

Volunteer-led Investigations of Neighborhood Ecology (VINE) Program Evaluation

Hollweg, K.S. (1997). Are we making a difference?: Lessons learned from VINE program Evaluations. Troy, Ohio: North American Association for Environmental Education.

Supplemental Materials

Hollweg, K. S. (1995). *Volunteers teaching children: A guide for establishing VINE ecology education programs*. Troy, Ohio: North American Association for Environmental Education.

(No PDF available at this time) Hollweg, K. S., C. Kubota, and P. Ferrell (1998). *Changing what we do: Constructing a team-based, problem-centered professional development experience*. Troy, OH: North American Association for Environmental Education.

Contact

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Program Profile	
Program Description:	<p>Volunteer-Led Investigations in Neighborhood Ecology (VINE) is a national network of urban environmental education programs. Trained volunteers provide children with opportunities to discover the natural world in their everyday, neighborhood environments. This is done through hands-on, natural science investigations of plants, animals and ecological relationships. The VINE Follow-Through Project is a professional development program that expands on the original VINE program by providing teachers with the resources they need to connect what the students learn from their VINE experience to what they are learning in the classroom.</p>
Program Goals:	<p>VINE Program “To provide children (8-11 year-olds) growing up in central cities with enjoyable neighborhood experiences that will heighten their awareness, expand their knowledge, and develop their respect for the plants and animals living in their urban world.</p> <p>The children participating in this program will:</p> <ul style="list-style-type: none"> ● explore their local natural environment, the plants and

	<p>animals that live there and the ecological interactions of those plants and animals</p> <ul style="list-style-type: none"> ● interact with adults who demonstrate interest in and share enthusiasm for investigating nature out-of-doors ● develop the skills necessary to [make observations], use scientific tools [to] record, compare, quantify and analyze data, and apply critical thinking to reach conclusions. (The children are encouraged to apply these skills in other settings too.)” <p>VINE Follow-Through Project The goal of this project was to integrate VINE into ongoing classroom curricula and provide students with opportunities to build on the skills and knowledge gained during their investigations. This is achieved by providing teachers with the resources they need to get their students to:</p> <ul style="list-style-type: none"> ● “think out loud about their preconceived notions and observations, ● develop alternative explanations and hypotheses, and ● design and conduct further experiments to answer additional questions.”
Program Funding:	Multiple multi-year grants awarded by the National Science Foundation, plus local funding from individual, business, and philanthropic donors, and in-kind support from sponsoring partners (schools, Boys and Girls Clubs, community centers and organizations).
Program Links:	Not available
Evaluation Profile	
Evaluation Goals & Questions:	<p>Evaluation Questions :</p> <ul style="list-style-type: none"> ● Who are we reaching? ● Are we providing participants with new and different experiences? ● How satisfied are participants, parents, teachers, and volunteer leaders with the program? ● How has the program been adapted? Does it “work” in each of its configurations? ● What does the program cost?

- Is the program being implemented as intended?
- What is the program's impact on participating students?
- Who are VINE teachers? Does the VINE program influence them?
- Do VINE Follow-Through teachers change their classroom practice?
- What are the outcomes for teens who serve as VINE volunteer leaders?

Evaluation Goals:

Each of the five studies conducted had their own evaluation goals.

1986-1987 University of Colorado Denver:

- "To collect information and opinions from program participants regarding the value of the program."

1990-1991 Inverness Research Associates study:

- "Evaluate the configurations the education projects had taken in different settings
- Assess the value of the dissemination strategies
- Describe the degree to which each city had succeeded in establishing an education project and the outcomes it was achieving"

1992-1994 University of Denver study:

- Assess "the impact of VINE Programs on students, including skill, attitude and concept outcomes."
- Assess "the impact of VINE Programs on teachers, including their attitudes toward science/outdoor investigations and the learning experiences they are able to provide their students."

1995 Goodman Research study:

- "Evaluate teen growth as a result of their experience with the VINE program in the areas of science/ecology, personal growth/leadership and career exploration."
- "Identify ways VINE Programs can be strengthened to better meet teens' needs"
- "Create, test, and validate instruments that can be readily be used to assess the impact of VINE Programs on teens, and provide instructions for the further use of those instruments."

1996 M. Jean Young study:

	<ul style="list-style-type: none"> • “whether teachers participating in the project include more constructivist strategies in their teaching and engage students more actively in doing science.”
<p>Evaluation Methods:</p>	<p>Five studies were conducted between the years of 1986 and 1996, each with a slightly different methodology. Where possible, existing instruments that had been validated were used to facilitate comparison to larger samples.</p> <p>1986-1987 University of Colorado Denver study: Survey instruments for children, volunteer, and adult participants (teachers, informal educators, and parents) were developed. Surveys were sent through the mail to volunteers (N=34) teachers (N=9) and informal educators (N=9). For children (N=66), the questionnaire was administered verbally in small groups. Parent surveys (N=14) were sent home with children with return envelopes.</p> <p>In retrospect, the evaluation team regretted the small sample size and wished that they had obtained a more representative sample. Despite this particular limitation, this first study served as a learning opportunity and launch pad for further investigations.</p> <p>1990-1991 Inverness Research Associates study: Evaluators visited each of the six study sites and met with local program coordinators, teachers, school administrators, non-school site staff, and leaders of sponsoring institutions. Evaluation activities included participant observation/journaling; outside observation (completing activity preparations and readings, then attending and observing the activity); surveys conducted during one-on-one interviews and in focus groups with teachers, and volunteers from a sample reflecting different volunteer types; and student discussions on and presentations about what they had learned from the program.</p> <p>In addition to the primary study, each city was given the option to conduct a “mini-study,” selecting one or more questions to study locally (e.g., questions about the program’s values for the particular volunteers they were recruiting, training and supporting [see p.B-1 and 2]).</p>

1992-1994 University of Denver study: This was a quasi-experimental study that took place over two years. Three experimental schools were matched with three control schools based on size, location, and student population. The sample included public schools in Denver, Colorado; Broward County, Florida; and Seattle, Washington. Student (Year 1 VINE N=821, Control N=409; Year 2 VINE N=944) evaluation instruments included pre- and post- questionnaires, an outdoor survey, pre- and post- drawings of the schoolyard, and a 5th grade follow-up survey (VINE N=621, Control N=535). Teacher (VINE N=54, Control N=28). Evaluation instruments included an outdoor activity survey, a questionnaire, and teacher perspectives. An administrator (N=19) survey and observation (1992-1993: N=110, 1993-1994: N=135) checklist were also used. Data was collected anonymously by each site's VINE program coordinator and was sent to the evaluators who analyzed the data using frequencies and descriptive statistics in SPSS. Comparisons were made among groups and also to national data from the National Assessment for Education Progress (NAEP).

1995 Goodman Research: Pre- (N=85) and post-project (N=259) surveys were administered in-person to teen volunteers. A teacher survey (N=12) was mailed to participating teachers and club leaders and semi-structured phone interviews (N=9) were used as a follow-up to the teacher survey. At the Boston site, teens created photo journals and flyers for the program. These were assessed via alternative assessment protocols that were created as part of the evaluation. At the Denver and Boston sites, focus groups were held with teens, in-person teacher interviews were conducted, and researchers observed the program in practice.

1996 M. Jean Young study:

VINE Follow-Through teachers (N=15) were asked to complete twenty "teacher logs" when they used activities related to VINE. Ten logs each were to be completed in the fall and spring seasons. Teachers in a control group (N=9) completed logs when they taught any science activities, particularly those done outside of the classroom. Teachers were

	<p>asked to report on the emphases they used in lesson introductions, the instructional strategies they used, the activities students participated in, the type of assessment strategies that were used, what materials were used in teaching the lesson, and information about the lesson’s purpose and intended outcomes. Teachers were also asked to fill out a background information sheet and a post-log reflection. When clarification was needed, the researcher conducted phone interviews with the teachers. Data were analyzed using Excel and analyzed for differences between VINE teachers and control teachers. Teaching strategies were classified as traditional, progressive, or both. Progressive strategies were those that met the <i>National Science Education Standards</i> and the American Association for the Advancement of Science <i>Benchmarks for Science Literacy</i>.</p>
<p>Evaluation Instruments:</p>	<p>A partial set of evaluation instruments is available in the report. Instruments are available from the following studies:</p> <ul style="list-style-type: none"> ● 1992-1994 University of Denver study (<i>Are We Making a Difference?</i>, C-5) ● 1995 Goodman Research study (<i>Are We Making a Difference?</i>, D-7) ● 1996 M. Jean Young study (<i>Are We Making a Difference?</i>, E-3)
<p>How were results used?</p>	<p>Program Support</p> <ul style="list-style-type: none"> ● Results were used as evidence to funders and future funders that VINE is meeting its objectives. ● The results of the evaluation were also used to advertise the successes of the program to expand its reach both locally and nationally. ● The results proved 1) the value of the program to the sponsoring organizations and institutions, that 2) the program is beneficial to inner city children and volunteers, and that 3) these audiences would not otherwise have these experiences. <p>Program Improvements</p> <ul style="list-style-type: none"> ● The evaluation was used to discover and document the best practices within the VINE network.

	<ul style="list-style-type: none"> ● The VINE coordinators isolated the activities that worked best to achieve goals and objectives and disseminated this information among VINE participants. ● Through the use of drawings, the evaluators of VINE were able to develop a new assessment technique to document the children’s experience, particularly minority and non-English speaking groups. <p>Contributions to the field The results of VINE were used to inform professionals about successful program evaluation techniques.</p>
<p>Evaluation Cost:</p>	<p>1986-1987 University of Colorado Denver study: Graduate students volunteered their time. The only financial contribution by VINE was the time that the program coordinator spent providing guidance to the graduate students.</p> <p>1990-1991 Inverness Research Associates study: This study was part of a 3 year \$383,000 NSF grant to support the dissemination of Denver Audubon’s Urban Education Project. Contract cost was \$23,000 (\$5,350 of which was spent on travel), cities that chose to do an additional “mini-study” had contracts that ranged from \$250- \$1,000 and a dissemination grant of up to \$1,000/city</p> <p>1992-1994 University of Denver study: Contract cost was \$20,445, an additional \$4,000 was spent to compensate local data-collection coordinators and local educator observers, and to provide one-year subscriptions to NSTA <u>Science and Children</u> as a thank you to teachers who participated in the control group. Each outside observer was paid \$15 per observation and received travel reimbursements.</p> <p>1995 Goodman Research study: Contract cost was \$14,370.</p> <p>1996 M. Jean Young study: Approximately \$10,000 was awarded as part of a multi-year NSF-funded evaluation of the VINE Follow-Through Project. The cost for the professional evaluator to distribute and collect logs and surveys, compile</p>

	<p>and analyze responses, conduct follow-up interviews, and write the final report was \$7,000. Each participating teacher was compensated with \$100.</p>
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<p>Evaluation Insights:</p>	<p>What worked well?</p> <ul style="list-style-type: none"> ● The evaluators borrowed questions from the National Assessment for Educational Progress (NEAP) which allowed for comparison between VINE student data and national data. This direct comparison was instrumental in demonstrating the impact of the VINE program on urban audiences. ● A strong emphasis on keeping things simple -- using tables and graphs, and few words -- was key in successfully communicating the evaluation's findings to funders and other stakeholders (e.g., that the program was reaching underserved populations). ● The evaluators found that analyzing children's pre- and post- drawings provided some of the richest and most compelling evidence of learning. This was particularly helpful for generating evidence of learning from inner city students and English Language Learners (or in any case where a written test may not capture what has been learned). Deciding to incorporate drawings as a form of data was described as a breakthrough by the evaluators. ● The VINE program incorporated demographic data collection into every program. Data was entered into a spreadsheet that was shared with VINE network partners. Making data collection a regular part of the program proved to be the easiest and most cost-effective approach. ● To systematically compare VINE programs from site to
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site, VINE developed and used a “Checklist of Project Components” (See the “VINE Checklist of Project Components in Volunteers Teaching Children: A Guide for Establishing VINE Ecology Education Programs”, pp. A52-A53). This tool was adapted from an existing tool developed by the University of Texas. (A full description of "Component Checklists", as well as several examples and suggestions for their use, appear in Taking Charge of Change by Shirley M. Hord, William L. Rutherford, Leslie Huling-Austin, and Gene E. Hall, Alexandria, VA: Association for Supervision and Curriculum Development, 1987, pp. 12- 27.)

- The “Checklist of Project Components” was also useful for highlighting areas in need of attention, highlighting important features of a VINE program for trainees and other stakeholders, initiating discussions, and making decisions on program improvements.

What were important evaluation “lessons learned”

- Evaluation is, like any research, an on-going iterative process. Over time, the evaluations became more focused in their objectives and the VINE staff honed their ability to discern the most important evaluation questions.
- Evaluators come with varying expertise and availability, and it is important to find the right evaluator for a particular evaluation. It was useful to implement a “request for proposals” process and compare across potential evaluators’ bids.
- Clearly state the goals and objectives of the evaluation in writing at the beginning, and focus these around the central tenets of the program. Resources are too precious to spend on fringe questions. Also, discuss granular details of how the evaluation will be carried out, such as “who will make the copies...? How many do we need?” in advance. Working up front with evaluators to decide terms at this level of detail helps

	<p>the whole process run more smoothly and allows for better tracking and adjustments.</p> <p>What could have been done differently?</p> <ul style="list-style-type: none"> ● Some results were difficult to compare across VINE programs because certain constructs were measured differently. Prior to the evaluation, conducting an investigation of the measures used by each program/study will expose discrepancies. ● Develop pilot-test of the assessment strategy prior to implementing new evaluation techniques, to address errors and test instruments. ● Develop a single method that all teachers can use to record when students achieved certain skills based on the program’s objectives. This method should be developed in collaboration with teachers. Incorporate evaluation methods in teacher workshops to increase buy-in, as well as, completion of necessary data collection. ● Incorporate third-party data collectors, such as university researchers or curriculum specialists, to ensure the accuracy of teacher data collection. Implement pre- and post- studies for each group sampled to be able to compare results.
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