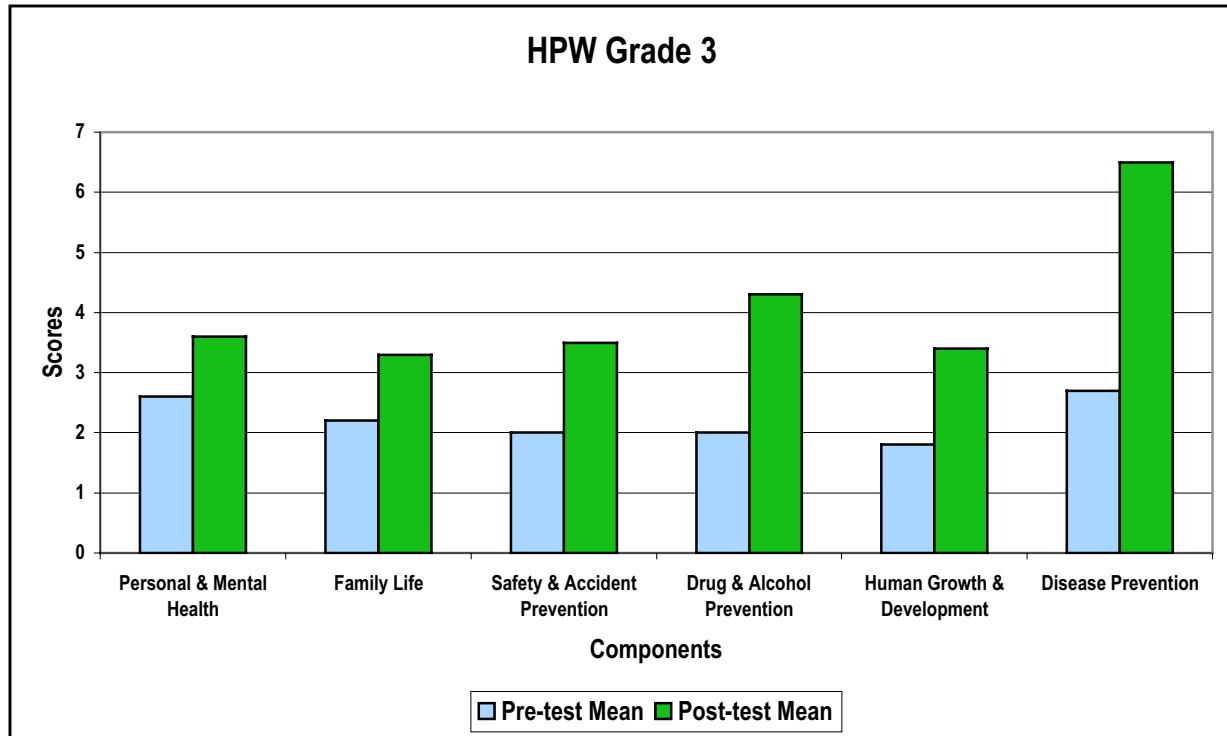


Figure 4

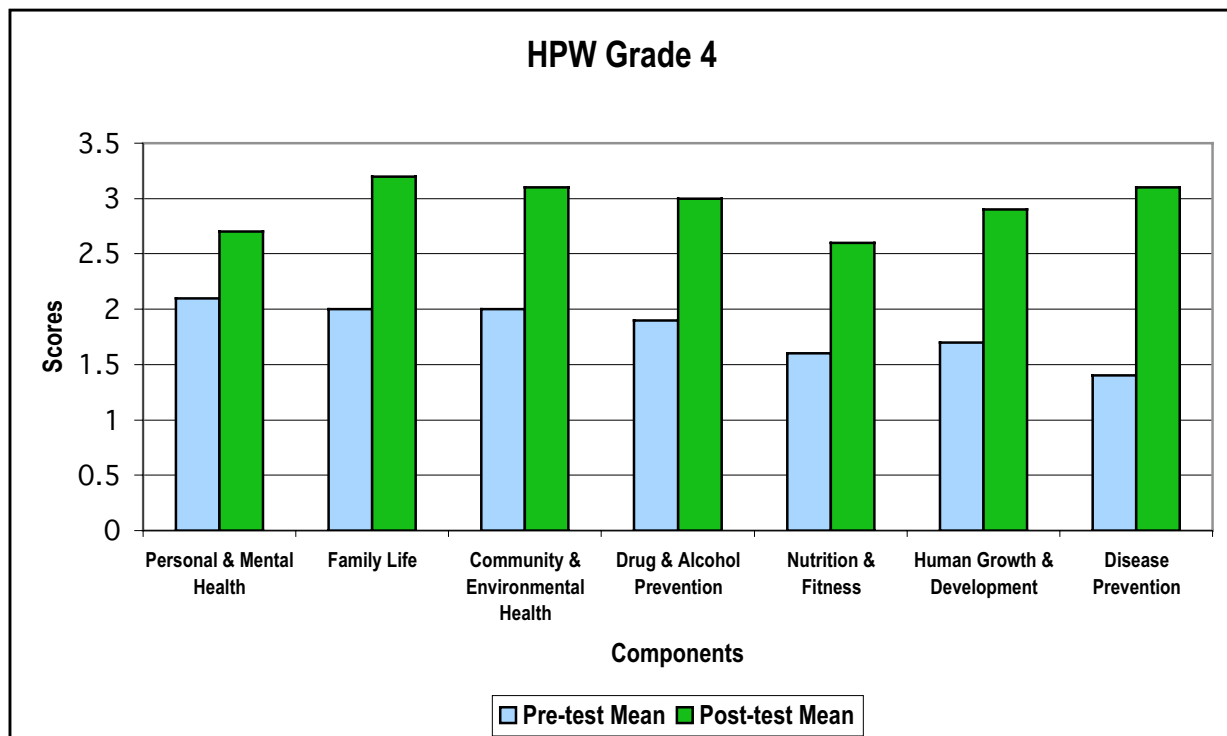


Figure 5

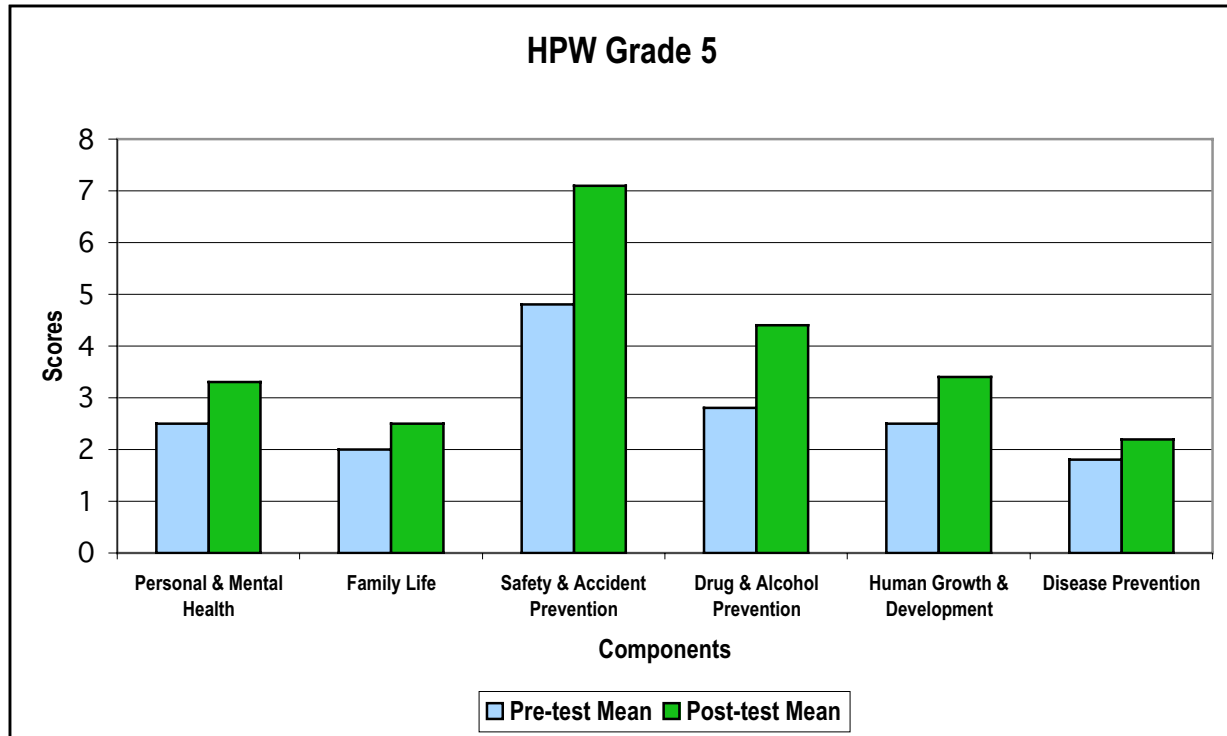


Figure 6

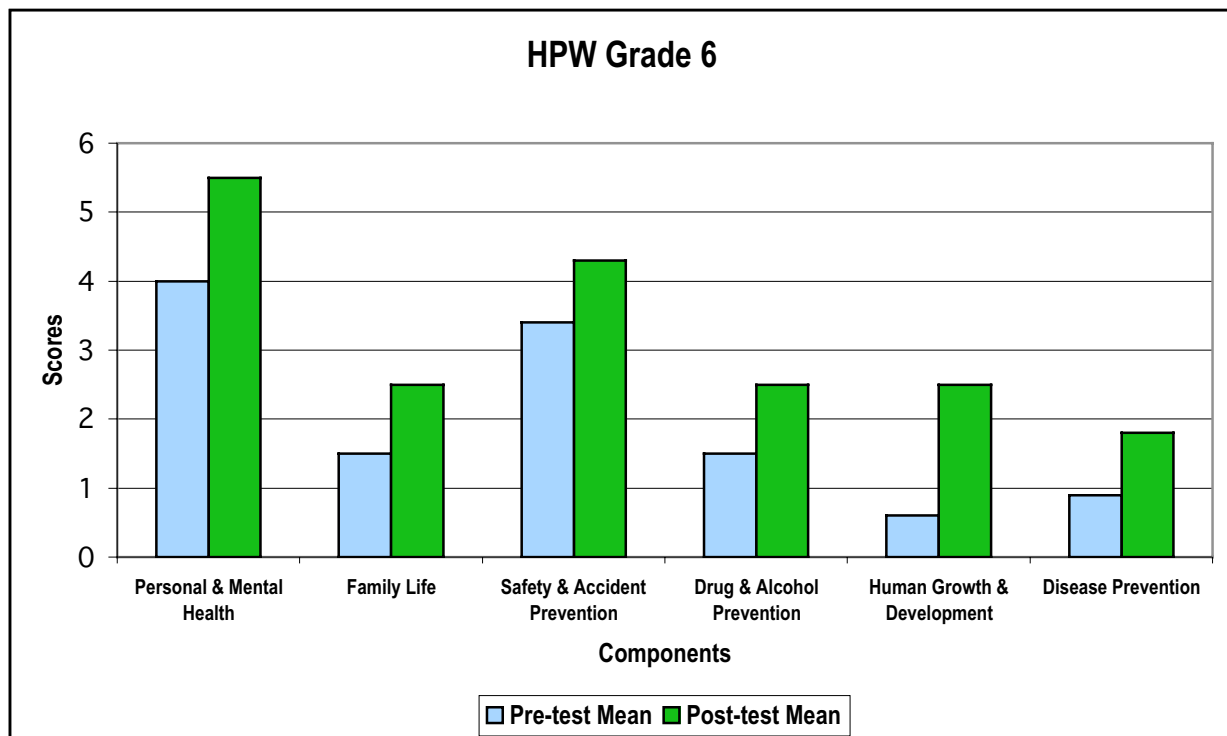


Figure 7

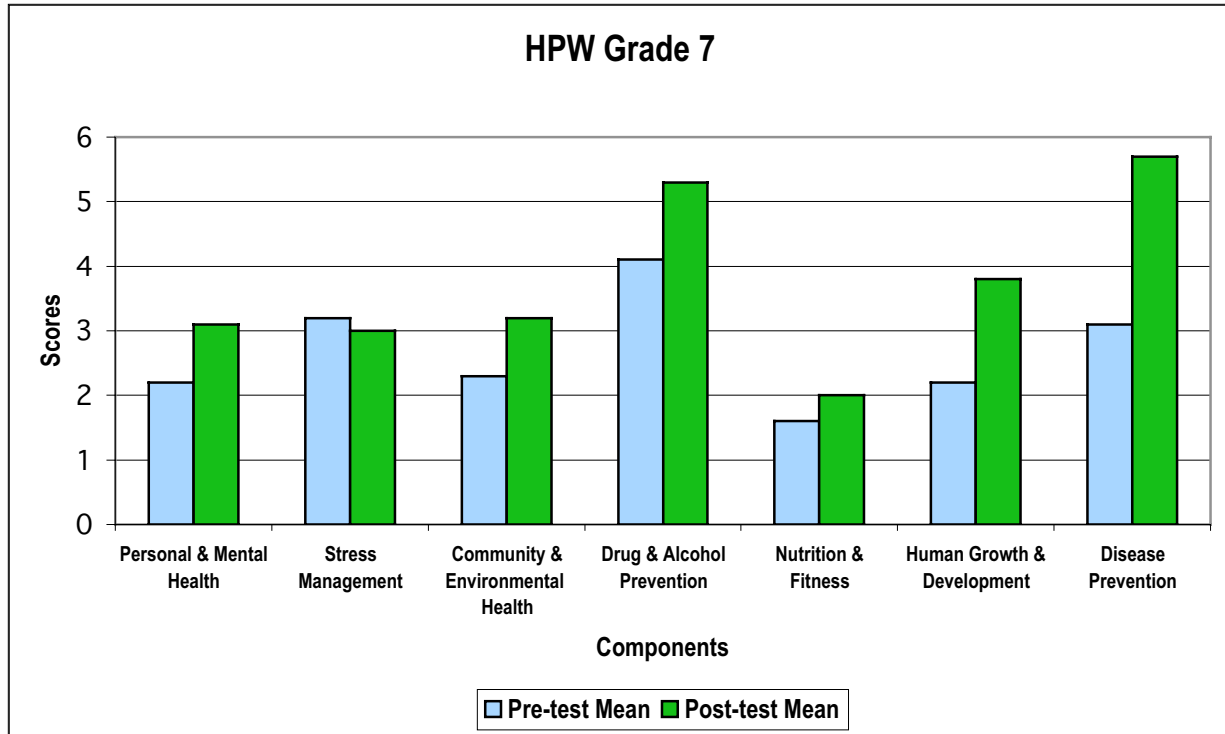


Figure 8

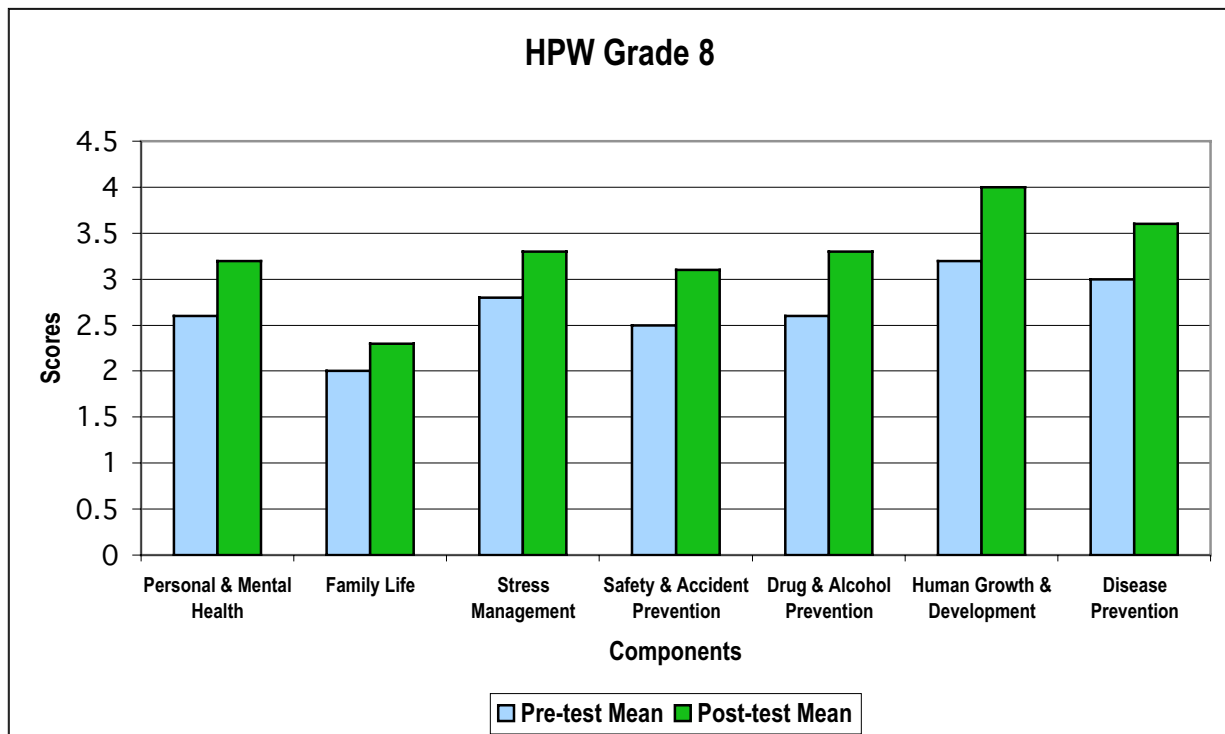


Figure 9

Replication

The current HPW evaluation focuses on the differences in achievement among schools where HPW is an established intervention (more than 5 years of adoption) as compared to relatively new adopters (1-5 years). In addition, a teacher implementation questionnaire examines the relative emphasis different teachers place on the sub-domains of health in their classrooms and the differential effects of that variable on student achievement. We expect that a teacher who spends more classroom time on Nutrition will have higher achievement in that sub-domain as compared to peer teachers who spend less time on that HPW area. In addition, the 2004-05 evaluation will target schools with demographic and geographic differences relative to poverty and region of the United States. In the initial evaluation, HPW and comparison teachers all taught Alcohol and Drug Prevention according to a standard curriculum. All HPW teachers taught Personal & Mental Health and HIV/AIDS and Human Sexuality (as described in the Disease Prevention and Human Growth & Development units). Teachers were provided **all** the curriculum resources for their grade level, including texts for teachers and students, videos, posters, children's literature, models, charts, role playing cards, and suggestions for student activities. Teachers allocated time to all other HPW units, based on their own assessment of student needs. The HPW teachers in the initial evaluation received training from HPW staff. As the training of teachers in HPW has progressed, schools and districts may choose among three models: full-day training by HPW staff of all targeted teachers, 1/2 day training for all teachers, and a training of trainers model where HPW staff provide the staff development to teacher leaders who then implement the program with their peers. Each of these models will be examined for their relative effectiveness to ascertain which model is more effective. This should enhance the utility of the program for school districts when they elect to adopt HPW.

Discussion of NREP Criteria

In this section, we describe how HPW addresses each of the NREP criteria. In most cases, previous sections provide the evidence. However, there are some criteria where additional evidence is given.

Theory/Conceptual Underpinnings/Hypothesis

As we previously stated, HPW reflects contemporary research on student learning, specifically health-related knowledge and skills. See Section 1.

Intervention fidelity

As a school-based intervention, teachers may or may not find all HPW materials or activities appropriate for their students. Therefore, other than the requirement that Personal & Mental Health, Alcohol & Drug Prevention and HIV/AIDS/Human Sexuality were included in instruction, teachers had discretion as to which units they would utilize. As this reflects the expected way that HPW is implemented in schools, the gains made by HPW in virtually all sub-domains (see the grade level figures) suggest that these teachers did implement the curriculum as designed.

Process evaluation

Although the initial evaluation did not include process evaluation formally, reports from HPW teachers and administrators suggest that HPW was relatively easy to implement and that the materials and activities were engaging and age-appropriate. In the on-going evaluation, process data are being collected as to the time allocated to different HPW units, teachers' perception of the curriculum, and communication between HPW staff and teachers. Anecdotally, adopting teachers and administrators have many positive reports concerning HPW and its effectiveness.

Design

As previously described, the initial evaluation was a quasi-experiment with a comparison group. The two groups of students were matched on the basis of demographics and academic achievement indicators. The pre-test data did

support the contention that the two groups did differ significantly in Grades 2 and 4. In both cases, the comparison group initial exceeded the HPW group. Because of these differences, the analysis relied on dependent t-tests to test the significance of pre-post gains. In both grades, the comparison group made non-significant gains (and, in fact, the average score was lower on the post-test for several grade levels).

Method of assignment

The initial evaluation was conducted in adopting schools and non-adopting schools that were as similar as possible. As a consequence, random assignment of individuals to conditions was not possible. In fact, if HPW were to be implemented in some classrooms in a school and not implemented in others in that same school, the possibility of a John Henry effect is increased. Thus, while random assignment is ideal, this method did allow the comparison group to be unaware of the nature of the HPW intervention.

Sample size

As stated earlier, the sample consisted of 336 students who received HPW instruction and 265 students who received their ordinary health curriculum. As many of the probabilities revealed by the inferential statistical procedures were far less than the stated level of significance ($p < 0.05$), clearly there was sufficient power to minimize Type II errors.

Attrition

In this evaluation, attrition was not a major issue. Less than 10% of students included in the pre-test were not present for the post-test. This is probably attributable to the characteristics of the schools where the evaluation was conducted, as the students were mostly middle class in terms of SES.

Analyses of attrition effects

As attrition effects were minimal, there was no analysis comparing students for whom there was a complete data set, as compared to students who were not present for the post-test.

Methods to correct biases

As stated previously, HPW participants and comparison group members were initially compared on their pre-test scores. When the assumption of heterogeneity was tenable, analysis of covariance was used to adjust for pre-test performance. When the two groups differed significantly on the pre-test, dependent t-tests were employed to assess the pre-post gains of each group.

Outcome measures: substantive relevance

The assessments used in the evaluation study were developed by health education professionals and reviewed by the evaluation staff for their alignment with HPW objectives and item construction. The assessments in the on-going evaluation are completely aligned with National Health Education Standards. Health educators of various grade levels reviewed the assessment tools and a pilot test was conducted to enhance the validity of scores.

Outcome measures: psychometric properties

As stated previously, the internal consistency and stability of assessment data were examined and found to be reasonable given the size of the samples involved (R values ranged from 0.70s to 0.90s). The content reviews and the pilot test provided evidence of the content validity of the assessment tools.

Missing data

There was very little missing data in the evaluation sets. A large majority of students responded to virtually all items on the assessments. There were no items that displayed a systematic non-response in either the HPW or comparison groups.

Treatment of missing data

Given the paucity of missing data, no specific analysis was conducted to identify or correct for these data.

Outcome data collection

The assessments administered for the evaluation were essentially formatted as classroom assessments. Teachers were asked to administer the pre-test before they began health instruction. Typically, teachers did assessments in September. For the post-test measure, the majority of the students took the post-test in May. The single difference between the evaluation instruments and other assessments included in the HPW curriculum was the wider range of content covered. The assessments included straightforward written directions, e.g., “Circle the correct answer” for multiple-choice items. For the comparison group, teachers either created their own assessments for health units or used ones provided by their curriculum. It’s unlikely that the HPW assessments varied widely from these assessments, as the HPW designed assessments are typical of most published curricular materials in health education. Thus, it seems clear that there were no significant demand characteristics that might affect student scores in any systematic way.

Analysis

As previously stated, analysis of covariance was used to gauge the effects of the types of health education. ANCOVA has two advantages over the analysis of variance. One is the reduction of the probability of a Type II error, as the variance attributed to the covariate (in this case, the pre-test) is removed from the residual variance that serves as the denominator for the F ratio. The second advantage is that ANCOVA statistically controls for variables that may influence post-test scores. In this case, the students’ prior knowledge of health may be attributed to many factors including their backgrounds (prior health instruction, general academic achievement, or socio-economic status). Therefore the

ANCOVA “holds constant” the initial level of achievement to estimate the post-test differences more accurately.

Nonetheless, ANCOVA does have several assumptions that must be examined for their plausibility. One of these is homogeneity of variance on the covariate between the groups. This assumption was tenable for two grade levels as the prerequisite test yielded probabilities less than 0.05. In those cases, the change from pre-test to post-test was examined via dependent t-tests. In both cases, the comparison group significantly exceeded the HPW group initially, but the gain was not statistically significant. In the HPW group, the pre-post gain was statistically significant and the post-test measures were statistically non-significant (via one-way ANOVA). Thus, it is clear that the HPW group exceeded the comparison group in terms of learning gains.

Other plausible threats to validity

There are several potential rival hypotheses to consider in an applied evaluation study such as this. First is history, that is, unaccounted for differences between the two groups. As random assignment of individual students to conditions was not possible, the inclusion of the pre-test as a covariate as well as the matching of the two groups on other salient variables should address the plausibility of history. Including a developmentally similar comparison group controlled for maturation, a second threat to validity. The formatting of the assessment instruments as well as the relative difficulty of the items (no students scoring 0 or 100% accuracy) reduced the threats called instrumentation & testing. As heterogeneous classroom groups participated in the evaluation, the likelihood that the pre-post gains represent regression effects seems small or that differential selection affected the results. As previously discussed, diffusion is an expected phenomenon when different classroom teachers implement the intervention. Thus, this “threat” reflects the actual conditions under which HPW and all other published curricula. The results probably do, in fact, represent conditions that vary in their implementation, but given the nature of this

intervention, controls such as scripting are artificial. All HPW teachers involved with this evaluation did receive training from the HPW staff, which probably caused the classroom experiences of students in the participant group to be more uniform.

Other plausible threats include undesirable subject responses, such as John Henry, Hawthorne and Pygmalion effects. The two groups (HPW and comparison) were in separate school districts and therefore comparison teachers would not be aware of the “special” health curriculum experienced in the HPW schools. It is true that Hawthorne effects may be viable, as follow-up data were not collected. However both health education conditions were yearlong and it seems probable that the novelty of the HPW curriculum had faded somewhat during that time. Pygmalion effects may also have operated in some of these classrooms, but there is no evidence that teachers were any more encouraging in the HPW condition than they were in the comparison condition. The final threats to internal validity are researcher bias and “halo” effects. Student assessments were formatted such that there was only one clearly correct response and members of the evaluation staff scored the student assessments without knowledge of the membership of individual students to either HPW or comparison.

Integrity

An independent contractor, TRIERE Research of Manchester, New Hampshire, designed and conducted the evaluation of HPW. Thus the potential for conflict of interest is minimized. Nancy Cook Smith, Ph.D., president of TRIERE Research oversaw the evaluation staff. Dr. Cook Smith is an active member of the American Educational Research Association and conforms strictly to the ethical standards of the professional organization.

Utility

Given the results of the initial evaluation, as well as on-going evaluation, HPW is a practical choice for school districts seeking to implement a

comprehensive health education approach for all grade levels. Given the magnitude of health problems discussed earlier, the choice of HPW is a viable one. Rather than a piece-meal approach to drug and alcohol prevention, HIV/AIDS and Human Sexuality education, nutrition, and personal and mental health, HPW uses a unified approach that is age-appropriate and both the initial training of HPW teachers and/or trainers and the on-going support provided by program staff facilitate introducing the program in classrooms and adherence to the program in classrooms.

Replications

HPW is currently undertaking evaluations in a variety of sites, selected for the length HPW has been used, as well as teacher implementation in classrooms. Although these results are not yet available, informal teacher feedback suggests that similar achievement results are likely to occur.

Dissemination capability

HPW has been successfully disseminating its curriculum since the early 1990s. The staff works closely with adopting school districts to facilitate ease of adoption. The HPW web site includes information concerning all materials available, both those at no cost and the costs of both the core and comprehensive curriculum for different grade levels. A toll-free telephone number also is widely disseminated for both interested school districts and adopters. HPW attends most of the national and a number of regional and state professional meetings, such as the American School Health Association's annual meeting to raise awareness of this program.

Cultural-, gender-, or age-appropriateness

Teachers and health education experts review all HPW materials for their appropriateness for targeted age groups. The curriculum at the primary level features puppetry and game-like activities to engage young children. For older students, real-world problems are a dominant feature of the curriculum, as are role-plays and other activities that are demonstrably effective for those age

groups. Reviewers of HPW curriculum examine the materials for gender and ethnic stereotypes in order to enhance the cultural and gender appropriateness of the program. Finally, HPW is available in a Spanish language version to address the health education concerns of this growing group in American schools.

Program Descriptors

The research design included grade level comparison groups for each HPW groups that were matched on relevant variables such as academic achievement and socio-economic status. The comparison groups included were as similar to the HPW group at baseline as was reasonable for a field-based evaluation. The use of ANCOVA further controlled the initial differences between individuals in the two conditions. The number of subjects at each grade level for each condition is given earlier in this report. Thus, HPW can be considered an effective and practical choice for school districts that are adopting health curricula.

Appendix A

Grade Level	HPW		Comparison		
	Pre-test Mean (SD)	Post-test Mean (SD)	Pre-test Mean (SD)	Post-test Mean (SD)	
1	19.1 (7.0)	25.8 (3.4)	21.3 (2.8)	22.4 (7.0)	
2	13.6 (7.1)	21.3 (4.8)	18.8 (5.6)	21.4 (3.6)	
3	13.5 (2.5)	24.9 (4.8)	21.5 (3.4)	20.4 (6.5)	
4	12.9 (5.4)	20.9 (4.7)	19.0 (2.9)	19.8 (3.4)	
5	18.1 (3.3)	25.1 (6.7)	24.3 (4.5)	23.8 (5.8)	
6	16.7 (7.1)	27.6 (3.4)	22.5 (5.7)	23.6 (4.3)	
7	17.6 (5.1)	25.8 (4.7)	25.5 (4.1)	23.3 (5.8)	
8	21.3 (5.0)	26.6 (5.3)	23.3 (5.6)	21.8 (7.4)	

Appendix B

Sub-domains	HPW		Comparison	
	Pre-test Mean (SD)	Post-test Mean (SD)	Pre-test Mean (SD)	Post-test Mean (SD)
Grade 1				
Personal & Mental Health	2.1 (1.1)	3.6 (.6)	2.6 (1.3)	2.6 (1.2)
Family Life	1.7 (1.0)	2.3 (.7)	1.9 (.9)	2.4 (1.1)
Safety & Accident Prevention	2.8 (1.5)	4.0 (.8)	2.7 (.8)	3.6 (1.2)
Drug & Alcohol Prevention	4.6 (2.0)	5.7 (1.0)	5.6 (1.1)	5.0 (2.0)
Nutrition & Fitness	4.2 (1.5)	4.6 (.6)	4.4 (1.0)	4.0 (1.4)
Human Growth & Development	3.3 (1.7)	5.4 (2.0)	3.8 (1.1)	4.6 (1.4)
Grade 2				
Personal & Mental Health	2.1 (1.0)	3.1 (1.9)	2.3 (.9)	3.1 (.6)
Family Life	2.1 (.9)	2.2 (1.1)	3.3 (.9)	2.7 (1.1)
Community & Environmental Health	1.3 (1.0)	1.9 (1.2)	2.2 (.9)	2.5 (1.1)
Safety & Accident Prevention	2.0 (1.2)	3.8 (1.5)	3.0 (1.0)	3.7 (1.3)
Drug & Alcohol Prevention	2.5 (1.5)	3.8 (1.7)	3.2 (.8)	3.4 (.9)
Nutrition & Fitness	.9 (.9)	1.6 (1.0)	1.1 (1.1)	1.5 (1.3)
Human Growth & Development	1.6 (.9)	2.6 (1.1)	2.3 (.9)	2.9 (1.0)
Disease Prevention	.7 (.8)	1.9 (1.1)	1.0 (.9)	1.5 (1.4)
Grade 3				
Personal & Mental Health	2.6 (1.0)	3.6 (.8)	3.5 (.6)	3.3 (1.1)
Family Life	2.2 (.8)	3.3 (.9)	3.3 (1.0)	3.4 (1.3)
Safety & Accident Prevention	2.0 (1.1)	3.5 (.8)	2.8 (1.0)	2.6 (1.2)

Sub-domains	HPW		Comparison	
	Pre-test Mean (SD)	Post-test Mean (SD)	Pre-test Mean (SD)	Post-test Mean (SD)
Drug & Alcohol Prevention	2.0 (1.0)	4.3 (1.0)	3.2 (1.0)	3.4 (1.3)
Human Growth & Development	1.8 (.7)	3.4 (.9)	2.8 (1.0)	2.5 (1.1)
Disease Prevention	2.7 (1.2)	6.5 (1.8)	5.6 (1.6)	5.0 (1.8)
Grade 4				
Personal & Mental Health	2.1 (1.0)	2.7 (1.0)	2.6 (.9)	2.6 (1.0)
Family Life	2.0 (1.3)	3.2 (1.3)	3.2 (.9)	3.2 (1.0)
Community & Environmental Health	2.0 (.9)	3.1 (.8)	2.8 (.8)	3.0 (.9)
Drug & Alcohol Prevention	1.9 (1.0)	3.0 (1.3)	2.8 (1.0)	3.3 (1.0)
Nutrition & Fitness	1.6 (1.1)	2.6 (1.1)	2.4 (1.0)	2.4 (1.0)
Human Growth & Development	1.7 (1.0)	2.9 (1.2)	2.1 (.7)	2.1 (.6)
Disease Prevention	1.4 (1.1)	3.1 (1.0)	2.8 (.9)	2.9 (.9)
Grade 5				
Personal & Mental Health	2.5 (1.0)	3.3 (.9)	3.1 (.8)	3.1 (.9)
Family Life	2.0 (.8)	2.5 (.7)	2.2 (.7)	2.5 (.7)
Safety & Accident Prevention	4.8 (1.7)	7.1 (1.4)	6.7 (1.5)	6.5 (1.5)
Drug & Alcohol Prevention	2.8 (1.6)	4.4 (1.3)	3.7 (1.2)	3.8 (1.5)
Human Growth & Development	2.5 (1.3)	3.4 (1.2)	3.5 (1.1)	3.2 (1.3)
Disease Prevention	1.8 (.9)	2.2 (.9)	2.5 (.7)	2.3 (.9)
Grade 6				
Personal & Mental Health	4.0 (1.8)	5.5 (.6)	4.3 (1.4)	4.7 (.9)

Sub-domains	HPW		Comparison	
	Pre-test Mean (SD)	Post-test Mean (SD)	Pre-test Mean (SD)	Post-test Mean (SD)
Family Life	1.5 (1.0)	2.5 (.7)	2.4 (.9)	2.3 (.9)
Safety & Accident Prevention	3.4 (1.6)	4.3 (.9)	4.1 (1.5)	4.4 (1.0)
Drug & Alcohol Prevention	1.5 (1.0)	2.5 (.6)	1.9 (1.0)	2.0 (.7)
Human Growth & Development	.6 (.7)	2.5 (1.2)	1.0 (.7)	1.2 (.9)
Disease Prevention	.9 (.8)	1.8 (.7)	2.1 (.9)	2.2 (.7)
Grade 7				
Personal & Mental Health	2.2 (.9)	3.1 (.7)	3.3 (.6)	3.0 (.9)
Stress Management	3.2 (1.1)	3.0 (1.3)	2.3 (1.0)	2.9 (1.0)
Community & Environmental Health	2.3 (1.2)	3.2 (.8)	3.0 (.9)	2.5 (1.2)
Drug & Alcohol Prevention	4.1 (1.5)	5.3 (1.5)	4.9 (1.3)	4.4 (1.6)
Nutrition & Fitness	1.6 (.9)	2.0 (.9)	2.3 (.7)	2.2 (.8)
Human Growth & Development	2.2 (1.3)	3.8 (1.1)	3.0 (1.3)	3.4 (1.2)
Disease Prevention	3.1 (1.6)	5.7 (1.6)	5.9 (1.6)	5.2 (1.8)
Grade 8				
Personal & Mental Health	2.6 (1.0)	3.2 (.9)	3.0 (.8)	2.7 (1.0)
Family Life	2.0 (1.2)	2.3 (1.1)	2.2 (1.0)	2.1 (1.0)
Stress Management	2.8 (1.2)	3.3 (1.1)	2.7 (1.0)	2.7 (1.3)
Safety & Accident Prevention	2.5 (1.2)	3.1 (1.2)	2.9 (1.2)	2.6 (1.3)
Drug & Alcohol Prevention	2.6 (1.3)	3.3 (1.0)	2.6 (1.2)	2.4 (1.3)

Sub-domains	HPW		Comparison	
	Pre-test Mean (SD)	Post-test Mean (SD)	Pre-test Mean (SD)	Post-test Mean (SD)
Human Growth & Development	3.2 (1.1)	4.0 (1.1)	3.0 (1.5)	2.9 (1.2)
Disease Prevention	3.0 (1.0)	3.6 (.9)	3.5 (.8)	3.0 (1.3)

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