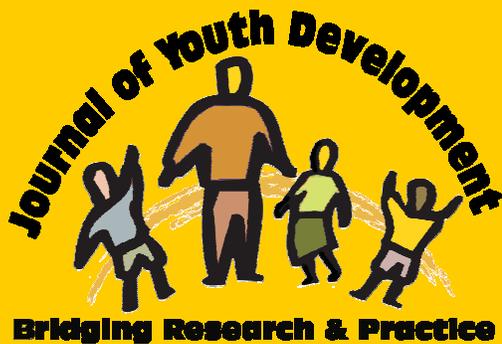


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Editor's Comments:

The Summer Issue offers a variety of Feature Articles, Program Articles and Research & Evaluation Strategies. Highlights include a study of the developmental outcomes of camp experiences and the sharing of research examining violence prevention programs for the Middle School environment. Readers are also introduced to two research and evaluation strategies: the use of "Mind Maps" to evaluate programs and the use of "Photoethnography" as a methodology and analysis tool.

Manuscripts for the Winter and Spring Issue are now being accepted. This includes:

- **Feature Articles** ~ informational, explanatory, or critical analysis and interpretation of major trends or comprehensive reviews. Include clear implications for youth development practice and programming.
- **Program Articles** ~ discuss programs and outcomes or describe promising programs and pilot projects that have clear implications for youth development research, practice and programming.
- **Research and Evaluation Strategies** ~ describe innovative methodologies and strategies in the collection and analysis of quantitative or qualitative research and evaluation data.
- **Resource Reviews** ~ present analyses of materials, such as books, curricula or videos.

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Contents

Feature Articles

Out-of-School Technology Programs: Creating Brighter Futures for Youth

[Article 090402FA001]

MacCarthy, Maureen; Hanson, Kari

Findings from a new, comprehensive evaluation sponsored by the Bill & Melinda Gates Foundation confirm that out-of-school technology programs create brighter futures for youth. Results indicate with high reliability, that these programs can improve academic achievement, build positive self-esteem, and prepare youth for the 21st century workplace. Individual organizations have drawn these conclusions since they began offering youth technology programs; however, the lack of independent multi-year, multi-program evaluations have made it difficult for the field to make concerted programmatic and funding decisions. Findings from this evaluation decisively show that youth technology programs yield significant benefits both, in the short and long-term. This paper offers insights and information relevant to both providers and funders of individual programs, as well as to the advancement of the youth technology field as a whole.

Consistency of Developmental Outcomes of 4-H Camp Experiences Over Time and Across Sites [Article 090402FA002]

Baughman, Sarah; Garst, Barry A.; Fuhrman, Nicholas E.

The purpose of the reported trend study was to examine consistency in youth life skill outcomes following exposure to 4-H camp. Parents of campers ages 9 to 13 were randomly sampled in 2001, 2004, and 2007 and asked to report changes in their child's behavior following camp. Statistical analysis indicates an overall consistency in parent reports of youth life skill development over time. Life skills that showed consistent gains over seven years and across six 4-H educational centers included an enhanced ability for youth to take care of their own things and to share work responsibilities. Multivariate statistics revealed that a standardized instrument used with parents over time can produce valid and reliable results concerning the impact of experiential learning on youth.

Aggressors, Victims and Bystanders: Preventing Bullying in the Middle School Environment [Article 090402FA003]

Barnett, Rosemary V.; Brennan, M.A.

The research presented in this article examines the effects of implementing a prevention program for bullying and aggressive behaviors to sixth graders in 14 Florida middle schools. The evaluation was conducted as a control/experimental design. The primary goals of this manuscript are to determine: (a) the change from baseline student habits of thought related to violence prevention, (b) student habits of thought related to attitudes and physical behaviors related to violence, and (c) teacher perceptions of student attitudes and behaviors related to violence.

Equally important, this study adds to our understanding of bullying prevention programs by examining the impact of an Aggressors', Victims' and Bystanders' program in terms of three dimensions: (1) teacher perceptions of student thoughts and behaviors related to their ability to solve conflict, (2) middle school student habits of thought about violence prevention, and (3) middle school student attitudes about behaviors associated with the prevention of violence, including aggressor behaviors and actions and bystander behaviors and actions.

Investigating the Effects of Brain Respiration on Children's Behavior

[Article 090402FA004]

Leigh, Geoffrey K.; Robinson, Cynthia; Hollingsworth, Steven Bernard

Building on the increasing number of programs designed to enhance brain development, a program developed in Korea, Brain Respiration, was adapted to a school in Nevada. Classes were offered twice weekly to a class of fourth and fifth grade students with control group classes assessed in the same school. Self-report surveys, teacher observations, and standardized reading and math scores were used to determine effects of the program on the students. Some differences were found in the pretest for the survey and the observation, with control groups scoring higher. There were differences in some post-test scores, with treatment group children scoring higher when differences did occur. There also were differences in the reading and math scores, with control groups scoring higher than the overall treatment group, but not higher when compared to those actively participating in the program. Such differences are discussed as well as other issues possibly influencing the effects.

Assessing the Civic Attitudes and Participation of Urban Elementary Students [Article 090402FA005]

Weiss, Christopher; Baker-Smith, E. Christine

Presented is a report of a study conducted to examine Common Cents' Penny Harvest program in New York City public elementary schools. Penny Harvest is a service learning program designed to promote positive social and civic values among youth. The goal of this paper is to analyze the strengths and weaknesses of the research design in an effort to contribute new insight into effective and appropriate ways to measure civic-service-program success. Additionally, this work provides program results for the program evaluated. Our findings indicate that students in New York City public schools are highly involved in service projects – both in-school and outside of school. We present additional evidence on how such participation is related to a host of social and civic attitudes. Finally, we critique the research design used in this study and offer improvements to be made in future studies.

Program Articles

Expanding 4-H Horizons Livestock Leader Guides [Article 090402PA001]

Hart, Doug; Lamm, Alexa; Cecil, Connie; Wilson, Jim; Kaysen, Brett

What does a 4-H volunteer do when a child asks to start a project they don't know anything about? The *Expanding 4-H Horizons Swine Leader Guide* offers information and activities that can be used by anyone in a club or clinic setting. A team of western regional extension professionals have created and piloted a user friendly tool that can be utilized by 4-H leaders and state/county extension staff. The swine specific manual is the first of four being created that will eventually offer information and activities for the beef, sheep and goat projects. This series of leaders guides are being created to serve as a useful tool that can be utilized across a variety of counties and states by supplementing already existing member manuals. With this curriculum, adults will be able to conduct highly effective activities that emphasize project skills, life skill learning, the experiential learning model and 4-H SET.

Youth Views of Experiences and Benefits of Public Speaking [Article 090402PA002]

Silliman, Ben

Ninety-eight youth participants, ages 9-17, involved in a public speaking event reported that preparation and presentation of a 5-12 minute demonstration or illustrated talk improved confidence, knowledge of a selected topic and skills in communicating, goal setting, organizing, working with others, and doing research. Positive benefits were reported from first-year as well as multi-year participants. Most youth surveyed indicated that they participated by choice and received adequate assistance in preparation for speaking. Similar results were found for a smaller group (N = 20) involved in a non-competitive performing arts event. A randomly-selected group (N = 37) interviewed about the extended effects of public speaking revealed that the experience helped them in school presentations, community leadership, and more in-depth involvement in specific topic areas. Implications of results for youth programming and engaging wider audiences of youth are discussed.

Assessing Service-Learning in a College-Level Adolescent Development Course [Article 090402PA003]

Lee, Cheryl L.

Service-learning is an instructional method in which students learn course content by actively participating in thoughtfully organized service experiences related to the content. Effectively linking service-learning to course content not only offers students a powerful opportunity to maximize academic learning, but also promotes their personal growth and instills a commitment to lifelong, civic engagement.

Service-learning was integrated into an upper level Family and Consumer Sciences Adolescent Development course. In addition to completing the traditional course work, students also completed a service-learning experience at a community agency that served adolescents. In order to evaluate the effectiveness of the service-learning component, students were surveyed at the end of the semester about their service-learning experiences. All agreed they had learned more about course concepts as a result of their SL experience, and the majority felt their service-learning activity provided a needed service to the agency and community.

Research and Evaluation Strategies

Mapping Out Your Success: Using Mind Maps to Evaluate Youth Development Programs [Article 090402RS001]

Wells, Mary Sara; Arthur-Banning, Skye G.

A primary component of any youth program is documenting and promoting the results through evaluation. Frequently, however, administrators in youth development programs struggle to find meaningful ways of evaluating the impacts they have on the lives of youth. It is often difficult to capture the unique benefits these programs offer to participants, especially when traditional methods such as focus groups and interviews may be too time consuming and questionnaires may yield poor response rates. This article presents a creative form of evaluation targeted at demonstrating the success of programs in outcomes that are historically more difficult to measure. A "mind map" is designed to be a pictorial representation of the impact of programs in areas such as connections to community organization and adult role models. Employing this technique can enable administrators in youth development programs to demonstrate to stakeholders the benefits they provide in a non-traditional, but highly effective, way.

New Designs for Participatory Research: Modified Photoethnography and the Personal Resource Systems Management (PRSM) Model [Article 090402RS002]

Beacham, Cindy; McFall, Barbara

Learning environments significantly influence student behaviors, academic success, school attendance and participation, all of which are problematic today. Less than half of high school students surveyed in 2005 would select the same high school again if given the opportunity, and only 38% agreed that the support they get at school encourages them to learn more. Pursuing increased educational effectiveness, this paper discusses a study that gathered and evaluated middle and high school students' concepts of ideal student-centered learning environments in selected classrooms. This multi-method, participatory approach put cameras in student hands and ask them to photograph elements desired in their ideal classroom, "things that help you learn." Interviews were conducted to explore the meaning behind each photo. Analysis was performed using the Personal Resource Systems Model (PRSM). Findings clearly indicate existing physical and emotional needs, left un-addressed by *No Child Left Behind*, that might be met by improving the material and social classroom environment.



Out-of-School Technology Programs: Creating Brighter Futures for Youth

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Out-of-School Technology Programs: Creating Brighter Futures for Youth

Maureen MacCarthy and Kari Hanson
MGS Consulting, Inc.

Abstract: Findings from a new, comprehensive evaluation sponsored by the Bill & Melinda Gates Foundation confirm that out-of-school technology programs create brighter futures for youth. Results indicate with high reliability, that these programs can improve academic achievement, build positive self-esteem, and prepare youth for the 21st century workplace. Individual organizations have drawn these conclusions since they began offering youth technology programs; however, the lack of independent multi-year, multi-program evaluations have made it difficult for the field to make concerted programmatic and funding decisions. Findings from this evaluation decisively show that youth technology programs yield significant benefits both, in the short and long-term. This paper offers insights and information relevant to both providers and funders of individual programs, as well as to the advancement of the youth technology field as a whole.

Introduction

Since out-of-school technology programs arrived on the scene in the 1990's, they have been popular with youth. Studies have shown that youth benefit from being able to fine-tune the skills they learn in school, as well as the opportunity to use hardware and software not otherwise available to them. Past research has shown that youth benefit from technology programs in terms of skill acquisition and immediate academic achievement. Studies have also proven that technology programs go a long way to bridging the digital divide, giving low-income students access to technology they need to succeed in the 21st century (Hall & Israel, 2004; Henriquez & Ba, 2000). Until now, however, little to no research was available about how out-of-school technology programs impact youth long-term.

This article presents findings from the first multi-year, multi-program evaluation that confirms out-of-school technology programs create brighter futures for youth. It outlines specifically how programs benefit youth and offers suggestions for ways to design programs for maximum impact. Findings from this study, sponsored by the Bill & Melinda Gates Foundation and administered by MGS

Consulting, Inc., provide evidence for both managers and funders that can be applied to individual youth technology programs and the field as a whole.

The Community Access to Technology (CAT) Program

Many out-of-school technology programs were developed as a response to the ever-widening digital divide, which was leaving low-income youth with limited access to increasingly utilized and useful technology, especially when compared to their middle and high-income counterparts (Office of Educational Research and Improvement, US Department of Education, 1999). As part of the effort to bridge this divide, the Gates Foundation founded the Community Access to Technology Program (CAT) in 1999. CAT's mandate was to help Washington state nonprofit organizations provide local communities greater access to digital technology. The focus of the CAT program was on supporting organizations that help at-risk youth, persons with disabilities, homeless persons, immigrant populations, Native Americans, and rural communities to use technology to make positive changes in their lives and in their communities. From 1999 through 2005, the foundation granted \$14 million to 330 organizations and sites in Washington State, resulting in services being provided to over 78,400 people.

In 2005, CAT was transferred to the Center to Bridge the Digital Divide program (CBDD) of Washington State University and was renamed the Communities Connect Network to emphasize the efforts to bring together community technology interests from across the state. Refer to www.communitiesconnect.org for additional information.

Advancing the Field: Rationale for a Multi-Year Evaluation

Extensive evaluation has been done on individual out-of-school programs in general and technology programs in particular. However, little was known about the long-term impact technology programs have on youth participants and the communities in which they live. To fill this void, MGS Consulting began conducting a three-year evaluation of the CAT program in 2003. For each year, the goal of the evaluation was to quantify and gain a better understanding of the individual and societal impact that the CAT grant portfolio had on youth.

Methods

MGS Consulting conducted the evaluation from 2003 to 2006. Ten organizations took part, including the Yesler Community Center, Stone Soup, the 4H, and the Washington State Boys and Girls Club Alliance (See Table A for full list). All had received grants as part of the CAT Program.

Table A

PARTICIPATING ORGANIZATIONS
Intel Computer Clubhouse
Lopez Island Family Resource Center
Technology Access Foundation (TAF)
Work Source/KCWTP
Yesler Community Center
YMCA Metrocenter
Kent Youth & Family Services
Stone Soup
4H
Boys & Girls Clubs of America / Washington State Boys & Girls Club Alliance

Overall, 885 youth participants (ages 9-19) were surveyed at 36 different program sites throughout Washington State. From this grouping we gathered responses from a subset of 85 youth participants who participated in a survey three times during the 15-month evaluation process (referred to as the “matched set”).

Two methods of data collection were used: 1) surveys completed by the youth participants at each site and 2) interviews with key program staff. MGS consultants visited each site for 1-2 days three times over the course of the evaluation period. Youth who participated in the surveys were youth who happened to be at the individual sites during those times. Program staff at each site were specifically asked not to target or invite specific youth to attend at the times of our visits, in order to avoid selection bias on the part of the program leadership. Youth could opt out of participating in the survey, and all responses come from youth that were independently present and willing to participate.

Surveys

MGS Consulting designed the first of a two-part online survey using Survey Monkey. The survey was completed by youth at each of the 36 participating sites on three separate occasions. The first part of the survey asked for data regarding measurable changes in the participant’s perception of employability, confidence levels, and grades. The second part of the survey was the Search Institute’s Developmental Assets Profile, and consisted of forty questions with a 4-point rating scale. The Search Institute is an independent non-profit organization that seeks to provide leadership, knowledge, and resources to promote healthy children, youth, and communities. More information on the Search Institute can be found at www.search-institute.org. According to their resources:

“The DAP is a 58 item checklist that takes about 10 minutes to complete and is focused exclusively on assets. It is an individual measure that yields quantitative scores for asset categories and context areas portrayed in a profile format... It is designed to be sensitive to changes in reported assets over time and it is suited to research and program evaluation. The Developmental Assets Profile (DAP) is based on Search Institute 40 developmental

assets framework, a strengths-based approach for promoting the healthy development of children and youth. The framework defines the relationships, opportunities, skills, and values children and adolescents need to thrive," (Search Institute *Developmental Assets Profile Preliminary Users Manual*, January 2004).

MGS staff traveled to each site and personally facilitated survey administration. If a site did not have Internet connectivity, the participants filled out paper copies of the survey and their answers were manually entered into the online form by MGS staff.

There was a four-month (within 100-150 days) period between survey administration at each site. This time period was within the range for validity, according to the DAP guidelines.

Staff Interviews

Interviews were conducted with key personnel to ascertain the key elements necessary for a successful program. The survey included the following topics:

- The characteristics of a high-quality technology program
- Witnessed or anticipated academic and job readiness outcomes
- Social support structures that the staff see as necessary components of a successful tech program

Thirty-two key staff members were interviewed in person by MGS staff, one small group discussion was held, and two written surveys were completed. All program staff and key personnel with knowledge of the program (such as program managers or the Executive Director) were invited to participate, and those that did were self-selected.

Results

Hard data from this evaluation effort shows that out-of-school technology programs create brighter futures for youth. Students perform better in school, have increased self-esteem, confidence in their technology skills, and a belief that they will succeed as they move forward. Perhaps the most surprising – and heartening – findings relate to the increase students experience in developmental assets. Each major finding is discussed in turn below.

Developmental Assets

Developmental assets are... " 'developmental vitamins' — positive experiences and qualities identified by the Search Institute that are essential to healthy psychological and social development in childhood and adolescence. These assets have the power to influence young people's developmental trajectories, protect them from a range of negative outcomes, and help them become more productive, caring, and responsible adults," (Search Institute DAPP Users Manual, 2004, p. 2).

Developmental assets are closely related to various behavioral and academic outcomes among youth, as demonstrated in the following table: (DAPP, 2004).

Table 1

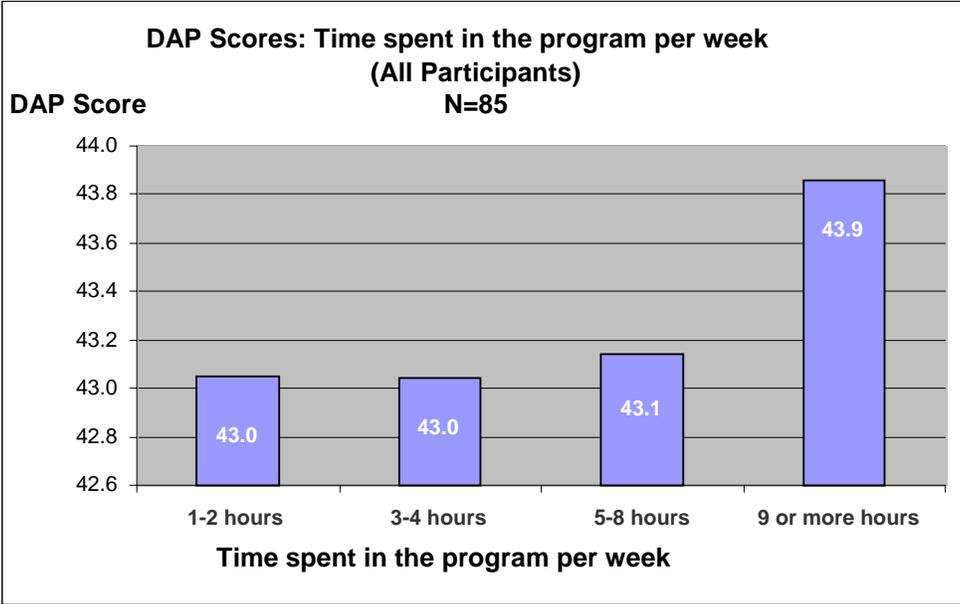
Low asset levels are related to increased risk for:	High asset levels are related to positive outcomes such as:
Academic underachievement	Academic achievement
Alcohol problems	Leadership
Tobacco problems	Thriving
Illicit drug use	Well-being
Precocious sexual activity	
Antisocial behavior and violence	

Key Findings

Participating in tech programs increases developmental assets.

Results from this study indicated that youth participation in community technology programs leads to an increase in perceived developmental assets. Further, we discovered that youths’ perceived developmental assets increased with time spent in a program. The number of hours a youth participated per week in a technology program was positively correlated with their DAP score. This held true for all ages, genders, and program types.

DAP Score by Time Spent in Program



Increased DAP score leads to a chance of other improvements.

The Search Institute divides asset levels into four categories, which we will refer to as “Low” (0-10 assets), “Fair” (11-20 assets), “Good” (21-30), and “Excellent” (31-40 assets). An example of this categorization can be found at <http://www.search-institute.org/power-assets>. Their research has

found that jumping from one category to the next is linked to dramatic increases or decreases in risky and healthy behaviors (Benson, Roehlkepartain, & Sesma, 2004; Scales, & Roehlkepartain, 2003). The Search Institute notes that "Most young people in the United States – regardless of age, gender, or region in the country, experience too few of the 40 assets," (Search Institute, 2006, p. 4). In order to maximize one's chances in life, scoring at minimum at the low end of the "Excellent" category (having 31 out of 40 assets) is preferred.

Our research shows that participating in out-of-school technology programs was linked with an increase in assets and progression into higher categories of assets. This means that, **after participating in youth technology programs, youth have a much greater chance of engaging in healthy behaviors and a greatly decreased risk for engaging in risky or destructive behaviors.** By the end of our study, 62% of youth participants who started in the "Low" DAP category moved up to "Fair" or "Good," and 33% moved from "Fair" to the "Good" or "Excellent" category. These participants greatly reduced their risk of engaging in problem behaviors, such as alcohol use, violence, illicit drug use and sexual activity, and increased their likelihood of engaging in positive activities such as succeeding in school and maintaining good health.

As a result of these findings, we conclude that these community youth technology programs greatly increase the chance of the future success of the youth who participate.

Technical Fluency

Technical fluency reflects the participant's ability to understand, explain, and discuss technical tools and concepts. It contributes to what have been called the "21st Century Skills" identified as: Digital Age Literacy, Inventive Thinking, Effective Communication, and High Productivity (NCREL/Metiri Group, 2003). These aptitudes have been identified as critical skills needed to succeed in today's world. Examples include understanding how a computer processes information, describing how email is transmitted, and feeling confident in learning new software applications. When asked about their own abilities, youth participating in these programs report that they are indeed increasing their technical fluency, leading to success in each of these four 21st Century skill sets.

Key Findings

Technical fluency increases with time spent in a program.

Fluency and time in program are positively correlated. This means that as youth spent more time in the program, they were increasingly likely to answer "Always" in response to questions regarding their skill and comfort level with technology.

For all participants, **males had higher tech fluency scores than females.** This difference may be due to issues of confidence rather than skill acquisition. This finding suggests that girls may need programming and support to help build confidence in their own abilities. This finding is consistent with a study of tech fluency skills at Southwestern University: "The American Freshman: National Norms for Fall 2000" revealed that male and female college students have identical rates of computer use, but the men are twice as likely as the women to have a high opinion of their skills...The majority of males see themselves as having a higher fluency...than do females," (Fass McEuen, 2001, p. 11).

High-touch program participants report higher tech fluency scores than participants in low-touch programs.

For all participants, high-touch programs had an average tech fluency score of 2.57, while low-touch sites had an average score of 2.42. These results indicate that youth need guidance and structure to truly enhance their skills.

High-touch programs are more structured and tend to offer guided projects and classes. Youth are encouraged to learn, create, and work with leaders and their peers. Low-touch programs tend to be less structured and offer more lab time rather than classes. An example of a high-touch site we looked at is the Technology Access Foundation (TAF). TAF has a defined curriculum, attendance requirements for participants, and encourages parental involvement in the enrollment and learning process. Other program sites we reviewed, such as the Boys and Girls Clubs, are low-touch by design. Parents are required to sign a general permission slip, and youth utilize open access labs that don't require attendance or curriculum adherence, as well as areas for homework help and peer interaction.

Technical fluency is higher for teens than preteens.

While this result is partly expected, it may also suggest that programs should encourage youth to begin participating in community technology programs when they are preteens, allowing them to participate for multiple years and have adequate time to grow and develop their skills.

Outlook for the Future

Believing you can accomplish something is the first step toward success. This positive mindset is powerful. Research shows that a positive attitude and belief that one will attend college is linked to actual college attendance rates (Carpenter & Fleishman, 1987). In our study, youth who participated in the technology programs believed that they would do better in school, attend college, and get a good job after they finish school.

Key Findings

- **The longer the youth participants participated in the technology programs, the more positive their outlook on their future became.** Over a 15-month period, youth in the matched set became more optimistic about their school performance: More youth believed they would improve their study skills (60% in the first survey vs. 70% in the third) and graduate high school (72% vs. 76%).
- We saw the following changes regarding **job outlook and readiness**:
 - Seventy-seven percent of youth new to the program reported that they would get a good job, compared with 90% of youth who had been in a program for more than three years.
 - After time in a program, more youth said they believed they would get a good job when they were done with school (83% vs. 88%).
 - More youth in high-touch programs than low-touch programs thought participating would help them go to college (70% vs. 62%). However, more youth in low-touch programs thought participation would help them in school (67% vs. 60% in high touch programs). This implies that high-touch programs focus on preparing for the future while low-touch programs focus on succeeding today.

- Preteens have a more positive outlook than teens. As youth age, more is needed programmatically that will help them continue to see their potential.
- In our matched sample, girls showed the greatest gain in outlook.
- Unique skills are acquired in the first year. Youth were asked if the skills they were learning by participating in these programs were skills that could or could not be learned elsewhere. Youth reported that they acquired the most skills that cannot be learned elsewhere in the first year of participation.

Characteristics of Effective Programs

Several individual sites had higher than average scores for at least one of the main indicators (developmental assets, technical fluency, or outlook for the future). Key factors to the success of these sites included:

- Highly involved, consistent, and dedicated staff.
- Parent involvement.
- A permanent location that is easily accessible by youth and offers an inviting, comfortable atmosphere.
- Going beyond technology for technology's sake, i.e. connect technology to the everyday (and academic) lives of participants to make technology feel relevant and allow participants to see practical and applicable uses for the skills they are learning.
- Integrate soft skills, e.g. job interview skills and conflict management.

Discussion

Developmental Assets

Our findings suggest that different participants have different experiences in individual programs, with females and preteens showing the most improvement. DAP scores for females increased the longer they participated in a program, and scores for preteens increased regardless of how long they were in a program. Interestingly, the two groups who seemed to benefit the most represent the minority of all participants (39% females vs. 61% males; 43% preteens vs. 58% teens). **Perhaps programs should revise their marketing to target more females and preteens**, since it is with these two groups that they seem to have the most impact.

Or perhaps the current curriculum and/or organization of the technical program is not appropriate. The majority of participants are male and teens, yet these are the precise groups reporting the least improvement in DAP scores. Program leaders should look for any disconnects between who they are serving and how the program functions (including curriculum, leaders, timing of programs, etc). With some marketing and program adjustments, perhaps a more balanced group of males and females, teens and preteens will participate and show gains in DAP scores and begin reversing the national downward trend to reflect the positive trend seen among participants in out-of-school technology programs.

Tech Fluency

As we have seen, on average, tech fluency scores increased over time, indicating that these programs are an effective method for strengthening youths' confidence in their technology skills. The longer youth participate in the programs, the more likely they are to say that statements reflecting technical

skills (“I can easily learn new software applications”) are always true and the less likely they are to say they are never true.

However, tech fluency skills didn’t increase at the same rate for all participating youth, most noticeably for females and youth in low-touch programs. For females, this may be more an issue of confidence rather than skill. Previously mentioned research shows that males and females tend to have the same level of skill but differing amounts of confidence in those skills (Fass McEuen, 2001). **Technology programs should focus on increasing the confidence of the females who attend their programs.** They must go beyond simply teaching girls skills; they must also give them the confidence to believe in and use their skills in a meaningful way. Increasing the female participants’ confidence, and thereby their ability to express their true knowledge, is a key aspect of the communication skills associated with 21st Century Skills.

The fact that youth in low-touch programs have lower tech fluency skills indicates that youth need more than just access to improve their skills. High-touch programs are more structured and tend to offer guided projects and classes. Youth are encouraged to learn, create, and work with leaders and their peers. Low-touch programs tend to be less structured and offer more lab time, rather than classes. **The results of our study indicate that youth need guidance and structure to truly enhance their skills.** Programs that only offer access may indeed provide a safe and positive place for youth to congregate outside school. While such an environment may be valuable in and of itself, it’s not the same as actively working to increase technical skills. Programs intended to strengthen the tech fluency skills of their participants should consider incorporating some aspects of high-touch programs (such as structured classes and projects and highly engaged program staff).

Outlook on Future

Over time, youth who participate in these programs believe more is possible for their future and their outlook improves. This result is encouraging for programs aimed at influencing youth in a holistic manner, teaching them life skills and a positive outlook as well as improving their technical skills.

Technology programs can take advantage of their positive effect on participating youth by building a component into their programs focusing on future opportunities. For example, the Tacoma Intel Computer Clubhouse takes participating youth on field trips to local businesses, allows them to job shadow adults working in their field of interest, and encourages them to pursue summer internships. These types of activities offer youth the opportunity to imagine what their futures could look like and encourage them to dream big.

Questions for Future Research

The question remains whether the benefits found in out-of-school technology programs can be generalized to other out-of-school programs, i.e. is it the technology skills themselves that create benefits for youth or do out-of-school programs that focus on other skills and/or activities deliver similar benefits? For instance, would youth involved in sports report similar gains in their developmental assets scores over time? Would those playing in a jazz band view their futures in a more optimistic light the longer they played? These are questions that can and should be answered so that parents, managers, and funders know which investments of time and effort will yield the results they seek.

Another area of potential future research would be looking at elements that make up an effective program. As mentioned earlier, when we looked at the sites that had higher than average scores for

at least one of the main indicators (developmental assets, technical fluency, or outlook for the future), we found some key common elements to these sites were dedicated staff, involved parents, and an accessible/inviting environment. Further analysis of the validity of these as indicator elements of successful programs may be warranted, as well as exploring for other leveraged elements and assets.

Conclusion

These findings prove that out-of-school technology programs create brighter futures for youth. Further evaluation should be done to gain a deeper understanding of the value of out-of-school programs in general vs. programs that focus on specific skill acquisition, e.g. technology. As demands on students' out-of-school time escalate, it is important that funders, practitioners, and parents alike understand the ways in which specific activities will impact youths' futures so they are armed with the best possible information on which to base decisions.

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Bridging Research & Practice



Consistency of Developmental Outcomes of 4-H Camp Experiences Over Time and Across Sites

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Abstract: The purpose of the reported trend study was to examine consistency in youth life skill outcomes following exposure to 4-H camp. Parents of campers ages 9 to 13 were randomly sampled in 2001, 2004, and 2007 and asked to report changes in their child's behavior following camp. Statistical analysis indicates an overall consistency in parent reports of youth life skill development over time. Life skills that showed consistent gains over seven years and across six 4-H educational centers included an enhanced ability for youth to take care of their own things and to share work responsibilities. Multivariate statistics revealed that a standardized instrument used with parents over time can produce valid and reliable results concerning the impact of experiential learning on youth.

Introduction and Background

Over the past decade a broad body of literature has emerged in support of the developmental outcomes of camp experiences for children and adolescents (Bialeschki, Henderson & James, 2007; Garst & Bruce, 2003; Garton, Miltenberger & Pruett, 2007; Thurber, Schuler, Scanlin, & Henderson, 2007). Indeed, previous national research indicates that camp experiences contribute to positive growth in relationship-oriented outcomes such as friendship skills, peer relationships, social comfort, leadership, values, and decision-making (ACA, 2005).

As camp program evaluation has evolved, researchers and camp administrators have explored evaluation approaches for measuring outcomes from the perspectives of different stakeholders (Brandt, & Arnold, 2006; Ferrari & McNeely, 2007; Garst & Johnson, 2005). In fact, evaluation of the perspectives of multiple camp stakeholder groups is a standard of practice according to the American Camp Association (ACA, 2007), the national accrediting body of day and resident camps. The standard indicates that camps should have "written evidence of multiple sources of feedback on the accomplishment of the established outcomes related to all aspects of program and operation" in order to improve the quality of the camp experience (p. 179).

The evaluation model for Virginia's 4-H camping program includes:

- (a) surveying campers, teen counselors, collegiate staff, adult volunteers and extension agents after completion of a one-week camp experience and
- (b) surveying parents/guardians every three years.

Involving parents as stakeholders is an important component of the evaluation model. Fitzpatrick, Saunders and Worthen (2004) state that a frequent mistake of evaluation plans is to not include input from important audiences and stakeholder groups.

The reported study was grounded in a positive youth development approach that emphasizes the developmental assets of youth. Camp Directors, as youth development professionals can maximize the development of life skills in settings that promote healthy child development. The Targeting Life Skills (TLS) Model (Hendricks, 1996) provided the conceptual framework for the planning, implementation and evaluation of the Virginia 4-H camping program evaluation. The TLS model, which identifies specific, measurable life skills for which the outcomes of youth development programs can be developed and evaluated, has been successfully used in previous research to evaluate camp outcomes (Arnold, Bourdeau & Nagele, 2005; Garst & Bruce, 2003; Hines & Riley, 2005).

The purpose of this study was to explore the developmental outcomes of camp experiences as identified by parents and guardians. The primary research questions were:

1. What changes in youth life skill behaviors will parents/guardians attribute to a five day residential 4-H camping experience?
2. According to parents/guardians, how consistently are campers gaining life skills across multiple camps and years?
3. How do male and female youth differ in terms of life skill development associated with a five day residential 4-H camping experience?

Methods

Virginia Tech faculty collaborated with camp directors from Virginia's 4-H educational centers to develop a triennial camp evaluation (Appendix). The Virginia 4-H camping program annually involves approximately 15,000 youth who attend one week of residential camp at one of six regional 4-H educational centers. A sample of parents of youth attending a 4-H residential camp were surveyed in 2001 (n=363), 2004 (n=326), and 2007 (n=306) to determine if life skills learned at camp impacted behavior changes when campers returned home. Response rates were 46% for 2001, 31% for 2004 and 34% for 2007. This approach was important for assessing camp program consistency and quality and for triangulation with collected camper and staff data.

A consistent methodology was used across the three survey years. A systematic random sample of male and female campers, ages 9-13, from each of the six 4-H Educational centers was selected. The parents/guardians of each sampled camper received a mailed questionnaire two weeks following their child's camp experience. A follow-up post card was sent four weeks later to increase response rate (Dillman, 2007). The parent survey included questions regarding satisfaction with camp, intentions to continue participation, and a 24-item section that assessed life skill behavior change (comparing life skill behaviors before and after the 4-H camping experience) across eight domains of the TLS Model: living; being; giving; caring; relating; thinking; managing, and working. The questionnaire items were constructed using a retrospective pre-test approach (Marshall, Higginbotham, Harris & Lee, 2007; Rockwell & Kohn, 1989).

Results

Trend Analysis

The first research question was, "What changes in youth life skill behaviors will parents/guardians attribute to a five day residential 4-H camping experience?" To answer this question, parents were asked to rate their child's life skills before and after the residential camp experience. Means for "before camp" and "after camp" ratings were calculated. A comparison of means of life skill behavior impacts across all survey years was constructed to examine changes in parent perceptions. Paired t-test comparisons were made between each of the "before camp" and "after camp" means for each sample. Practical significance of differences was calculated using Cohen's d to determine effect size [Table 1]. Ary, Jacobs, Razavieh and Sorensen (2006) suggest reporting effect size to assess the magnitude of difference between two or more groups and convey practical significance to the research consumer. The majority of items had a medium effect size indicating the difference between the means was at least equal to half a standard deviation.

Table 1

Statistical and Practical Significance of Camper Life Skill Behaviors by Year

Life skill item	2001 (n=363)			2004 (n=326)			2007 (n=306)		
	t	d	Interp.	t	d	Interp.	t	d	Interp.
Takes care of his/her own things	9.55*	0.72	M	8.84*	0.71	M	7.64*	0.61	M
Shares work responsibilities	2.36	0.18	S	7.97*	0.64	M	10.07*	0.81	L
Takes initiative and is a self-starter	8.31*	0.63	M	6.90*	0.56	M	6.84*	0.55	M
Takes responsibility for his/her own actions	7.43*	0.56	M	7.42*	0.60	M	6.47*	0.52	M
Handles success and failures	7.67*	0.58	M	7.09*	0.57	M	6.20*	0.50	M
Has a good mental attitude	7.95*	0.60	M	5.15*	0.41	M	8.34*	0.67	M
Tries to find answers to questions	6.76*	0.51	M	8.22*	0.66	M	0.14	0.01	N
Adapts to change	7.84*	0.59	M	7.06*	0.57	M	7.34*	0.59	M
Listens to the opinions of others	6.69*	0.51	M	7.35*	0.59	M	7.52*	0.60	M
Tries to find solutions to problems	7.33*	0.55	M	7.89*	0.63	M	6.56*	0.53	M
Deals effectively with conflict	7.30*	0.55	M	7.00*	0.56	M	7.19*	0.58	M
Considers choices before making a decision	7.45*	0.56	M	7.84*	0.63	M	7.33*	0.59	M

Note. *significant at alpha=.001; d=Cohen's d coefficient of effect size; N=negligible effect size, S=small effect size, M=medium effect size, L=large effect size

Table 2 illustrates the life skills with the greatest mean changes over the three data sets. In 2001, the six life skills with greatest positive changes were: "takes care of his/her own things," "shares work responsibilities," "takes initiative and is a self-starter," "takes responsibility for his/her own actions," "handles success and failures," and "has a good mental attitude." In 2004, the six life skills with the greatest positive changes were: "shares work responsibilities," "tries to find answers to questions," "takes responsibility for his/her own actions," "adapts to change," "listens to the opinions of others," and "tries to find solutions to problems." Similarly, in 2007, the six life skills with the greatest positive changes were: "shares work responsibilities," "takes care of his/her own things," "has a good mental attitude," "listens to the opinions of others," "deals effectively with conflict," and "considers choices before making a decision."

Table 2
Changes in Life Skill Behaviors over Time

Life skill item	2001 (n=363)			2004 (n=326)			2007 (n=306)		
	Before camp mean	After camp mean	Change Score	Before Camp mean	After camp mean	Change Score	Before camp mean	After camp mean	Change Score
Takes care of his/her own things	3.61 (1.08)	3.98 (.95)	.37	3.67 (.98)	3.98 (.91)	.31	3.67 (.98)	3.98 (.91)	.31
Shares work responsibilities	3.63 (2.06)	3.89 (.88)	.26	3.60 (.91)	3.91 (.83)	.31	3.60 (.91)	3.91 (.83)	.31
Takes initiative and is a self-starter	3.58 (1.01)	3.82 (.93)	.24						
Takes responsibility for his/her own actions	3.72 (.96)	3.95 (.83)	.23	3.82 (.83)	4.09 (.98)	.27	3.82 (.83)	4.09 (.98)	.27
Handles success and failures	3.73 (.87)	3.96 (.79)	.23						
Has a good mental attitude	4.10 (.87)	4.33 (.75)	.23						
Tries to find answers to questions				3.90 (.95)	4.18 (.79)	.28	3.90 (95)	4.18 (.79)	.28
Adapts to change	3.89 (.89)	4.12 (.80)	.23	3.88 (.87)	4.15 (.82)	.27	3.88 (.87)	4.15 (.77)	.27
Listens to the opinions of others				3.83 (.88)	4.10 (.77)	.27	3.83 (.88)	4.10 (.77)	.27
Tries to find solutions to problems				3.93 (.89)	4.19 (.80)	.26	3.93 (.89)	4.19 (.80)	.26

Shading indicates change scores, although still positive, were not among the largest for that year.

The second research question was how consistently are campers gaining life skills across multiple camps and years? Two-way analysis of variance (ANOVA) was used to test the null hypothesis that no significant difference existed in youth life skill development between the three data collection years ($\alpha = 0.05$). Principal component factor analysis was used to determine broader life skill constructs gained by youth during the 2001 data collection period. Varimax rotation was used to aid in the interpretation of factor loadings.

Four life skill factors emerged from the 2001 data and summated scale scores were computed for each of the four factors. The same items comprising each of these four 2001 factors were then used to develop summated scale scores for the 2004 and 2007 data collection years for the purposes of direct comparison between years (David Miller, Professor of Educational Psychology, personal communication, April 9, 2008). Prior to developing summated scale scores from the 2004 and 2007 data, reliability coefficients (Cronbach's alpha) were calculated for the four 2004 and 2007 predetermined factors to ensure consistency in interpretation.

Results of the ANOVA indicated that no significant difference existed in youth life skill development between the three data collection years ($F = 0.001$, $p = 0.989$). Therefore, the null hypothesis was retained. This provides evidence of consistency in life skill attainment and perhaps program delivery style across the six 4-H educational centers in Virginia.

The third research question was, "How do male and female youth differ with regards to life skill development associated with a one-week residential 4-H camping experience?" (Tables 3 & 4). Similarities and differences between life skill outcomes for male and female campers were compared. Male campers tended to have a greater degree of change (2004 & 2007) than female campers (as indicated by gain scores). Similarities were marked by a sharing each year of two of the top seven life skill outcomes by male and female campers, including "shares work responsibilities," and "takes care of his/her own things." These similarities indicate individual camper (rather than gender-related) benefits as perceived by parents/guardians and points to an appropriateness in activities and curricula within the camping structure for both genders.

Correlation analyses revealed no significant associations between prior camp experience, gender and race and each of the four life skill factors at $\alpha = 0.05$ level.

Table 3*Gain Score Rankings of Female Campers*

Life skill item	2001 (n=192)			2004 (n=154)			2007 (n=154)		
	Before camp mean	After camp mean	Change score	Before camp mean	After camp mean	Change Score	Before Camp mean	After camp mean	Change score
Takes care of his/her own things	3.77 (1.05)	4.11 (.91)	.34	3.74 (1.01)	3.97 (.96)	.24	3.74 (.96)	3.96 (.86)	.24
Takes responsibility for his/her actions	3.77 (.94)	4.03 (.82)	.26	*					
Takes initiative and is a self starter	3.73 (.95)	3.97 (.87)	.24	*					
Shares work responsibility	3.83 (2.51)	4.06 (.81)	.23	3.72 (.96)	3.96 (.86)	.24	3.72 (.96)	3.96 (.86)	.23
Participates in a discussion	4.12 (.91)	4.34 (.79)	.23	*					
Adapts to change	3.95 (.90)	4.17 (.80)	.23	3.96 (.86)	4.15 (.85)	.19	3.96 (.86)	4.15 (.85)	.19
Tries to find answers to questions	*			3.97 (.86)	4.16 (.79)	.19	3.97 (.86)	4.16 (.78)	.19
Tries to find solutions to problems				3.96 (.85)	4.15 (.78)	.19	3.96 (.85)	4.15 (.78)	.19
Listens to the opinions of others				3.94 (.86)	4.13 (.77)	.19	3.96 (.86)	4.13 (.77)	.19

*Change scores reported only for top six largest changes. Shading indicates change scores, although still positive, were not among the largest.

Table 4
Change Score Rankings of Male Campers

Life skill Behavior	2001 (n=113)			2004 (n=126)			2007 (n=126)								
	Before camp mean	After camp mean	Change score	Before camp mean	After camp mean	Change Score	Before Camp mean	After camp mean	Change score						
Takes care of his own things	3.36 (1.09)	3.78 (.99)	.42	3.62 (.92)	4.02 (.87)	.40	3.62 (.92)	4.02 (.87)	.40						
Shares work responsibility	3.30 (1.03)	3.61 (.93)	.31	3.51 (.84)	3.88 (.78)	.37	3.51 (.84)	3.88 (.78)	.37						
Takes initiative/is a self starter	3.36 (1.08)	3.60 (.97)	.24												
Adapts to change	3.78 (.88)	4.02 (.87)	.24												
Has a good mental attitude	3.96 (.93)	4.20 (.87)	.24												
Sets goals for himself	3.34 (.95)	3.58 (.90)	.24												
Tries to find answers to questions										3.82 (1.02)	4.21 (.81)	.39	3.82 (1.02)	4.21 (.81)	.39
Tries to find solutions to problems															
Listens to the opinions of others															
Participates in discussion				4.09 (.88)	4.45 (.65)	.36	4.09 (.88)	4.45 (.65)	.36						
Takes responsibility for his own actions				3.67 (.98)	4.02 (.84)	.35	3.67 (.98)	4.02 (.84)	.35						

Shading indicated change scores, although still positive, were not among the largest for that year.

Conclusions

Results indicate that the Virginia 4-H camping program consistently increased youth life skills over seven areas from 2001 to 2007. The top two life skills, "shares work responsibilities" and "takes care of his/her own things" have been the steadiest. These results reflect an overall program quality from year to year despite expected organizational changes in staffing, food, facilities and activities. The minor variations in rank from year to year may be the result of normal developmental differences in youth that one would expect to find in such a large population.

The *similarities* in life skill gains between boys and girls are promising. This result suggests that the Virginia 4-H camping program provides a positive youth development setting for both boys and girls. The gender *differences* found in life skill gains may be understood as the developmental differences of male and female youth between the ages of 9-13. These results may also suggest that there are gender-specific benefits of camp participation, based upon social influences of participating with other male and female campers and adults, gender-specific behaviors that campers learn (or un-learn) in camp classes and camp activities. Additional research and evaluation in this area is needed to better understand gender-specific similarities and differences. Further investigation, such as tracking campers' specific activity patterns from year to year, may suggest the specific camp components that impact life skill development and influence gender-specific gains.

An area of future study is changes in parent's perceptions and expectations of program providers. For example, over a period of eight years, cultural shifts in parenting practices may impact what it means to parents for their child to adapt well to change. Parents of this millennial generation have shifted towards being more involved in their children's activities and less encouraging of independence (Cline & Jim, 1990). This trend towards parents taking responsibility for their actions of their children may be reflected in what parents perceive of, or expect from, the camp experience.

Practical Applications

Utilizing a standardized evaluation process and instrumentation over time and across sites can be a useful way to measure changes in program outcomes as well as overall program quality and consistency. Comparing results of standardized surveys may also reveal important differences among participant groups based on demographic or other criteria. Triangulating participant evaluation information with data collected from other stakeholder groups such as parents can yield relevant information about program impacts and areas of program improvement. A systematic approach to tracking youth activity involvement from year to year may help explain how different life skills are acquired and developed. This recommendation is consistent with Ferrari and McNeeley (2007), who suggested linking life skill development with camp design elements.

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Appendix

Virginia 4-H Parent/Guardian Life Skills Evaluation

Please take time and think about how your child may be behaving differently as a result of attending camp this year. [Using the 1 to 5 scoring system highlighted in the box below, circle the number that most closely corresponds to your child's behavior both BEFORE and AFTER attending 4-H camp.]

1=Almost Never	2=Seldom	3=About ½ the time	4 = Often	5=Almost Always
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MY CHILD...	BEFORE CAMP						AFTER CAMP				
a. ...takes responsibility for his / her own actions.	1	2	3	4	5		1	2	3	4	5
b. ...handles success and failure.	1	2	3	4	5		1	2	3	4	5
c. ...shares work responsibilities.	1	2	3	4	5		1	2	3	4	5
d. ...has a good mental attitude.	1	2	3	4	5		1	2	3	4	5
e. ...listens to the opinions of others.	1	2	3	4	5		1	2	3	4	5
f. ...participates in a discussion.	1	2	3	4	5		1	2	3	4	5
g. ...follows directions.	1	2	3	4	5		1	2	3	4	5
h. ...shares own thoughts and ideas verbally.	1	2	3	4	5		1	2	3	4	5
i. ...asks questions.	1	2	3	4	5		1	2	3	4	5
j. ...tries to find solutions to problems.	1	2	3	4	5		1	2	3	4	5
k. ...participates in learning experiences.	1	2	3	4	5		1	2	3	4	5
l. ...tries to find answers to questions.	1	2	3	4	5		1	2	3	4	5
m. ...makes good decisions.	1	2	3	4	5		1	2	3	4	5
n. ...considers choices before making a decision.	1	2	3	4	5		1	2	3	4	5
o. ...adapts to change.	1	2	3	4	5		1	2	3	4	5
p. ...sets goals for himself / herself.	1	2	3	4	5		1	2	3	4	5
q. ...takes care of his / her own things.	1	2	3	4	5		1	2	3	4	5
r. ...takes initiative / is a self-starter.	1	2	3	4	5		1	2	3	4	5
s. ...sets priorities.	1	2	3	4	5		1	2	3	4	5
t. ...manages money well for his / her age group.	1	2	3	4	5		1	2	3	4	5
u. ...cooperates and works in a group.	1	2	3	4	5		1	2	3	4	5
v. ...gets along with people around him / her.	1	2	3	4	5		1	2	3	4	5
w. ...is a team player.	1	2	3	4	5		1	2	3	4	5
x. ...deals effectively with conflict.	1	2	3	4	5		1	2	3	4	5

THANK YOU FOR YOUR TIME!

Developed by Dr. Barry A. Garst, Dr. Robert R. Meadows, Dr. F.A. "Lex" Bruce

Aggressors, Victims and Bystanders: Preventing Bullying in the Middle School Environment

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Aggressors, Victims and Bystanders: Preventing Bullying in the Middle School Environment

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Abstract: The research presented in this article examines the effects of implementing a prevention program for bullying and aggressive behaviors to sixth graders in 14 Florida middle schools. The evaluation was conducted as a control/experimental design. The primary goals of this manuscript are to determine: (a) the change from baseline student habits of thought related to violence prevention, (b) student habits of thought related to attitudes and physical behaviors related to violence, and (c) teacher perceptions of student attitudes and behaviors related to violence.

Equally important, this study adds to our understanding of bullying prevention programs by examining the impact of an Aggressors, Victims' and Bystanders' program in terms of three dimensions: (1) teacher perceptions of student thoughts and behaviors related to their ability to solve conflict, (2) middle school student habits of thought about violence prevention, and (3) middle school student attitudes about behaviors associated with the prevention of violence, including aggressor behaviors and actions and bystander behaviors and actions.

Introduction

It is vital that teachers, administrators, and program/policy developers understand the significant impact that bullying has on both those being bullied, and those doing the bullying. The effects of bullying are harmful to students and have a negative impact on academic achievement and motivation. Youth who are bullied are five times more likely to be depressed than other youth, and

also far more likely to be suicidal (Fox, Elliot, Kerlikowske, Newman, & Christeson, 2003, p.4). Equally important, it has been found that students who bully are more likely to skip school, drop out of school, and take part in problematic behaviors such as smoking, drinking alcohol and getting into fights than those who don't bully (Nansel, Overpeck, Haynie, Ruan, & Scheidt, 2003; Olweus, 1993). Consequently, educators are constantly exploring alternatives for ways to keep students safe and prevent bullying from occurring. It is therefore essential that school administrators, educators and school violence researchers strive to engage middle and high school students in effective school safety and violence prevention programs as a means of offsetting current risk and preventing future risk.

The research presented in this article examines the effects of implementing a prevention program for bullying and aggressive behaviors for sixth graders in 14 Florida middle schools. The evaluation was conducted as a control/experimental design. The primary goals of this manuscript are to determine:

- a. the change from baseline student habits of thought related to violence prevention;
- b. student habits of thought related to attitudes and physical behaviors which are related to violence; and
- c. teacher perceptions of student attitudes and behaviors related to violence.

Equally important, this study adds to our understanding of bullying prevention programs by examining the impact of an Aggressor's, Victim's and Bystander's program in terms of three dimensions:

1. teacher perceptions of student thoughts and behaviors related to their ability to solve conflict;
2. middle school student habits of thought about violence prevention; and
3. middle school student attitudes about behaviors associated with the prevention of violence, including aggressor behaviors, actions and bystander behaviors, and actions.

Review of Literature

Bullying is a detrimental problematic behavior, especially when it occurs within the school environment. In terms of scope, about 30% of US teens (over 5.7 million) are involved in bullying, either as a bully, a bullying target, or both (National Youth Violence Prevention Resource Center, 2006). More specifically, in a 2001 national survey of sixth to tenth grade students, 13% reported bullying others, 11% reported being the target of bullies, and 6% reported that they bullied others and were bullied themselves (Nansel, Overpeck, Pilla, Ruan, Simons-Morton, & Scheidt, 2001). Over 88% of middle and high school students have reported that they have witnessed bullying in their schools (Hoover, Oliver, & Hazler, 1992).

While more limited in the past, the definition of bullying has been expanded to include a variety of behaviors. All of these behaviors, however, have the same basic ingredient of a person or a group that repeatedly tries to harm someone who is more vulnerable or weaker (National Youth Violence Prevention Resource Center, 2006). These attacks may be direct, such as hitting, threatening or intimidating others. They may also be indirect, such as spreading rumors or encouraging others to reject someone. Indirect bullying now includes the use of technology, such as emails, as a means of bullying. In a typical school day, however, bullying is thought of as the traditional form of physical bullying that often leads to violence.

Aggressive acts by, and on, students continue to plague schools. In 2003, public school students were more likely to report being bullied than private school students and rural students were more likely than urban and suburban students to report encountering bullying (National Center for Education Statistics, 2006). There is an inverse relationship between grade level and students' likelihood of being bullied; as grade level increased, likelihood of being bullied decreased. Sixth through twelfth grade students reported that younger students were more likely to fear for their safety at school; 14% of sixth graders, 7% of 9th graders and 2% of 12th graders reported that they had been bullied at school (NCES, 2006).

In *America's Children: Key Indicators of Well-Being 2003* (Federal Interagency Forum on Child and Family Statistics, 2005), it was stressed that "violence affects the quality of life of young people who experience, witness, or feel threatened by [violence]" (p.46). In addition to direct physical harm, "violence can also adversely affect victims' mental health and development and increase the likelihood that they themselves will commit acts of serious violence" (p. 46).

Recent studies have added a new dimension, expanding the research focus to include not only the aggressor (or bully) and the victim, but also the bystanders. School violence prevention programs have worked toward addressing the indicators of aggressive behavior and the subsequent reactions from victims and bystanders. Consequently, prevention efforts must focus on managing conflict, increasing effective communication, and building positive school climate. While prevention is constantly focused on maintaining a safe environment, research must continue to examine programmatic impact in order to determine what is working within each specific curriculum effort to deter violence.

Participant Roles in Bullying Scenarios

Research has identified specific roles of participants within the bully-victim-bystander dynamic, such as the reinforcer, outsider, and defender (Salmivalli, 1999; Twemlow & Sacco 1996). The reinforcer encourages the bully, often "providing an audience...or inciting [the bully]" (p. 454). The outsider avoids contact with bully-victim conflicts, "[tending] to stay away and not take sides with anyone" (p. 454). Finally, the defender "takes sides with [the victim]", consoles the victim, and attempts to end a bully-victim conflict (p. 454).

Bystanders are at-risk for future victimization because of the role that they play with the victim as well as with the bully. Each respective role they fulfill in a bullying scenario can dramatically affect the subsequent aggressor-victim-bystander interaction. Bystander roles have also been identified within a more detailed structure (Twemlow & Sacco, 1996). The victim-bystander and bully-bystander relationships define the two basic bystander characterizations. The victim-bystander empathizes with the victim and "vicariously becomes victimized without physical participation." The bully-bystander relationship mirrors Salmivalli's reinforcer, as this individual encourages bullying by actively watching incidents and encouraging physical injury to the victim. Bully bystanders are recognized as those children eager to create diversions to deter or block adults from the altercation (Salmivalli, 1999; Smith, Twemlow, & Hoover, 1999; Twemlow & Sacco, 1996).

Other bystander roles reflect the nature of the bully-victim-bystander interaction. The sadistic bully-submissive victim-bully [bystander's] interests heighten with the bully's increased aggression. These interactions portray an active bystander amid aggressive behavior. This bystander hopes to take on an active role in encouraging the bully and simultaneously instilling fear in the victim. The bully-sadistic bully-submissive victim-victim-bystander or the bully bystander dynamic identifies the

hierarchy of aggression and the voyeuristic nature of the bystander typically involved in this situation (Twemlow & Sacco, 1996). In this scenario, conflict is initiated by the bully and subsequently affects the sadistic bully, who redirects aggression towards the submissive victim, the victim, and the bystanders (Twemlow & Sacco, 1996). Due to the escalating factor in this scenario, bystanders have a more dynamic role than in less aggressive situations.

Bystanders typically associate more with either the victim or the bully, upsetting the power hierarchy within the school environment (Twemlow & Sacco, 1996). The proactive victim--depressed bully--bully-bystander--victim bystander interaction simply initiates attention from peers and teachers for entertainment purposes (Twemlow & Sacco, 1996). Individuals involved in this type of bullying typically are hoping to gain or maintain high social status among peers (Twemlow & Sacco, 1996). Bystanders can engage in this scenario for their own personal or internal reward structure, including a heightened sense of belonging within the peer structure, gaining indirect gains in popularity or perceived acceptance by others at the cost of the victim.

Considering the potential bystander roles, Twemlow (2004) believes educators and school administration should provide "alternatives to bully, victim and bystander behavior, while encouraging self-reflection, helping and understanding others" (p. 16). Prevention programs to deter aggressive behavior are necessary to initiate change within school environments that experience prevalent aggression and victimization. Unfortunately, bystanders may be susceptible to fulfilling roles their peers designate as appropriate, often "[acting] in ways which are prone to maintain and encourage bullying rather than diminish it" (Salmivalli, 1999, p. 454). Consequently, bystanders "sometimes become self-fulfilling prophecies: the behavior of the individual starts to resemble more and more the expectations directed towards him" (Salmivalli, 1999, p. 455). Through their active or passive support that encourages bullying, bystanders "can share in the bully's status and power by becoming accomplices" (O'Connell, Pepler, & Craig, 1999, p. 447). This behavior may hope to displace potential victimization by gratifying the aggressors' attempts to gain attention and maintain their social role as an aggressor.

Research-based Prevention Program Evaluations

Although much of the research literature on bullying has focused on understanding the roles in bullying scenarios, fewer studies have focused on the effects of prevention programs used as treatments for aggressive behaviors in order to avoid these scenarios. Several studies have been conducted, however, that provide a foundation for research-based prevention program evaluations. Programs aimed at modifying this aggressive behavior continue to build on prior research findings leading toward more specific outcomes to promote positive youth development. Some of the key findings of prevention program evaluations will allow researchers to consider future efforts that will potentially advance the field as a respected and integrated component of social and behavioral science.

Research from two Philadelphia elementary schools supported the need for "multiple [perspectives] from key participants in school contexts" (p. 78), specifically teachers, students, peers, in order to obtain an objective view of aggression and victimization (Hess & Atkins, 1998). Given a teacher's daily interaction with students, the familiarity of one's peer group with individual behavior and personality and the importance of self-perception, researchers have begun to utilize these data collection sources as a means of identifying and analyzing the effects of aggressive behavior.

An evaluation of Peace Education Foundation's (PEF) conflict resolution and peer mediation program examined programmatic impact by examining changes within-school behavioral incident rates. The treatment school was compared to three non-treatment schools with similar enrollment trends, demographics and student behavioral incident rates associated with conflict (Barnett, Adler, Easton & Howard, 2001). Results indicated that the PEF program affected school climate as evidenced by downward trends in incident referral rates for disobedience (40% decrease), disruptive behaviors and disrespectful language during the three years of program implementation. Incident rates at the non-treatment schools rose. Following program completion, formal reinforcement techniques were withdrawn from the school and one year later, incidents of disobedient behavior rose again at the treatment school. These trends indicate that student behavioral norms changed during program implementation to being more conducive to solving problems and minimizing conflict.

A similar research study suggested that teachers and program coordinators understand the prevalence of various subgroups of victims, and found that such distinctions are significant in evaluating the role of the bystander (Brockenbrough, Cornell, & Loper, 2002). Other research has evaluated peer mediation programs (Cowie, 1998). These programs offer behavioral and emotional mediation, conflict resolution, mediation teams, counseling programs (one-on-one, group, and telephone help-line support) with peer staff and supervising adults. Researchers were "unanimously of the opinion that peer support schemes improved self-confidence, gave young people useful skills, enhanced their responsibility, and gave them a useful opportunity to take action against bullying in their schools" (Cowie, 1998, p.121). This intervention method encouraged students to openly communicate and helped students to positively view bullying incident reports to adults. Such efforts also increased feelings of their ability to create change and improve the overall school climate.

Best practices research has promoted the use of comprehensive, multilevel strategies that target bullies, victims, bystanders and communities. This may be accomplished through the use of school-level interventions designed to prevent or minimize bullying that will change the culture and school climate. They must include classroom-level interventions targeting teachers and other adults in school as well as student level interventions that target individual or small groups of victims and bullies (Dupper & Whitted, 2005; Orpinas, Horne & Staniszewski, 2003). Other research has examined programmatic effects by examining the effects of a teacher-targeted psycho-educational program for bullying (Newman-Carlson & Horne, 2004); student cognitive and affective perceptions of school safety (deLara, 2000), performance ratings of students on conflict resolution techniques, measurement of aggressive and pro-social behavior changes (Grossman, Neckerman, Koepsell, Liu, Asher, Beland, Frey & Rivera, 1997), and teacher reports of externalizing behaviors post-program (Powell, Muir-McClain & Halasyamani, 1995; Teglasi & Rothman, 1999). One such example is the Aggressors, Victims and Bystanders program.

Prevention Program: Aggressors, Victims and Bystanders

Aggressors, Victims, and Bystanders: Thinking and Acting to Prevent Violence (AVB) is a violence prevention program designed for youth at risk (Slaby, Wilson-Brewer, & Dash, 1994). Designed at Harvard's Educational Development Center, the overall goal of the AVB program is to decrease behaviors that may be considered dangerous to school staff, students and teachers. The purpose of AVB is to enable middle school students to gain the necessary skills they need in order to resolve conflicts, prevent violence, and ultimately change habits of thought.

While there is no single program that can address all of the risk factors associated with aggression and violence by youth, AVB is explicitly designed to target specific attitude and behavior modifying aspects of youth behavior. Over time, this may result in reducing violence, by youth against youth, particularly in middle schools. The premise of this program is that violence is a learned behavior and therefore can be unlearned. Similarly, conditions that promote violence can be changed, so that it is not learned in the first place (Slaby et al., 1994). AVB encourages students to examine the social roles of aggressors, victims, and bystanders within the school environment.

The program curriculum provides instruction in conflict management and encourages alternative thought processes in an effort to raise awareness about aggressive behavior and subsequently inhibit violence (Educational Development Center, 2004). AVB is unique when compared to other bullying prevention programs, in that it recognizes the bystander role and the ability of the bystander to either promote or discourage aggressive behavior. The AVB program theory is based on behavioral science research rooted in social learning theory (Bandura, 1977), which states that children learn primarily through imitating and observing adults (modeling). Individuals develop habits of thought regarding how to avoid, react and anticipate violence. Changing their habits of thought is necessary in order to avoid violence and to teach children most effectively how to handle acts of aggression.

By changing their habits of thought to effectively and proactively reduce violent outbreaks, bystander issues, and aggression levels, the AVB program strives to retrain youth to handle confrontation in new ways. Student interaction through the intervention process helps develop healthy characteristics in response to aggression and victimization. Like many prevention programs, AVB encourages student interaction in role-playing activities as a means of introducing and teaching these skills. This familiarizes students with effective methods of resisting aggression and victimization and promotes higher self-confidence for adolescents by practicing aggressor-victim-bystander situations within the various peer groups in their class.

Methods

This research was conducted in The School District of Palm Beach County (PBC), a large, mostly urban county with a diverse population of school-going adolescents. The district experienced a major school shooting in 2000 when a student shot his favorite teacher on the last day of the school year. In response to this incident, the district school safety staff searched for a violence prevention program that would extend beyond the typical realm of aggression to include all parties potentially involved in violent incidents at schools. The extensive search culminated in selecting Aggressors, Victims and Bystanders (AVB) for implementation. Ultimately included were all Grade 6 classes as part of the district's overall effort to prevent other violent incidents from occurring. Although future violence prevention was the goal, the program was an intervention for current violent habits of thought and violent behaviors of students.

Site Selection

The PBC Safe Schools Center managed the program implementation and data collection in coordination with the PBC School Police. All sixth grade classes in the district in 2002-04 were eligible to participate and implement the AVB program, during social studies, health education and life skills courses. It was determined that all middle schools were to be included in the study over the three year program implementation. Two control group schools were randomly chosen prior to the study, and the remaining middle schools were randomly selected as treatment schools for implementation

during one of the three-year intervention groups. All 1,040 sixth grade students would be included in the study by the third year.

The number of participant schools expanded during each of the three years for a total of 12 middle schools receiving the intervention and two middle schools functioning as control schools. Data collection occurred at the beginning of each school year as a pre-test and at the end of the school year as a post-test at all schools in the study. The program had a phased-in implementation plan for the three waves as follows: Year 1: 3 schools; Year 2: 4 schools, and Year 3: 5 schools in order to expand the program throughout the district.

Sample and Participants

At each school in the intervention group, all sixth grades classes were included in the study. During Year One (Y1), six classrooms in three middle schools implemented the prevention program and two schools served as assigned control groups, which remained constant for all three years. In Year Two (Y2), four classrooms in four additional middle schools implemented the program, and finally, seven classrooms in five middle schools implemented in Year Three (Y3). A total of seventeen classrooms in twelve treatment schools representing a wide geographic area and range of diverse populations participated in the study (pre-test n=965; post-test n=916). The two control groups were held constant (pre-test n=168; post-test n=161) across all three years.

The total sample of 1,040 youth included: 51.1% White Non-Hispanic, 22.4% African American, 16% Hispanic, 0.5% Asian, 3.2% other and 6.8% unreported. There were 872 students in the intervention group and 168 in the control group. At the start of each school year, the 168 sixth graders that were in the original control group remained constant throughout the study. Control group retention rates were high; 161 (95.8%) remained enrolled in the district for the three-years and were used throughout the study. In the intervention groups, there were 270 participants in Y1, 232 in Y2, and 370 in Y3. Intervention group retention rates were more vulnerable. Of the original 872 students taking the pre-tests, 775 completed the post-tests (78.6%). The program was implemented in the treatment schools by a trained prevention program manager and school resource officers. Eleven school resource officers were trained in AVB program delivery and each were assigned several treatment schools and classrooms. The curriculum was delivered by the resource officers during regular class periods and replaced regularly scheduled teacher subject-based instruction.

All sixth grade middle school teachers participated in the study. A total of 20 classroom teachers (17 treatment group teachers, 3 control group teachers) were included to examine teacher perceptions of student habits of thought about violence prevention and attitudes and behaviors. Teachers observed the program implementation assessed behaviors for each of their treatment or control group students by completing a pre- and post-treatment survey about each student participant.

Measures

Students in all twelve schools completed two different surveys (Survey 1 and Survey 2) during pre, and post- program implementation. The surveys were designed to assess attitudes and beliefs related to self-efficacy, conflict resolution, and bystander strategies. Student Survey 1 items related to habits of thought about prevention of violence ("People's violent behavior can be prevented.") while Student Survey 2 focused on habits of thought about actual behaviors related to or in response to violence ("It's okay for you to fight other kids."). Students responded to nine items on Survey 1 concerning habits of thought about violence prevention and 24 items on Survey 2 related to habits of thought

about violent behaviors. All items ranged from to (1) Don't Agree at All to (4) Completely Agree with 4 being the optimal score; negatively worded items were reverse coded for analysis.

Teachers completed two self-administered instruments for all enrolled subjects during each of the three data collection years. Teachers recorded both control and intervention groups (pre-test and post-test) for a total of two observations per student. The Teacher Survey was designed to assess their perception of student habits of thought about attitudes and behaviors related to violence in order to determine whether there was improvement after program implementation, and whether this improvement sustained over time.

Procedure: Data Collection

Teachers with treatment groups stayed in the classroom during the program delivery by school resource officers and observed the content as it was being delivered. All students were consequently rated by their teachers on 18 individual items by one of five ability levels ranging from 1-Always to 5-Never. Based on this five-point scale, a higher score indicates positive habits of thought and behaviors toward preventing violence.

Data collection occurred as each of the three surveys was administered pre- and post- to the prevention program. Table 1 summarizes the survey responses by survey type and year. Some attrition occurred over the course of the three years of collection due to students moving from the area or being absent the during data collection. Of the total population of sixth graders at the start of the study (1,040), 965 completed the pre-test (92.8%) and 916 completed the post-test (88%).

Table 1
Survey Responses by Type and Year

	Teacher Survey pre-test	Teacher Survey post-test	Student Survey 1 pre-test	Student Survey 1 post-test	Student Survey 2 pre-test	Student Survey 2 post-test
Year 1 T	270	227	218	230	254	229
Year 2 T	232	209	221	203	216	192
Year 3 T	370	361	347	347	340	337
Control Year 1-3	168	161	163	158	155	158
n=	1,040	958	949	938	965	916

Results

The primary outcomes of interest were the change from baseline in:

- (a) the student habits of thought related to violence prevention,
- (b) student habits of thought related to attitudes about violence and physical behaviors related to violence; and
- (c) teacher perceptions of student behaviors.

A series of bivariate and multivariate analyses were conducted to explore differences in Habits of Thought about Violence score. Scores were analyzed and compared across control/intervention group treatment and the pre-test/post-test status. To explore these effects, multivariate analysis was conducted using a series of three way ANOVA models.

The perceptions of teachers in regard to their student's habits of thought about violence were first explored. For this population, Teacher Habits of Thought scores among the control groups did not differ significantly from those in the intervention group ($p=.541$). However, overall post-test scores were significantly higher than pretest scores ($p=.000$). When compared in the three way analysis, scores did not differ significantly when comparing pre/post-tests scores for control and intervention groups (Table 2).

Table 2

Comparison of Pre and Post-Test Scores on Habits of Thought about Violence Score for Teachers and Students

	Control Group		Intervention		F
	Pre-Test	Post-Test	Pre-Test	Post-Test	
Teacher Perceptions of Student Habits of Thoughts & Behaviors Related to Violence (Note 1)	n=168	n=160	n=831	n=764	0.37 ^a
	4.24	4.33	4.19	4.31	8.59 ^{**b}
Student Time 1 Habits of Thoughts about Violence (Note 2)	n=163	n=157	n=786	n=730	14.60 ^{***a}
	2.94	2.81	2.94	3.11	16.62 ^{***b}
					16.90 ^{***c}
Student Time 2 Habits of Thoughts about Violence Behaviors (Note 3)	n=161	n=157	n=811	n=723	20.18 ^{***a}
	3.05	3.38	3.01	3.19	116.87 ^{***b}
					9.82 ^{***c}
^a indicates a comparison of control and intervention groups					
^b indicates a comparison of pretest and post test scores					
^c indicates a significant two way interaction between control group/intervention and pre-test/post-test scores					
*** p= .001 ** p= .01					

Note 1: Teacher Habits of Thoughts Score was measured by the following items: Solves Problems with peers by behaving aggressively, Thinks before he/she acts (reverse coded), Has a short fuse when it comes to controlling his/her temper, Listens to what other have to say (reverse coded), Would respond aggressively to a dirty look by a peer, Seems to stay calm and level headed even if things don't go his/her way (reverse coded), Blows up at the slightest provocation, Respects other people's opinions and wishes (reverse coded), Tries to get what he/she wants from peers by acting aggressively, Just goes crazy when he/she gets mad, Insists on doing things his/her way, Is referred to by other students as a bully, Thinks he/she is always right, Would respond aggressively if another student accidentally tripped him/her, Exercises self control when angry or upset (reverse coded), Is more narrow minded when solving problems, Acts aggressively if he/she is not allowed to do what he/she wants, and Is willing to listen to reason in most situations (reverse coded). For these items, response options ranged from 1 – Always to 5- Never. These variables were combined into a composite mean score that served as a single dependent variable. This decision was based on a series of exploratory factor analysis models that consistently identified a one-factor solution. Cronbach's Alpha for this scale was .97.

Note 2: Student Survey 1 Habits of Thoughts score was measured by the following items: People's violent behavior can be prevented, There are certain things a person can do to help prevent violence, I myself can make a difference in helping to prevent violence, People can be taught to help prevent violence, Doing or saying certain kinds of things can work to help

prevent violence, I can learn to do or say the kinds of things that help prevent violence, People can learn to become someone who helps others to avoid violence, Even people who are not involved in a fight can do things that help prevent violence, Even when I am not involved and it's not about me, and I can make a difference in helping to prevent violence. For these items, response options ranged from 1 – Don't Agree at All to 5- Completely Agree. These variables were combined into a composite mean score that served as a single dependent variable. This decision was based on a series of exploratory factor analysis models that consistently identified a one-factor solution. Cronbach's Alpha for this scale was .85.

Note 3: Student Survey 2 Violence Behaviors score was measured by the following items: It's okay for you to fight other kids (reverse coded), It's not okay for other kids to make fun of you, It's important to show other kids that you are ready to fight anyone who picks on you, When two kids are fighting each other, it's your problem, It doesn't involve you when one kid is picking on another, There are only two kinds of kids- the kid who fight and the kids who get beaten up, Sometimes you deserve to get pushed around by other kids, You feel like a champion when you fight some other kid, When two other kids are fighting each other, it's not right for you to join in, You get what you want from kids if you're a bully, You get respect when you boss other kids around, When two kids are fighting each other, it's okay for you to cheer for them, Sometimes you just need to yell and say mean things to other kids, When you yell and say mean things to other kids, it makes you feel bad about yourself (reverse coded), There are always other ways to solve an argument with some other kids besides hitting or getting hit (reverse coded), You don't get what you want from other kids by fighting with them (reverse coded), It makes you feel big and tough to be a bully, It's never okay to be a bully (reverse coded), You can make other kids do what you want by yelling at them, If you refuse to fight, other kids will think you're a loser, Sometimes you have only two choices - get punched or punch the other kid first, If other kids pick on you, you probably asked for it, When two other kids are fighting with each other, it's none of your business, and When two kids are fighting each other, it's alright for you to stand there and watch. For these items, response options ranged from 1 – Don't Agree at All to 5- Completely Agree. These variables were combined into a composite mean score that served as a single dependent variable. This decision was based on a series of exploratory factor analysis models that consistently identified a one-factor solution. Cronbach's Alpha for this scale was .80.

In all three scales the data were factor analyzed using several models/rotations (principal axis factoring and least squares methods with a varimax, quartimax, and direct oblimin rotations). The criteria established in advance of the selection of factor items were: a factor loading of .35 or higher; at least a .10 difference between the item's loading with its factors and each of the other factors; and interpretability (Kim & Mueller, 1978). In all analyses, only one factor was identified which had an eigenvalue greater than 1.0. Additionally, review of the screen test plots indicated that a one factor solution was most appropriate.

With the student time 1 population, scores differed significantly both among treatment groups and among post/pre-tests. Respondents in the intervention treatment group had significantly higher scores ($X=3.01$) than those in the control group ($X =2.87$, $p=.000$). Overall post-test scores ($X =3.05$) were significantly higher than pre-test scores ($X =2.93$; $p=.000$). When compared in the three way analysis, post-tests scores were significantly higher for the intervention group ($X =3.11$) than for the control group ($X =2.94$, $p=.000$).

Alternately, the student time 2 population scores differed significantly among treatment groups and among post/pre-tests. Respondents in the control group had significantly higher scores ($X =3.21$) than those in the intervention group ($X =3.10$, $p=.000$). Overall post-test scores ($X =3.22$) were significantly higher than pre-test scores ($X =3.01$; $p=.000$). In the three way analysis, post-tests scores were significantly higher for the control group ($X =3.38$) than for the intervention group ($X =3.19$, $p=.000$).

An overall comparison of pre-test and post-test intervention groups and control groups was conducted to examine whether there were significant differences for each of the groups on each individual survey (Table 3). This allowed for a more detailed examination of program impacts between two groups (control and intervention and pre- and post-). Teacher survey results indicate that there were significant differences between pre- and post-test scores when all three years are analyzed, however, there were no significant differences between control and intervention groups.

Table 3

Overall Comparison of T-Test Analysis among Pre/Post-Test Groups and Control Intervention Treatments on Teachers and Student Scores

	Pre-Test	Post-Test	Control	Intervention
Teachers	n=999	n=924	n=328	n=1595
	4.19	4.31	4.28	4.25
	$t=2.94^{**}$		$t=0.63$	
Student Attitudes/Thoughts	n=949	n=887	n=320	n=1516
	2.93	3.04	2.87	3.01
	$t=4.02^{***}$		$t=3.76^{***}$	
Student Behaviors	n=972	n=880	n=318	n=1534
	3.02	3.22	3.21	3.10
	$t=10.81^{***}$		$t=4.53^{***}$	
*** p= .001 ** p= .01				

Student results indicate that for Survey 1 assessment of attitudes and thoughts, there were significant changes in the control and intervention groups as well as the overall pre- and post-test results, indicating positive changes in cognition related to violence and violence prevention.

Results for student assessment of habits of thoughts about behaviors (Student Survey 2) found that there was a significant difference post-test to pre-test scores, however, control groups had a higher score overall than intervention groups. Discussion and explanation for these and other findings will be conducted in the next section.

Discussion and Conclusions

The results of this randomized controlled study of Aggressors, Victims and Bystanders, a widely used violence prevention curriculum, provide some evidence of a positive effect. The three-way analysis allows for an exploration of overall effects in three dimensions. By focusing on teacher perceptions of student habits of thought related to violence, student habits of thought related to violence and student habits of thought related to violent behaviors, research outcomes were explored in specific programmatic areas. This will allow the impact of each program component to be assessed more directly toward the target of positive change in the school environment. It also allows for specific implications for field practitioners to be developed.

Teacher Perceptions of Students Habits of Thought Related to Violence

The primary outcomes of interest on the first dimension were the change from baseline in teacher perceptions of student habits of thought and behaviors related to violence. Although teacher scores did not differ significantly between control group and intervention group, this may be an indication that teachers had expectations for students that were high overall, no matter whether the students

received the benefit of the curriculum. There are several possible explanations for these effects between control and intervention group teacher scores. Teachers stayed in the classroom during the content delivery by the school resource officers as a train the trainer approach, allowing them to actively observe and help to deliver the curriculum and internalize the content, therefore introducing an artifact of personal bias which may have somewhat elevated their perceptions of all students due to a "wishful thinking" factor. Given there was a major school shooting that resulted in a student charged with homicide of his "favorite" teacher in this district during the year prior to implementation, teachers had a vested interest in facilitating this program as a prevention and intervention measure.

Teacher t-scores for the student control group actually declined which may indicate that teachers perceived that those students who did not take the program did not experience any change in their habits of thought and behaviors about violence. In effect, they may have seemed to be in contrast even more so to those who did, resulting in a lower rating score. The treatment group, however, had overall post-test scores that were significantly higher than pretest scores, indicating that for those students who did receive the program, teachers had a heightened positive perception of these student's ability to think and act positively related to violence as a result. Changes in scores may be based primarily on teacher observations in the classroom, where aggressive behavior is less common than in other school settings such as the school grounds, hallways or cafeteria, where there is more interaction among students that could lead to violent thoughts and behaviors.

Student Habits of Thought Related to Violence and Violence Behaviors

The primary outcomes of interest on the second and third dimensions were assessed by the change from baseline in student habits of thought and behaviors related to violence. Results indicate that the intervention group did experience positive changes that resulted in significantly higher scores than the control group as well as post-test to pre-test. Student time 2 population scores indicate higher scores in behaviors among the control group and significantly higher post-test scores as well. There may be an effect of modeling behaviors that occurred as a result of the program. Once intervention student behaviors became more responsive positively to violent behaviors and playing different roles as aggressors, victims and bystanders, control group students may have also benefited from this as well. An overall more positive and safe environment would result as an added benefit of the program impacting individual responses and overall school culture related to violence prevention. Further, increasing the importance of the bystander role may have resulted in positive change for both the cognitive and physical habits of thought in students in both groups. Our findings reinforce the importance of using naturalistic observations of school children in behavioral studies to assess programmatic impact and detect detailed changes that occur.

Limitations

This study had several potential limitations. First, selection criteria may have resulted in limited assessment of control group changes as they were initially selected during the first year and then held constant. It may have been more realistic to assess control group changes yearly to determine whether there were any modeling behavior effects that resulted in significant changes. Second, the curriculum was evaluated after each wave of the study to provide point of impact information to the designers and to the school district. While this may have proven useful, it created time delays in assessing overall program impacts at the end of the three waves. Finally, there is the possibility of error in teacher observations of students. Because teachers were in the classroom during the training and had been affected by a significant violent event involving a fellow teacher, this may have caused program effects to be underestimated on some behaviors and overestimated on others as well as

introduced the wishful thinking effect that may have influence control group scores over intervention group. We sought to minimize the potential for confounding by using a random three-year wave design and controlling students at two schools held constant.

Recommendations

This study was designed as an evaluation of the program under ideal conditions; differences may be smaller than might be seen if the curriculum is used as intended with whole-school implementation over several years. We conclude that this violence prevention program appears to lead to modest changes in student habits of thought about violence prevention and is leading to modest reductions in aggressive behavior and increases in positive pro-social behavior among sixth graders. The impact on this behavior outside of the school is unknown. These results indicate that the interventions may need to be continued and reinforced for the other years of middle school to further reduce aggressive behaviors over the longer term in individual schools.

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Investigating the Effects of Brain Respiration on Children's Behavior

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Investigating the Effects of Brain Respiration on Children's Behavior

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Abstract: Building on the increasing number of programs designed to enhance brain development, a program developed in Korea, Brain Respiration, was adapted to a school in Nevada. Classes were offered twice weekly to a class of fourth and fifth grade students with control group classes assessed in the same school. Self-report surveys, teacher observations, and standardized reading and math scores were used to determine effects of the program on the students. Some differences were found in the pretest for the survey and the observation, with control groups scoring higher. There were differences in some post-test scores, with treatment group children scoring higher when differences did occur. There also were differences in the reading and math scores, with control groups scoring higher than the overall treatment group, but not higher when compared to those actively participating in the program. Such differences are discussed as well as other issues possibly influencing the effects.

Introduction

Brain Research and Children's Development

While cognitive development has been of interest for a long time to those involved in research and educational practices with children, a major focus on brain research expanded dramatically following the landmark work of Gardner (1983), which continues to be extended (Gardner, 1999). In this work, Gardner outlined the argument and foundation for multiple intelligences and its relationship to brain development in children. Following his summary, increasing interest has occurred in how professionals working with children might facilitate development of different types of intelligences rather than assuming only one type.

In schools, teachers, administrators, and parents have become increasingly interested in practices that are related to different types of intelligence development (Fogerty, 2002). They began to look

for and develop ways to help children with diverse aspects of intelligence, including linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, and personal (Jensen, 1998, 2001). Even with musical intelligence, many changes and developments have taken place in our understanding of what is critical in terms of the relationship between music and brain development (Skille & Wigram, 1995; Slade, 2001). In addition, researchers argue convincingly from their work and others that brain and body are closely interconnected, including aspects of memory, which gives us a different view of importance of mind/body connection (Pert, 1997).

While aspects of intelligence were already incorporated in some form within many curricula and could be easily adapted, others, such as spatial, bodily-kinesthetic, and personal were more challenging to incorporate into existing programs. Increasingly, educators have been translating brain research into classroom ideas and practice (Sprenger, 2002; Tileston, 2000; Wolfe, 2001) and even management approaches (Sylwester, 2000). One approach that has a similar objective of increasing brain capacity comes from a different culture (Korea) with a strong focus on building brain use potential in a program called Brain Respiration (Lee, 1998, 2000, 2002a,). The program is being adapted and offered increasingly in the United States, although this project is the only application that occurs during regular elementary school hours in a public setting.

Increasingly, programs also are being developed to teach children about the basic parts and functions of the brain (Bleeker, 2001). These programs not only include information and activities, but also fun games to help with the actual development of the brain while also learning about it as an important part of our bodies (Chudler, 2001). Some of these activities include other aspects of intelligence, such as music, to stimulate multiple parts of the brain through fun activities (Lee, 2002a).

The Brain Respiration (BR) approach that was evaluated in this study is a system of physical and mental exercises along with an active focusing of the body's natural energy to open up the meridian system of the body. Such activities increase health, vitality, and reduce everyday stress in people's lives. It was developed based on an ancient Korean tradition, yet updated to include modern techniques from science and health. The program makes people more sensitive to the energy of the body and emotions in order to give greater freedom to choose our responses with everyday interactions and events, especially in terms of focusing attention in young children as well as adults. An additional benefit is that BR also seems to have very positive social and interactional effects on adults and children who participate on a regular basis (Lee, 2002a), such as being more peaceful in their interactions. This approach continues to expand and develop in order to help students realize the potential and power of their brain and their being (Lee, 1999a, 1999b, 2002b) as well as providing them a new way to see themselves and solve personal, interactive, and community problems (Lee, 2000). There are many testimonials about the positive effects of this practice, mostly from adults (Lee, 1997, 1998, 1999b), with some increasing evidence to support the ideas (Lee, 2002a). Yet little systematic evaluation has taken place with programs being offered in the United States.

There are now several studies, however, that have been done on BR in Korea. For example, Yu and Chang (1998) conducted research with 282 students in three elementary schools and one junior high school in Seoul, Korea. The researchers divided the total group into an experimental group (138 students receiving the BR method) and a control group (144 students in the same four schools as the experimental group but receiving no intervention). Four assessments were used with both group of students, including an assessment for emotional stability, emotional maturity, short-term memory, and intuition. The BR program was conducted for 5-10 minutes every day for eight weeks with the

experimental group. The second group was used to control for maturity effects during that time. Based on an ANOVA test controlling for learning ability, there were differences found in emotional maturity, short-term memory, and intuition, but no differences were found in emotional stability. With only a short intervention on a daily basis for eight weeks, differences were found that were above chance, with important implications regarding children's learning.

Two other studies focused on the effects of BR training on the brain activity of Korean elementary school children (Kim, Kim, et al., 2001; Kim, Choi, et al., 2001). Both studies used the same students, a training group and a control group, each including 12 children. The children in the training group were taught brain respiration and practiced the techniques for an hour twice a week for a period ranging from 4 to 14 months. There were significant differences between the two groups, with children trained in BR maintaining more tranquil and higher alpha states (Kim, Kim, et al., 2001). There seems to be some indication that BR training activates brain functioning through changes in activity of the frontal association area where higher mental integration and creative activities occur, along with more relaxed states of the brain (Kim, Choi, et al., 2001).

Finally, Hong (1998) investigated the effects of BR on a group of 126 elementary and middle school youth during an eight-day camp. This camp was specifically designed as a BR camp to develop the mind with two groups of youth, a beginning group (88 youth) and an intermediate group (38 youth). In this case, the children participated in exercises three times a day, with other aspects of training occurring at other times. These youth became more sensitive, learned about their body and mind, developed greater focus on long term goals, and felt greater confidence and happiness. This study was more of an experimental demonstration with little systematic evaluation, but the qualitative information from the students was very positive and consistent with other investigations.

From the research done in Korea, it appears that the BR method has positive effects on school performance, changes in development and behavior, brain functioning and stress reduction. Besides the effects of doing some exercise, methods such as BR seem to have much greater impacts than other approaches on both behavior and individual health. Additional research needs to be done, including a full-scale study, as suggested by Yu and Chang (1998). Yet the initial findings are suggestive of important and pervasive impacts from this method, especially with young children.

A focus of the present study was to see if the BR program could influence the behavior of children in a public school as well as influence the reading and math scores from a standardized test. Based on the previous research, it was expected that children participating in the BR program would be better able to focus their attention, would exhibit greater creativity, feel healthier, act more peacefully and kind to others, and would perform better on standardized reading and math tests.

Methods

Overview of the Program

The BR program consists of three areas: Wake-Up Gym exercises, Energy Focusing activities, and Brain Building exercises (Hayes, Lampi, & Leigh, 2002). While the original design of the program was to conduct these activities 5-10 minutes three times a week during the regular classroom period, the program was revised to provide greater opportunity for the children to participate in these exercises in more depth and for a longer period of time. The program used with this evaluation included two 50 minutes periods twice a week with both the fourth and fifth grade classes. All of the children in both classes participated in the program in varying degrees.

The Wake-Up Gym (a stretching program to stimulate and open the body's meridian system, stimulate internal body organs, and increase blood and oxygen flow through the body as well as to the brain) was conducted with all the children for about five minutes during the opening ceremonies of the school. However, these exercises also were done almost daily and in more depth during the regular program for the children in the treatment group.

The BR program also included exercises to practice energy focusing and thereby a focusing of attention as well. School work requires a focusing of energy and attention, but youth often do not know how to do it well, nor are they experienced doing this. The BR practice helps them learn how to get more in touch with the energy of their body, learning to focus it and their attention in fun and interesting ways. In addition, there were a variety of activities that created a more direct stimulation of the brain and expanding the use of the brain. These included simple hand or arm exercises where different hands or arms were doing different or opposite tasks, activities that included problem solving, and even a direct energy stimulation of the brain. Art and music activities were also included to create more connections between the left and right hemispheres of the brain or different pathways in the brain.

Participants

The participants in this project were two fourth grade and two fifth grade classes at an urban elementary school in the Southwestern part of the United States. This school is in a lower economic section of the city, with 93% of the children receiving free lunches. It also is an area of the city where the parents experience many challenges, with the children also being faced with many difficulties. This school also is composed primarily of minority students, with 68% African American, 28% Hispanic, and 4% Caucasian.

With only two classes in each grade, one was selected by the school principal to participate in the BR program (the treatment group) and the other class was used as a control group. Students in all four classes were asked to complete a self-report questionnaire at the beginning and at the end of the program. All four teachers completed an observational form for each student in her/his class just prior to the beginning of the program and again at the end of the program, approximately four months later.

Students participated in the program during their scheduled art class and one of the two physical education classes during the week. Each class lasted 50 minutes per period. During this time, physical, art, and problem solving activities were used to stimulate physical, mental, and creative aspects of the children's brains. They also reviewed parts of the brain, their function, as well as brain stimulating exercises.

Measures

There were four different measures that were used in the evaluation of this program. First, two instruments were developed to assess whether fourth and fifth grade children saw themselves any differently in several areas and whether teachers also saw any change in children's behaviors in these same areas. The same ten questions were asked of the children (self-report) and the teachers (observational report). These scales included questions about the child's ability to pay attention to details, stay on task, ignore external distractions, keep their attention on their work, and maintain attention during group activities. It also included questions about interacting peacefully with others, showing creativity, exhibiting self-confidence, being cooperative and kind with others, and feeling

healthy and flexible (see Table 4). These latter questions were other intended outcomes from the BR program beyond school performance issues. The alpha reliability scores for these scales were quite good for the student pre-test (.73) and the post-test (.78), and they were very strong for the teacher observational pre-test report (.96) and the post-test report (.97).

After receiving permission from the parents, scores from the Educational Testing Service Formative Assessment Item Bank were used to look at the impact of the program on school performance in reading and math (Educational Testing Service, 2009). These tests are given to the children every year to measure school performance, and the results were simply used to look at possible impacts from the program. While the BR program does not specifically train for improved reading and math performance, we were curious as to whether such impacts could be seen from the program. Fortunately, there were three assessment periods for both reading and math during the year. The first assessment occurred at the beginning of the school year and the second one just prior to the beginning of the program, allowing us to see how both classes performed before the program even began. The third test was conducted about three months into the program and about three weeks prior to the end of the program. Thus, the schedule of the assessments did not fit with the completion of the program, but it was as close to the end as possible given the structure and constraints on the elementary school. This was one difficulty in the structure of the evaluation of the program.

Because the program was begun later in the school year, many of the students were resistant to the program at first, especially with the fifth grade class. There were, however, only a small group of students (approximately seven in the fourth grade and seven in the fifth grade out of a class of 30-32) who maintained the resistance and had very little participation in the program. Therefore, as a check for effectiveness from actual program participation, scores were made for each student as to the level of participation (very little or none, somewhat, and quite a bit) at the end of the program and entered into the data set as a control variable. This score was done independently from the teacher, who did not know the participation level of the students, as they did not attend the classes themselves.

Two different types of analysis were conducted to look at group differences (Independent Samples T-Test) and change over time (Paired Samples T-Test). In addition to using the total scores for the student and teacher scales, analysis of group differences for individual items also was conducted to look at where the strongest changes took place, if any.

Results

The results of this evaluation provided mixed support for the expected outcomes. It was expected, for example, that students participating in the BR program would be better able to focus their attention, would exhibit greater creativity, feel healthier, and act more peacefully and kind to others than the control students. Generally, these expected results were supported by the study.

Students in the control group scored higher on the pre-test. Because of the resistance with a few students, a second analysis was conducted using only those students who participated somewhat or a lot in the program. This was done to see if there were effects when children participated more actively in the program ("Active Only" in Tables 1 - 4).

Table 1
Mean Comparisons by Groups

Group	Variable	Group mean	n	t	Sig. level	Group	Variable	Group mean	n	t	Sig. level
All	Student Pretest	1 = 38.63 2 = 35.08	41 60	2.907	.01	All	Student Posttest	1 = 39.09 2 = 40.35	56 52	-1.091	ns
Active Only	Student Pretest	1 = 38.63 2 = 34.98	41 47	2.955	.01	Active Only	Student Posttest	1 = 39.09 2 = 41.32	56 44	-1.979	.05
All	Teacher Pretest	1 = 36.40 2 = 31.47	53 60	2.693	.01	All	Teacher Posttest	1 = 39.00 2 = 38.17	51 60	.438	ns
Active Only	Teacher Pretest	1 = 36.40 2 = 34.91	53 46	.856	ns	Active Only	Teacher Posttest	1 = 39.00 2 = 43.13	51 46	-2.811	.01

Table 2
Mean Comparisons by Groups

Group	Variables	Group Mean	n	t	Sig. level
All	Read1	1 = 50.09 2 = 45.53	54 55	1.282	ns
Active Only	Read1	1 = 50.09 2 = 47.64	54 44	.634	ns
All	Read2	1 = 52.80 2 = 46.38	56 56	1.621	ns
Active Only	Read2	1 = 52.80 2 = 47.58	56 45	1.242	ns
All	Read3	1 = 48.64 2 = 40.89	55 57	2.216	.03
Active Only	Read3	1 = 48.64 2 = 42.67	55 45	1.583	ns
All	Math1	1 = 50.89 2 = 45.98	54 55	1.342	ns
Active Only	Math1	1 = 50.89 2 = 47.32	54 44	.916	ns
All	Math2	1 = 44.48 2 = 40.25	56 57	1.398	ns
Active Only	Math2	1 = 44.48 2 = 40.42	56 45	1.215	ns
All	Math3	1 = 50.09 2 = 43.04	55 57	2.316	.02
Active Only	Math3	1 = 50.09 2 = 45.07	55 45	1.522	ns

Table 3
Mean Comparisons over Time

Group	Variables	Means	n	t score	Sig. level
Control	Student pretest – Student posttest	1 = 38.63 2 = 40.32	41	-1.490	ns
Treatment (All)	Student pretest – Student posttest	1 = 35.43 2 = 40.59	51	-5.793	.001
Treatment (Active only)	Student pretest – Student posttest	1 = 34.75 2 = 41.32	44	-9.984	.001
Control	Teacher pretest – Teacher posttest	1 = 36.50 2 = 39.19	48	-4.529	.001
Treatment (All)	Teacher pretest – Teacher posttest	1 = 31.47 2 = 38.17	60	-9.312	.001
Treatment (Active only)	Teacher pretest – Teacher posttest	1 = 34.91 2 = 43.13	46	-11.812	.001

Table 4
Mean Comparisons over Time

Group	Variables	Means	n	t score	Sig. level
Control	Read1 – Read2	1 = 50.09 2 = 53.17	54	-1.211	ns
Treatment (All)	Read1 – Read2	1 = 45.69 2 = 45.96	54	-.137	ns
Treatment (Active only)	Read1 – Read2	1 = 47.64 2 = 47.68	44	-.021	ns
Control	Read2 – Read3	2 = 53.05 3 = 48.64	55	1.767	ns
Treatment (All)	Read2 – Read3	2 = 46.38 3 = 41.20	56	2.011	.05
Treatment (Active only)	Read2 – Read3	2 = 47.58 3 = 42.67	45	1.643	ns
Control	Math1 – Math2	1 = 50.89 2 = 44.85	54	3.562	.001
Treatment (All)	Math1 – Math2	1 = 45.98 2 = 40.33	55	2.718	.01
Treatment (Active only)	Math1 – Math2	1 = 47.32 2 = 40.34	44	3.007	.01
Control	Math2 – Math3	2 = 44.82 3 = 50.09	55	-3.269	.002
Treatment (All)	Math2 – Math3	2 = 40.25 3 = 43.04	57	-1.628	ns
Treatment (Active only)	Math2 – Math3	2 = 40.42 3 = 45.07	45	-2.469	.02

The higher scores for the control group occurred whether looking at the total treatment group or those who actively participated in the treatment group. There also was a difference with the teacher observations, with the control group scoring significantly higher than the total treatment group on the pre-test, although that was not true for those students who were active in the program.

With the post-test scores, there was no significant difference between the control and total treatment group because of the significant increase in the post-test scores of the treatment group. For the participating treatment group, the increase was significantly higher than the control group, reversing the pattern of the pre-test differences. A similar pattern was found with the teacher observations. With the increase in scores for the total treatment group, the significant difference found in the pre-test scores was eliminated. For the participating treatment group, there emerged a significantly greater average for the treatment group than the control group for the overall observation scale scores.

When looking at changes over time with the student self-report surveys (Table 3), there was a significant increase with the total treatment group and the Participants Only treatment group from pre-test to the post-test, but no significant difference with the control group. With the teacher observations, there was a significant difference with all three groups. The greatest differences, however, were with the treatment groups, especially those who participated in the BR program.

In order to look at where the greatest differences occurred with the post-test questions on the student self-report and the teacher observations, group difference tests were run for each of the ten questions on both scales. Interestingly, where there were significant differences between the control group and the participating treatment group questions, they were similar for the student and teacher reports (see Table 5).

Table 5
Group Comparison for Individual Student and
Teacher Question on the Post-test

Student responses	Attention to details	1 = 56 2 = 44	3.75 4.32	-2.764	.01
	Peaceful with others	1 = 56 2 = 44	3.55 4.02	-2.274	.03
	Show creativity	1 = 56 2 = 44	3.78 4.16	-2.331	.03
	Stay on task	1 = 56 2 = 44	3.79 4.20	-2.212	.03
	Self-confidence	1 = 56 2 = 44	4.30 4.41	-.551	Ns
	Ignore Distractions	1 = 56 2 = 44	3.80 3.84	-.191	Ns
	Cooperation and kindness to others	1 = 56 2 = 44	3.72 4.11	-1.979	.05
	Attend when interested	1 = 56 2 = 44	4.30 4.41	-.528	Ns
	Healthy and flexible	1 = 56 2 = 44	4.11 4.30	-.858	Ns
	Attention in group activities	1 = 56 2 = 44	3.66 3.70	-.227	Ns
Teacher observations	Attention to details	1 = 51 2 = 46	3.43 4.22	-4.312	.001
	Peaceful with others	1 = 51 2 = 46	3.92 4.50	-2.936	.01
	Show creativity	1 = 51 2 = 46	3.88 4.28	-2.550	.01
	Stay on task	1 = 51 2 = 46	3.51 4.20	-3.356	.001
	Self-confidence	1 = 51 2 = 46	4.04 4.28	-1.491	Ns
	Ignore Distractions	1 = 51 2 = 46	3.53 4.07	-2.411	.02
	Cooperation and kindness to others	1 = 51 2 = 46	4.04 4.41	-1.966	.05
	Attend when interested	1 = 51 2 = 46	4.10 4.28	-1.107	Ns
	Healthy and flexible	1 = 51 2 = 46	4.49 4.72	-1.813	Ns
	Attention in group activities	1 = 51 2 = 46	4.06 4.33	-1.590	Ns

For the student survey, significant differences occurred for attention to details, acting peacefully with others, showing creativity, staying on task, and being cooperative and kind to others. Besides these same five questions for both student reports and teacher observations, there also was a significant difference in the student's ability to ignore distractions between the two groups according to the teachers at the time of the post-test. While teachers observed a difference in students, they did not seem to identify nor did they report such a difference.

A somewhat different picture for the effects of BR emerges when investigating the standardized reading and math test data. There was no significant difference between the treatment and control group with the first reading assessment (see Read1 in Table 2) or with the second reading assessment (Read2). In addition, there was no significant increase from the first to the second assessment (see Read1-Read2 in Table 3). There also were no significant differences in the math scores from the first to the second assessment (Math1 & Math2 in Table 2), but there was a significant decline in math scores for all groups between the two assessments (Math1-Math2 in Table 4).

When looking at those who were active in the program, there still was no significant difference between groups at the two assessment periods or any significant changes from the first to the second assessment period for reading scores, but there also was a significant decline in the math scores for this group of children.

There was a difference between the two groups at the third reading and math assessment period. However, with reading, the difference occurred only for the total treatment group and was in the opposite direction as expected. This decrease in scores was not so much a decline in reading ability but a lack of increase in performance given the greater expectation for reading by the end of the school year. What is clear is that the active BR students and the control group performed better in reading than those who were not active in the BR program, given the lack of significant difference between the reading scores of the active treatment group and the control group.

With the math scores, there was a difference between the total treatment and control group, but it was the control group who had the higher average in scores. There was no significant difference, however, when comparing the participating treatment group with the control group. In addition, there was an increase in the scores from the second to the third assessment, but there was a significant increase only for the control group (which had the highest mean) and for those who were active in the BR program. When the total treatment group was considered, there was no significant increase in average math scores.

It was the control group who performed the best over the year in reading and math scores. There is some support, in an indirect manner, that the BR program may have been helpful in the performance of those who participated. Yet the program did not have a greater effect even on those participating when looking at standardized test scores in comparison to the control group. There are some possible explanations for these results, which will be described in the Discussion section.

Discussion

From the beginning, we wanted to see if we could influence the behavior and attention focusing of this group of elementary school children, as well as increase the reading and math scores with a 12 week program. We were not able to significantly increase the reading and math scores, but we were able to influence their behavior and attention focusing, which may be as important, or more important, in the long run.

Where effects from the BR program were seen, they occurred with both the student self-report of behaviors and the teacher observation of behaviors. While the control group also had the higher scores on the pre-test for self report and teacher observations, it was the participating treatment

group that had the highest scores for the student survey and the teacher observation. They also exhibited the highest changes in scores over the four month period, again suggesting that the BR program had some immediate effects in this area. These findings are strengthened when the results are consistent across the two different methods (self-report and observation).

What also is interesting and strengthening of the findings is that the differences were quite similar for the individual questions on the student survey and the teacher observation. Some of these differences had to do with the focusing of attention to details and staying on task. In addition, however, there were differences in the reports of students behaving more peacefully, cooperating and showing kindness to others, and exhibiting more creativity. All three of these latter student characteristics were important aspects of the program and were supported by the results of both the student as well as the teacher reports.

While it was anticipated that students would perform better on reading and math tests after participating in the BR program, this did not turn out to be supported with this sample of students. Those who participated in the program did as well as the control group (or had a similar decline, as was the case in the reading scores from the second to the third assessment and math scores from the first to the second assessment), and they seemed to do better than those who did not participate. However, the students who did not participate in the BR program also may not have participated as much in class. While they were dropped out of the second analysis only because they were not as active in the treatment program, they also may have been the weaker students in general and were participating less in any school activities. Further analysis revealed that they had lower means than those who participated, although the only significant differences were with reading at the first assessment and math at the third assessment. It also is possible that the BR program helped students do better than they otherwise might have done. What is clear is that with this sample, the BR program did not help students do better than the control group in either the reading or math performances on a standardized test.

The group average test scores indicated that the 4th and 5th grade control classes scored better than the two treatment classes. Even when all the classes experienced a decrease in reading scores from the second to the third assessment, the control group classes still has a higher average. The same is true for the decrease in math scores from the first to the second assessment, as well as the increase in math scores from the second to the third assessment. In each case, the average score was higher for the control group. The BR program did not have an effect to overcome such differences.

One reason for the lack of observed effect may have to do with the timing of the third assessment. It took time to move the children beyond the initial assessment, and some of the strongest effects of the program from a qualitative assessment seemed to take place in the last month. If the test were given at the very end of the year, there may have been a little more difference in impact. It also may be that while the BR program seems to effect some areas related to test performance, such as increased attention to details or staying on task, these effects may not have generalized to the test-taking situation without greater emphasis on such application. While the application was done to a small extent, more direct application may be important. It also may be that the changes in student behavior may take more time to generalize to situations such as taking tests or other more stressful situations.

Another possible explanation for the lack of difference in the reading and math assessment compared to the student and teacher observations may be related to the final activity of the program. Students

in the BR program were given an opportunity to participate in one of three activities that later were performed in an assembly for the entire elementary school as well as many attending parents at the end of the academic year. These activities involved a slow martial art demonstration as a group (a type of tai chi performance), where the students performed moves using their energy to guide them in unison. A second activity was a dance, demonstrating some of the exercises and class activities to a rhythm and blues song. The third group developed a rap performance as a group, picking their music and writing the words that identified something each had learned about the brain and about themselves from the class. In this latter case, they also decided as a group how each student's written piece would fit into the group's performance, the sequence of the participation, and body movements and staging of the performance. In many ways, the development of this activity seemed to increase the internalization of things they had learned in class as well as the children's confidence in their own abilities.

The final student report and the teacher observations were done during the last week of school as the students were doing final preparations and demonstrating the performance for others, even with each other during dress rehearsal. The same students who had not participated in the BR program had difficulty and ended up not participating in the performance activities because they did not want to cooperate with the group practices. This difference in timing of the reading and math assessments almost three weeks prior to the final performance and the student/teacher reports may have something to do with the differences in impact of the program seen in the student and teacher reports in contrast to the standardized assessments.

As indicated earlier, the results provide mixed support for the effects of BR on elementary school children. There seems to be effects of BR according to the reports of the students and the observations of their teachers. It also appears that such effects are greatest when students have more active participation, which generally is true of any effective program. On the other hand, there does not seem to be support from this project for effects of the program on test performance, although it may have helped some do as well as the control group.

Recommendations

While there were limitations to this study, there also is sufficient support to warrant further investigation of the effectiveness of Brain Respiration on children. It will be important to incorporate other measures, including other standardized tests or actual measures of creativity. It also would be important to look at the effects when the program is implemented at or near the beginning of the school year rather than when schedules and patterns already are established with the school children. Finally, it would be important to allow more time for generalization of the learned skills to situations that are more stressful and anxiety provoking, such as standardized test taking periods, especially when such tests have implications for the evaluation of teachers and entire schools. At the same time, BR shows promise in impacting students in several important ways and more comprehensively than most single programs.

Table 6
Student Self-Report Survey

<i>HOW OFTEN DO YOU:</i>	Never Or rarely always	Once in a while	Sometimes or some of the time	Most of the time	Very often or almost always
1. Always follow instructions and not make mistakes					
2. Behave peacefully and nice to others					
3. Come up with different ways to do things, be creative					
4. Work on something till it is done or complete					
5. Feel good about yourself					
6. Really focus on school work					
7. Be cooperative and kind to other students					
8. Keep attention on work when you are interested					
9. Feel loose, strong, and healthy					
10. Pay attention in class or in small groups					

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Assessing the Civic Attitudes and Participation of Urban Elementary Students

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Assessing the Civic Attitudes and Participation of Urban Elementary Students

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Abstract: Presented is a report of a study conducted to examine Common Cents' Penny Harvest program in New York City public elementary schools. Penny Harvest is a service learning program designed to promote positive social and civic values among youth. The goal of this paper is to analyze the strengths and weaknesses of the research design in an effort to contribute new insight into effective and appropriate ways to measure civic-service-program success. Additionally, this work provides program results for the program evaluated. Our findings indicate that students in New York City public schools are highly involved in service projects – both in-school and outside of school. We present additional evidence on how such participation is related to a host of social and civic attitudes. Finally, we critique the research design used in this study and offer improvements to be made in future studies.

Introduction

The evaluation of service-learning and civic instruction has grown both in number and quality, over the last decade, with attempts to better understand and describe civic instruction and community service effects on student outcomes. For the most part, evaluations have found that service learning programs enhance a host of student outcomes, including students' sense of social responsibility, civic engagement, personal efficacy, academic learning, and critical thinking skills (Astin & Sax, 1998; Astin, Sax, & Avalos, 1999; Markus, Howard, & King, 1993).

Research has indicated that participation in a service learning program leads to a variety of personal development outcomes such as re-education of risk taking behaviors, self-efficacy, potency (one's belief that he/she can make a difference), resilience, social competence, acceptance of diversity, and related constructs (S. Billig, 2000). This work also has shown that youth who participate in such

programs have enhanced social skills and more favorable attitudes toward adults (Hamilton & Fenzel, 1988). Similarly, Billig (2000) finds that service learning has positive effects in three domains: academic/cognitive, civic, and personal/social.

In general, service learning has positive effects for students in a variety of arenas (Astin & Sax, 1998; Scales, Roehlkepartain et al., 2006; Tannenbaum & Brown-Welty, 2006). For example, in one recent study (Scales, Blyth et al., 2000) differences between the participants and non-participants were found on measures of concern for others' welfare, positive perceptions of the opportunities for personal development in schools, pursuit of higher grades, and self-efficacy. Service learning was associated with higher gains in each of these areas over the period that the surveys covered.

Taken together, these studies provide evidence of the potential benefits of service programs for students. Results indicate that participation in such programs helped students develop their personal leadership skills, define their career goals, gain a better appreciation for their academic work, and develop a spirit of involving themselves in the community. Yet much work remains to learn about how these programs influence students and outcomes.

Despite this encouraging set of findings, the research designs employed to study the effects of service learning have significant limitations (S. Billig, 2002). Some of these limitations are related to the characteristics of the sample studied, particularly to sample size and sample selection. Additionally the ways service learning and its benefits are measured have been identified as restrictive (Alt, 1997; Koliba, Campbell, & Shapiro, 2006). One of the largest concerns with regard to samples is the likelihood of selection bias as most students and schools involved in such programs have self-selected into them and into evaluations of the programs. Additionally, there are often incomplete, as well as poorly constructed, data due to the nature of the population studied. Previous service learning evaluations have focused primarily, if not exclusively, on students in older grades (from grade 7 upward). This focus on older ages is the result of both the fact that most service learning programs are oriented toward older students and that the few programs focusing on younger grades have received little research attention. Only a handful of studies have looked at these issues for an elementary grade population (Chi Jastrzab, & Melchior, 2006).

One recent exploration into younger children's perception of service learning found that even among kindergarten children there were positive results associated with service learning activities (Smith, 2007). Similarly, the Michigan Learn and Serve study reports the impacts of service learning on students in grades 2-5, finding the effects for this age are stronger than for students in grades 7-12. This study finds that those involved were more engaged in English language arts classes than their counterparts not involved in such programs (S. Billig, 2004; S. H. Billig & Klute, 2003). In a study based in California, Furco (2002) documented significant differences between students who performed service and those who did not for each of the six educational domains measured by the survey (academic, career, civic, ethical, personal, and social). Students who performed service developed more positive attitudes toward school, themselves, others, the future, and their communities.

In this paper, we report on the results of a study of a service-learning program based in New York City's public schools: the Penny Harvest program. We first describe the model of the program, then provide an account of the innovative strategy used to research the program. We then report the findings from our analysis and conclude by analyzing the strengths and weaknesses of the research design.

The Penny Harvest Program

Penny Harvest is a multi-faceted program designed to transform the multi-million-dollar resource of idle pennies into the philanthropic property of children. By teaching students to recycle their community's pennies and use them to make a difference, the program is structured to develop a new generation of active citizens committed to social justice, tolerance, and democracy. The goals of the Penny Harvest program are broad, covering a wide range of possible outcomes. Students who participate are expected to improve in a variety of realms of personal beliefs: gaining self-confidence and self-awareness, increasing their sense of caring and social justice; feeling empowered to help ameliorate social problems, and reducing negative stereotypes of others different than them. In addition, students are expected to develop leadership ability and view themselves as more competent social actors in solving social problems.

Common Cents was founded in 1991 to promote the Penny Harvest, then an annual youth campaign to help homeless people by collecting pennies and using the funds to purchase food and clothing. Over the last 17 years, this community service evolved into the Penny Harvest Program – a versatile, year-long progression of classroom and school-wide service-learning experiences. A fully matured Penny Harvest Program engages very large numbers of students within a given community in resource mobilization, youth philanthropy, youth service, civic engagement and peer mentoring.

The Study

To examine the social, civic, and academic engagement of students participating in the Penny Harvest, we conducted a research study to interview students in grades 3 through 5 at a set of public schools across New York City. We developed a survey instrument that would facilitate comparisons between students in New York City and other locations. Students were interviewed twice during the school year: once in the fall semester, before the Penny Harvest program for the school year had begun, and once in the spring, after the program had finished for the year.

Sample of Schools and Students

We selected a set of schools based on a set of criteria, including geographic location (borough), characteristics of the student population, and features of the program's operation in the school. A group of ten well-established schools from the subset of all city elementary schools in which the program has been operating for more than two years were selected. "Mature" schools were identified as we wanted to make certain that there was relative consistency in the program elements in the evaluation period and we wanted to reduce the possibility that our findings might be influenced by fidelity of implementation.

Because schools chose whether or not to participate in the Penny Harvest program, it was difficult to find appropriate comparison or control schools within the city. That is, the factors that are related to whether or not a school participates in the program, arguably, are likely to be related to the outcomes the program. Therefore, given the lack of suitable comparison schools within the district, we chose to focus only on schools with programs in our analysis. For comparison with non-Penny Harvest schools, we draw upon research instruments used in other districts, as described below.

Within each school, we sought to interview two classes per grade, administering the interview to all students in the class for whom parental permission to participate in the study was granted. The percentage of students in third through fifth grade that this selection process yielded varied

substantially by the size of the school. For the smallest of the schools in the study, two classes represented the entirety of the grade, while for others, two classes was one-fourth or less of the student population.

Research Instruments

We drew our questions from a set of surveys previously conducted in other urban settings. Most items were taken from the University of California at Berkeley's Service-Learning Research and Development Center's Civic Responsibility Survey National Survey of Student Engagement (Furco, Muller, & Ammon, 1998) and the MacArthur School Engagement Survey from Phyllis Blumenfeld and her colleagues at the University of Michigan (Blumenfeld, 1998). These two research instruments have been used on a variety of students in different settings. Moreover, as noted earlier, by using these instruments, we are able to compare students in Penny Harvest schools with students in other, similar districts.

Interview Protocol

Students participating in the study were asked to respond to a series of interview questions that evaluated attitudes and behaviors hypothesize to be related to participation in the Penny Harvest Program. In order to ensure that students understood each question and that linguistic and literacy differences did not influence the results, the interviews were administered in a group setting. A copy of the research instrument was distributed to each student so that their answers could be recorded privately. However, an interviewer read each question aloud and waited for students to complete their answers, a procedure that helped alleviate confusion about meaning.

Analysis

The analysis consisted of three parts: first, an examination of the results from data collected in the fall; second, a similar examination using data collected in the spring; third, a comparison of fall and spring, looking at changes and differences between schools and grades. For all analyses, we use fixed effects multiple regression, to control for the confounding influences of individual-level factors as well as potentially important between-school differences.

Results – Fall 2005

The first question addressed asked how many students participated in service learning activities prior to the 2005-06 school year. Although the Penny Harvest program is designed to increase student participation, we needed to know something about the number of students who have participated in service learning activities earlier for the sake of comparison. To gauge this, the survey instrument included two questions: one that assesses whether the student had participated in service projects in school in earlier years and another that asked whether the student had participated in service projects outside of school.

When examining the data for the fall 2005 wave, several factors stood out as key contributors to whether a student participates in service. These prominent factors were school, gender, and grade in school. Certain schools showed a greater likelihood of participating in service than others, and girls were more likely to have done a service project than their male counterparts.

Table 1

	% Participating in School-Based Service Projects	% Participating in Service Projects Out of School
Overall	81.3%	41.9%
Male	76.6% **	37.8% *
Female	85.3% **	45.4% *
3 rd Grade	80.6%	43.6%
4 th Grade	72.9%	42.2%
5 th Grade	90.5%	40.0%
School Range	69.6% - 97.3%	27.7% - 57.1%

N=708

We used the chi-square test for independence to analyze the relationship between service performed outside of school and the variables for school (i.e., each individual school in the survey sample), gender, and grade (3rd, 4th, or 5th). School and gender both showed a significant correlation to service outside of school. School #4 demonstrated the highest level of service participation outside of school at 57.1% (n=21). The second highest level occurred at School #5, where 55.4% of students indicated taking part in service outside of school (n=74). School #3 showed the least amount of participation outside of school at 27.7% (n=141). 45.9% of girls said they did service outside of school (n=355) as compared to 37.9% of boys (n=314). Finally, the chi-square analysis showed that there was no significant difference between the participation in service outside of school and grade. That is, being in third, fourth, or fifth grade did not affect whether a student participated in service outside of school. Our sample was composed of 225 third graders, 225 fourth graders, and 220 fifth graders.

In addition to analyzing service outside of school, we examined service projects students completed in connection with the school the previous academic year. We utilized the chi-square test for independence to examine the relationship between school, gender, and grade and student participation in service in school in the last school year (service last year). All three comparison variables demonstrated a significant relationship with service in the previous year (2004-05). School #5 had a 97.3% level of participation in service during 2004-05 (n=74), the highest percentage in the sample. The second highest level of service before Penny Harvest's entrance occurred in School #9 at 93.0% (n=114). School #7 showed the lowest percentage of service previous to 2005 at 69.6% (n=102). The fact that School #7 reported the lowest amount of service before the 2005 school year, but still had nearly 70% participation illustrates that our student sample population came into the study with a prior history of taking part in service projects with their schools.

As was the case in service outside of school, girls in the sample participated more in service projects in 2004-05 than boys did. 85.6% of girls (n=355) said they did service "last year", while 76.4% of boys (n= 314) reported doing so. Contrary to the lack of difference shown when examining grade and service outside of school, grade did impact service in the year before the interview. Fifth graders were the most likely to have done service before the program start at 90.5% (n=220). 80.9% of third graders (n=225) said they did service "last year," while 72.9% of fourth graders (n=225) indicated performing service the same year. These results may point to a tendency for schools to incorporate service projects in the classroom at certain grade levels more than others.

Factor analysis enabled us to combine multiple questions in the survey into a few core measures of student attitudes and behavior. The measures we constructed from the factor analyses included: Engagement, Good Behavior, Being a Good Student, and Helping Others. These measures were constructed based on the survey questions as described in the Technical Appendix accompanying this report. Correlations are reported in the tables below:

Engagement and Good Behavior were the strongest of these measures with alphas of 0.87 and 0.71, respectively. Being a Good Student (alpha=0.63) and Helping Others (alpha= 0.58) were slightly less powerful measures but still provided a high enough correlation of survey questions that we felt confident in including them in our analysis.

We tested each of these factored measures against service outside of school, school, gender, grade, and service last year. The relationships between these factors and our measure of student engagement, presented in Table 2 below, demonstrated a significant relationship with service outside of school ($r = -0.10$), gender ($r = 0.25$), and grade ($r = -0.16$). Our study found that students who have participated in service projects outside of school are more engaged with their schoolwork, as compared with those who have not. Similarly, females are significantly more engaged with their schoolwork than are their male counterparts. The negative value for the measure for grade indicates that students in fifth grade are significantly less engaged in their schoolwork than are younger students. There was no significant relationship between engagement and the school and service last year variables.

Table 2
Student Engagement – Fall 2005

Factored Var	Other Var	Correlation	Sig.
Engagement	Service Outside	0.1010	0.0108
	Grade-Level	-0.1620	0.0000
	Female	0.2486	0.0000
	Service Last Year	0.0701	0.0772

The figures in Table 3 below examine the relationship between the same set of factors and the composite measure of good behavior. The figures in the table show several significant relationships, such as that with gender, indicating females report better behavior in school than their male classmates. In addition, service outside of school is significantly related to behavior in school, with those participating in service projects outside of school having better behavior than those who did not. Similarly, participating in a service project in school in the previous year is positively and significantly associated with good behavior. As with student engagement, student's grade in school is negatively associated with behavior, indicating older students have worse behavior than do younger students. School was not significantly correlated with engagement.

Table 3

Good Behavior in School – Fall 2005

Factored Var	Other Var	Correlation	Sig.
Good Behavior	Service Outside	0.1376	0.0004
	Grade-Level	-0.1124	0.0040
	Female	0.2145	0.0000
	Service Last Year	0.1890	0.0000

Helping Others was significantly correlated with three of the five tested variables. Gender and Helping Others were positively related ($r = 0.23$), as well as service outside of school ($r = 0.12$) and service last year ($r = 0.12$) both demonstrated positive relationships with Helping Others.

Table 4

Helping Others – Fall 2005

Factored Var	Other Var	Correlation	Sig.
Helping Others	Service Outside	0.1207	0.0019
	Grade-Level	-0.0082	0.8341
	Gender	0.2315	0.0000
	Service Last Year	0.1158	0.0029

The Being a Good Student variable only showed a significant relationship with gender ($r = 0.27$), and this relationship was positive. Service outside of school, grade, school, and service last year were not significantly correlated with Being a Good Student.

Table 5

Being a Good Student – Fall 2005

Factored Var	Other Var	Correlation	Sig.
Being a Good Student	Service Outside	0.0365	0.3479
	Grade-Level	-0.0702	0.0711
	Gender	0.2690	0.0000
	Service Last Year	-0.0035	0.9281

The outcome examined in Table 6 is an assessment of how strongly the student is oriented toward others and would prefer to do things with and for others, rather than by and for him/herself. All four of the predictors are significantly related to the measure of being oriented toward others. Both service outside of school and in the past year are positively related to an orientation toward others. Females are significantly more likely to have an orientation toward others, relative to their male peers. The negative coefficient for grade indicates that older students are less oriented toward others than are their younger counterparts in school.

Table 6

Oriented toward Others – Fall 2005

Factored Var	Other Var	Correlation	Sig.
Other-Oriented	Service Outside	0.0803	0.042
	Grade-Level	-0.1508	0.0000
	Gender	0.2474	0.0000
	Service Last Year	0.1027	0.009

In summary, it is interesting to note that gender was the only variable which was both significantly and positively correlated with all of the five factored measures. In addition, the correlation coefficients were quite similar for gender and the factors: Engagement ($r = 0.25$); Good Behavior ($r = 0.21$); Being a Good Student ($r = 0.27$); and Helping Others ($r = 0.23$).

In order to further examine whether significant differences existed between schools in the sample, we tested the intra-class correlation (ICC) between the factored variables and the school variable. The ICC value indicates the percentage of the outcome's variance which is attributable to between-school differences. Engagement, Good Behavior, and Help Others all returned significant differences between the nine study schools, but Being a Good Student did not illustrate any significant difference. Help Others showed the largest percentage between-school difference at 2.1%, while Good Behavior showed a 2.0% difference. The smallest difference occurred in the Engagement variable at 1.4%. These low percentages indicate that the students' responses to the factored survey questions were quite similar overall. This result also highlights the fact that although students in the study schools seem to share similar levels of Engagement, Good Behavior, Being a Good Student, and Helping Others, there are other factors driving the differential service participation between the schools. School variation was small when comparing school with the factored measures of students' attitudes and behavior, but school was strongly correlated with students' participation in service outside of school and service last year.

Results – Spring 2006

In the late spring of 2006, we re-interviewed students in the same grades in the same schools using the same survey instrument. Results from the data collected through these interviews are presented in this section. As with the data from the fall interviews, we created combination measures of student responses using factor analysis, then looked at the relationship between each of these factored measures against service outside of school, school, gender, grade, and service last year. The relationships between these factors and our measure of student engagement, presented in Table 7 below, demonstrated a significant relationship with, gender ($r = 0.25$), grade ($r = -0.16$), and service last year ($r = 0.24$). That is, students who have participated in service projects outside of school are more engaged with their schoolwork, as compared with those who have not. The correlation between gender and engagement is much larger in the spring data than in the fall ($r = 0.51$ in the spring, 0.25 in the fall). Interestingly, the variable for service outside of school, which was significantly related to engagement in the fall interview, is not related to engagement in the spring.

Table 7

Student Engagement – Spring 2006

Factored Var	Other Var	Correlation	Sig.
Engagement	Service Outside	-0.0471	0.556
	Grade-Level	-0.2257	0.0000
	Female	0.5081	0.0000
	Service Last Year	0.2408	0.0080

The figures in Table 8 below examine the relationship between the same set of factors and the composite measure of good behavior. The figures in the table show several significant relationships, such as that with gender, indicating females report better behavior in school than their male classmates. In addition, service outside of school is significantly related to behavior in school, with those participating in service projects outside of school having better behavior than those who did not. Similarly participating in a service project in school in the previous year is positively and significantly associated with good behavior. As with student engagement, student's grade in school is negatively associated with behavior, indicating older students have worse behavior than do younger students.

Table 8

Good Behavior in School – Spring 2006

Factored Var	Other Var	Correlation	Sig.
Good Behavior	Service Outside	0.3443	0.0004
	Grade-Level	-0.1604	0.0010
	Female	0.4901	0.0000
	Service Last Year	0.5257	0.0000

As with the variables shown in Table 7, the correlations between good behavior and each of the measures is greater than was the case in the fall. The magnitude of change varies, though most correlations are at least twice their levels of those in the fall data. Also similar to the relationships observed in the fall data, the measure for helping others was significantly correlated with three of the four tested variables. Gender and Helping Others were positively related ($r = 0.23$), with females more likely to be oriented toward helping others. Both of the service variables are positively and significantly related to Helping Others.

Table 9

Helping Others – Spring 2006

Factored Var	Other Var	Correlation	Sig.
Helping Others	Service Outside	0.2406	0.002
	Grade-Level	-0.0689	0.152
	Gender	0.4373	0.000
	Service Last Year	0.2709	0.003

The Being a Good Student variable only showed a significant relationship with gender ($r = 0.58$), and this relationship was positive with a correlation approximately twice that of the relationship observed

in the fall data. Service outside of school, grade, and service last year were not significantly correlated with Being a Good Student.

Table 10
Being a Good Student – Spring 2006

Factored Var	Other Var	Correlation	Sig.
Being a Good Student	Service Outside	0.1336	0.092
	Grade-Level	-0.0840	0.080
	Gender	0.5862	0.000
	Service Last Year	0.1490	0.099

Table 11 is an assessment of how strongly the student is oriented toward others and would prefer to do things with and for others, rather than by and for him/herself. Three of the four predictors are significantly related to the measure of being oriented toward others, with grade in school the only non-significant. Both service outside of school and in the past year are positively related with an orientation toward others. Females are significantly more likely to have an orientation toward others, relative to their male peers.

Table 11
Oriented toward Others – Spring 2006

Factored Var	Other Var	Correlation	Sig.
Other-Oriented	Service Outside	0.2754	0.042
	Grade-Level	-0.0691	0.150
	Gender	0.4797	0.000
	Service Last Year	0.3050	0.001

Results – Comparing Spring 2006 and Fall 2005

The first question addressed is whether and to what extent student measures changed between the fall and spring interviews. Measuring and assessing these changes is an essential first step in examining what kinds of effects the program might have over the course of the year. Table 12 below compares levels of student outcomes for each of the five outcomes examined.

Table 12
Comparing Levels of Student Outcomes in Fall and Spring

Variable	Fall 2005	Spring 2006
Student Engagement	20.90	19.16
Good Behavior	23.29	22.92
Being a Good Student	16.23	15.77
Community Orientation	10.20	10.08
Oriented Toward Others	11.43	11.37

Overall, the levels of outcomes stayed constant or declined somewhat between fall and spring. Some measures, such as community orientation or orientation toward others, changed very slightly between the two interviews. Student engagement declined over the interval more substantially.

These overall differences mask some interesting differences within categories of students. One important dimension of difference is gender, as shown in Table 13 below. For each of the outcomes examined, females have a higher level at both points in time.

Table 13

Comparing Levels of Student Outcomes in Fall and Spring, by Gender

MALES Variable	Fall 2005	Spring 2006
Student Engagement	19.19	17.44
Good Behavior	22.49	21.97
Being a Good Student	15.43	14.79
Community Orientation	9.85	9.74
Oriented Toward Others	11.23	11.11

FEMALES Variable	Fall 2005	Spring 2006
Student Engagement	22.39	20.75
Good Behavior	23.99	23.82
Being a Good Student	16.93	16.70
Community Orientation	10.51	10.40
Oriented Toward Others	11.60	11.60

Another important dimension of difference is the grade level of students. Overall, our measures of student outcomes reveal that fifth graders generally have lower outcomes than do students in other grades studied. They are less engaged in school, exhibit worse behavior, and are less oriented toward their communities and others. The figures presented in Table 14 below document these differences.

Table 14

Comparing Levels of Student Outcomes in Spring, by Grade

	3 rd Grade	4 th Grade	5 th Grade
Student Engagement	0.2689	-0.0368	-0.1873
Good Behavior	0.1208	0.0831	-0.1922
Being a Good Student	0.0915	-0.0005	-0.0770
Community Orientation	0.1061	-0.0013	-0.0882
Oriented Toward Others	0.0560	0.0296	-0.0793

On all measures, third graders had the most positive outcomes, while those of fifth graders are lowest. However, there are important differences between schools in the outcomes of fifth graders. The students of this grade in some schools have very different levels of each of the outcomes. In the table below, School A is a school where the Penny Harvest program seems to be working very well,

School B one where it is not working as well, and School C is a well-functioning program with a student population with a high level of poverty.

Table 15

Comparing Levels of 5th Grade Student Outcomes in Spring: Three Schools

	School A	School B	School C
Student Engagement	0.2513	-0.7453	-0.1313
Good Behavior	-0.0474	-0.6452	-0.3549
Being a Good Student	0.1637	-0.4254	-0.3873
Community Orientation	0.1436	-0.5388	0.0753
Oriented Toward Others	0.2793	-0.3230	0.0010

Comparison with Students in Other Cities

Though this examination of the Penny Harvest program was performed only in New York City, its design has been carefully created to allow comparison between it and other Penny Harvest programs in different cities. Additionally, the careful modeling of the survey on Berkeley’s Civic and Social Responsibility Survey will allow further comparison between this evaluation and other evaluations using the Berkeley survey.

Thus, we compared responses for students in New York City with those from urban areas in which the Berkeley study has been used. This comparison suggests that the Penny Harvest program outperforms other similar service learning initiatives. The questionnaire measures ‘self interest versus community interest’ as well as ‘altruism.’ The first component includes items such as “I would rather spend time on my own activities than help someone else learn something” (reverse scored) and “It’s important for all students to help out their school or community.” The aggregate measure of altruism includes questions such as “I share things with others” and “I cheer up people who are feeling sad.” Both composite measures exhibit validity and reliability. T-tests revealed that our sample was significantly more interested in their community ($t=32.69$, $p<0.001$) and significantly more altruistic ($t=12.12$, $p<0.001$) at posttest than the Berkeley sample. Unfortunately there are few other studies to which we can compare results indicating a great need for further study.

Discussion

Explication of Results

The analysis reveals that this sample of New York City public elementary school students is highly involved in service projects, both inside (over 80 percent) and outside (over 40 percent) the school system. Such participation in service activities has been linked to a myriad of positive effects spanning civic, social, and academic realms. As expected, involvement in service projects both inside and outside of school was correlated with good behavior, helping others, and being oriented towards others, in both the fall and the spring semesters. Correlations with engagement were also evident, albeit less consistent. Being a good student is the only variable that was not correlated with service involvement. In general, the spring 2006 results were much more robust than the fall 2005 results.

Despite the correlations reported above, levels of engagement, good behavior, helping others, being a good student, and having an other-orientation were very similar in both the fall and the spring. One explanation for this is that it may be difficult to attain changes over such a short period, an

explanation that suggests the need for longer term studies of this nature. That is, the effects of participation in the Penny Harvest program may be evident over the longer term of children's development, a time frame that would make it difficult to detect effects through this study design. It could also be that the similarity from one time point to the next may also reflect a ceiling effect. This sample of students already exhibited high levels of all factored measures in the fall.

The similarity of levels of beneficial and positive beliefs at both points may also result from the research design itself – particularly from the strategies used to select schools. In selecting schools in which the program had been running successfully, the design may have inadvertently screened out schools where the program's benefits may be most profound. The most dramatic effects of the program are most likely to occur at the outset of program implementation. The present sample only studied schools in which the program was already well-established, and had been in operation for at least two previous years. Indeed, as the participation results illustrate, the large majority of these students were already highly involved in service activities. The fact that outcomes remained high, however, speaks to the effectiveness of the Penny Harvest program, and the importance of schools' continued involvement with service learning. Past research has indicated that, over time, even strong effects of the best implemented programs disappear at follow-up (Melchoir, 1997).

Demographic Differences: Schools, Grades, Gender

While different schools exhibit different rates of participation in service activities, even the school with the least amount of reported service, still attained participation rates of nearly 70%. Participation outside of school was substantially lower, but the range of differential rates between schools was similar. There was little between school variation with respect to engagement, good behavior, helping others, and being oriented towards others, and virtually no variation with respect to being a good student. This may indicate that despite variations in the program between schools, the core aspects of this service learning initiative, shared by all schools, bear the most impact on students.

Differences between grades were minimal in terms of the amount of service activity performed outside of school, with younger participants only slightly more active than older students. Within school, 5th graders were most actively involved, followed by 3rd graders and then 4th graders. Interestingly, younger students were more engaged in their schoolwork and exhibited better behavior. They also demonstrated more of an other-orientation in the fall. This demonstrates that perhaps the program has a stronger impact on younger individuals. Since most research has not explored this elementary-school age-group, it is especially intriguing that it is the youngest individuals in this sample that are most affected. This is consistent with extant literature that demonstrates that younger individuals learn and adapt more quickly than older individuals (Hamilton & Fenzel, 1988).

Females participated in more service-based projects, both in and out of school, than their male counterparts. Females also showed significantly higher outcomes on all five composite measures, at both time points. This gender difference has consistently been found in past research (Hamilton & Fenzel, 1988; Scales, Blyth, Berkas, & Kielsmeier, 2000), and lends further support to the relationship between participation in service learning and various positive outcomes.

Limitations and Directions for Future Research

The present study addresses some of the gaps in previous research. This study provides more rigorous quasi-experimental designs in the form of both between-subject and within-subject comparisons, a review of multiple sites using the same program, a large sample size comprising a broad range of students, and an investigation of elementary school children, a younger population

than is typically studied. Just as the strengths of this study stemmed from the limitations of past research, so too can the drawbacks of the present work guide future development in this field.

However, this exploration was preliminary and demands more research among this age group that will approximate true experimental research and provide conclusive evidence of the value of this treatment among young students.

The lack of appropriate control schools without the Penny Harvest program, prevent clearer estimates of the program's true effects. Instead, correlational analyses were performed, relating varying participation within Penny Harvest schools with varying positive outcomes. Causal inferences cannot be extrapolated from these correlational results. While increased service-learning may engender increases in engagement and other positive outcomes, it is also possible that students who are more engaged with their schoolwork are more likely to participate in service activities. Furthermore, a third factor, such as service involvement outside of school, could be the cause of both increased participation in the Penny Harvest program and increases in the outcome variables. These extraneous variables should be controlled in the pure evaluation of the program. All of these issues are addressed with the use of a pretest-posttest design. The temporal ordering of the tests controls for reverse relationships, since increases in engagement at a later date cannot yield participation in a program at an earlier date. Additionally, the within-subject design controls for extraneous variables that could differ between subjects.

No significant pretest-posttest changes, however, were observed. As previously discussed, this most likely indicates a ceiling effect. Since this sample of students was already highly involved in service learning, they already had high outcome ratings at pretest. It is also possible that the short interval between time points played some role. Future studies could implement a pretest-posttest design in schools with recently implemented programs, taking pretest measures before implementation and posttest measures after one year or more. Such a study would also serve to further increase the generalizability of the effects of the program.

Lastly, while the questionnaires used are valid and reliable instruments, there are certain drawbacks of using self-report measures. One such weakness is the social desirability bias, whereby people are motivated to present themselves in a positive light. An additional issue of comprehension may arise when dealing with such a young population. Future studies could employ behavioral measures, such as students' grade point averages and teacher's reports of children's conduct.

Implications

In addition to providing directions for future research, this study illustrated the various positive effects of service learning on elementary school children, and elucidated differential effects with respect to gender and grade. Increased understanding of the structure and effects of the Penny Harvest program will serve to inform the improvement of current programs as well as the implementation of future programs in New York City and elsewhere. Such research ultimately aids students, schools, and communities alike.

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Technical Appendix

Engagement -- Questions 24-26 and 28-30 on the survey

24. "I feel bored in school."
25. "My classroom is a fun place to be."
26. "I feel excited by the work at school."
28. "I like being at school."
29. "I am interested in the work at school."
30. "I feel happy in school."

alpha q24 q25 q26 q28 q29 q30

Test scale = mean(unstandardized items)

Reversed item: q24

Average interitem covariance: .9794432

Number of items in the scale: 6

Scale reliability coefficient: **0.8719**

Good Behavior -- Questions 14-16 and 19-21

14. "I share things with others."
15. "I help people who are picked on."
16. "I work very well with other students."
18. "I find ways to solve problems that are fair."
19. "I cheer up people who are feeling sad."
20. "I help others with their schoolwork."
21. "I talk to other students about helping our school or neighborhood."

Good Behavior

alpha q14-q16 q18- q21

Test scale = mean(unstandardized items)

Average interitem covariance: .1891927

Number of items in the scale: 7

Scale reliability coefficient: **0.7130**

Being a Good Student -- Questions 22-23, 27, and 32

22. "I pay attention in class."
23. "I complete my homework on time."
27. "I get in trouble at school."
32. "I follow the rules at school."

Being a Good Student

alpha q22 q23 q27 q32

Test scale = mean(unstandardized items)

Reversed item: q27

Average interitem covariance: .2889144

Number of items in the scale: 4

Scale reliability coefficient: **0.6327**

Help Others -- Questions 1, 5, 9-10, and 12

1. "I think all students should learn about problems in their neighborhood or city."
5. "I would rather spend time on my own activities than help someone else learn something."
9. "It's important for all students to help out their school or community."
10. "I am interested in doing something about problems in my school or neighborhood."
12. "I think you should help all people, not just people you know well."

Helping Others

alpha q1 q5 q9 q10 q12

Test scale = mean(unstandardized items)

Reversed item: q5

Average interitem covariance: .164282

Number of items in the scale: 5

Scale reliability coefficient: **0.5849**



Expanding 4-H Horizons Livestock Leader Guides

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Abstract: What does a 4-H volunteer do when a child asks to start a project they don't know anything about? The *Expanding 4-H Horizons Swine Leader Guide* offers information and activities that can be used by anyone in a club or clinic setting. A team of western regional extension professionals have created and piloted a user friendly tool that can be utilized by 4-H leaders and state/county extension staff. The swine specific manual is the first of four being created that will eventually offer information and activities for the beef, sheep and goat projects. This series of leaders guides are being created to serve as a useful tool that can be utilized across a variety of counties and states by supplementing already existing member manuals. With this curriculum, adults will be able to conduct highly effective activities that emphasize project skills, life skill learning, the experiential learning model and 4-H SET.

Introduction

Volunteer leaders tend to get involved in 4-H because they have knowledge to offer and a passion for helping youth – in fact, they are essential to the success of Cooperative Extension programming (Patton, 1990; Steele, 1994). With current organizational climates, where professionals are asked to do more with less, the contribution of volunteers within the 4-H program is continuing to become more and more vital (Sinasky, 2007). The 4-H volunteer feels their experience is valuable as 4-H

meets the needs of youth and communities (Arnold, 2008). Volunteers tend to get involved in 4-H because they have knowledge to offer and a passion for helping youth. For example, a leader may have an interest in, and general knowledge about the beef project. The next year, one of the youth in their club wants to enroll in the swine project and the leader allows it, but does not have the knowledge to assist the member. Without clear guidance from an adult with a general understanding of the project, the member does not receive the help they need. The member, their parents and the leader become frustrated and the 4-H year ends without anyone feeling satisfied. A new leader's curriculum, *Expanding 4-H Horizons*, has been developed and piloted by a western regional team of extension professionals in an attempt to circumvent issues related to disappointing experiences.

Purpose

So often, youth, adults and parents have the best intentions when signing up for new projects, however, without proper guidance, they have the potential of ending in disaster. The purpose of the *Expanding 4-H Horizons* curriculum is to offer research based information and activities that will assist youth livestock leaders in turning disappointing situations into successes. As an end result, it enhances the adult and youth experience with 4-H, while increasing member and volunteer retention. A leader or extension professional that has limited prior experience with the subject matter chosen can open the guide, gain knowledge and then conduct club meetings or clinics by choosing one of the ready to go activities that focus on project and life skill learning. The curriculum has been designed to supplement any state's livestock member manuals. As a result, the volunteer will gain knowledge and the member will receive direct instruction with correct research based information, enhancing their life skills and promoting 4-H SET (Science, Engineering and Technology) goals.

Program Objectives

The *Expanding 4-H Horizons* leader's guide:

- Provides adult volunteers with basic information regarding working with youth.
- Clearly defines expectations of livestock program participants, parents and leaders.
- Offers supplemental information and hands on activities that work with existing project resources enhancing a volunteer's experience.
- Enables volunteers to be more confident when teaching youth, which in turn increases volunteer satisfaction levels and long term retention rates.
- Enhances a volunteer's knowledge base, offering members a well rounded experience that emphasizes life skill learning along with the integration of 4-H SET goals.

Methods

The swine specific information in this guide is based on industry standards and uses current management practices as a base of knowledge, applying it to a junior livestock project. While many manuals start with the purchase of a market livestock project and progress through fair, this curriculum uses a unique holistic approach. By utilizing the entire guide, it educates from a supply chain management perspective covering topics from conception to consumption and beyond.

During the 2007-08 4-H year, the *Expanding 4-H Horizons Swine Leader Guide* was piloted in three states by eight counties. These counties varied geographically as well as representing a diverse

demographic environment. The curriculum was also utilized in several different settings including club programming, clinics and meat quality assurance classes.

A survey was created to capture the effectiveness of the curriculum across this diverse clientele. The results of this survey will be used to revise, enhance and improve the current swine leader's guide along with feedback while creating future project materials that will include beef, sheep and goat projects. Adults that utilized the materials were given an opportunity to provide feedback on specific subject matter and activities. Several commented on the usefulness of the materials – and how they could be used as primary project guidelines or as reference materials.

More specifically, the survey requested feedback on the unique attributes of the curriculum. The design team specifically focused on including a broader industry-wide perspective not typically addressed in previous junior livestock materials. A few unique areas addressed include prior project planning, marketing and merchandising and the honor and responsibility of being a protein producer as highlighted below.

Curriculum Contents

Pre-Ownership Planning

The curriculum starts by emphasizing goal setting prior to purchasing livestock. This includes evaluating space, facilities, budget, time commitments, human resource availability and choosing a long versus short term project. Members are encouraged to evaluate the pros and cons of market versus breeding enterprises.

Marketing and Merchandising

After being involved in junior livestock projects for several years, leaders understand that marketing and merchandising livestock projects are essential to financial success. The curriculum emphasizes the value of learning and administering these skills at the beginning of the project. By addressing this issue early on, youth gain a skill that is essential to any successful business venture.

The Honor and Responsibility of Being a Protein Producer

Within this curriculum, it is emphasized that the end result of a livestock project is a meat product designed for human consumption. When selling an animal it is imperative that a leader focus on the importance of the cycle of life when working with youth that carry livestock projects. Through observations, the most difficult part of raising livestock for youth is letting go of their project at the end of the year. The *Expanding 4-H Horizons* curriculum offers leaders activities that allow for the grieving process to take place naturally and gives youth an opportunity to express themselves in creative ways.

Chapter titles include: Setting Goals/Evaluating Project, Record Keeping, Breeding vs. Market, Letting Go of a 4-H Project, Benefits Beyond the Fair, Meat Quality Assurance, The Swine Project, Selection, Nutrition, Health, Working with Your Animal, Show Preparation and Carcass Evaluation. The curriculum includes an appendix of additional resources and activity guides for each chapter.

Future Plans

The *Expanding 4-H Horizons* leader's guides are being designed to assist in the integration of volunteer education in youth advancement through 4-H projects. Volunteers across the western

United States have voiced a concern to extension personnel regarding lack of project specific knowledge and how to apply it. This guide assists in giving adults the information and activities essential to creating an environment that will increase a member's success across a variety of areas. The swine guide is the first of many that will be created to enhance youth development programming.

Future plans include national distribution. Extension professionals will have these guides available as a resource for volunteers. By educating volunteers and giving them the information to create a successful club environment, agents will be able to retain more adults to work with youth in all livestock projects.

Summary

The *Expanding 4-H Horizons Swine Leaders Guide* is the pioneer leader's livestock guide that has been developed as the beginning of a set of four that will include Beef, Sheep and Goat projects. This series of leader guides will be created to serve as a useful tool that can be utilized across a variety of counties and states by supplementing current member manuals. The curriculum is designed to empower volunteer leaders by supplying knowledge and interactive activities that should increase their confidence levels when leading livestock projects. The further intent is to enhance youth experiences while allowing for volunteer success. Not only are members more successful with projects, but leaders are satisfied with end results and want to continue their volunteer experience.

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Youth Views of Experiences and Benefits of Public Speaking

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Youth Views of Experiences and Benefits of Public Speaking

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Abstract: Ninety-eight youth participants, ages 9-17, involved in a public speaking event reported that preparation and presentation of a 5-12 minute demonstration or illustrated talk improved confidence, knowledge of a selected topic and skills in communicating, goal setting, organizing, working with others, and doing research. Positive benefits were reported from first-year as well as multi-year participants. Most youth surveyed indicated that they participated by choice and received adequate assistance in preparation for speaking. Similar results were found for a smaller group (N=20) involved in a non-competitive performing arts event. A randomly-selected group (N=37) interviewed about the extended effects of public speaking revealed that the experience helped them in school presentations, community leadership, and more in-depth involvement in specific topic areas. Implications of results for youth programming and engaging wider audiences of youth are discussed.

Introduction

Public speaking has been regarded as a critical program activity from the early years of 4-H (Wessel & Wessel, 1982). Life skills refined in public speaking such as research, goal-setting, organization, oral communication, and self-confidence are often cited as critical workforce (Kane, et al., 1992), civic (Brockman, Tepper, & MacNeil, 2002; Michelson, Zaff, & Hair, 2002) and family (Kumpfer & Alvarado, 2003) assets. Public speaking skills are among the most frequently cited benefits of 4-H participation by current and former 4-Hers (Fox, Schroeder, & Lodl, 2003). However, the climate and impact of 4-H public speaking events, if evaluated, are not often reported in professional journals. Thus, a pilot study was developed to assess participant views of the experience and benefits as a first step in developing a more thorough evaluation of public speaking and other life skills.

Since the study was largely exploratory, youth worker experience and anecdotal reports led to the following hypotheses:

1. All projected outcomes (e.g., goal-setting, organization, research, communication, subject matter learning and confidence) will be valued, but confidence and subject matter learning will be most valued;
2. No differences in perceived benefits will be evident by gender, age, years of experience, or performance scores (null hypothesis);
3. No differences in level of perceived benefits will be evident by type of presentation (topical or creative performance).

Method

Ninety-eight of 108 youth participants in North Carolina 4-H Northwest District Activity Day (DAD) completed a one-page survey (see Attachment A) on the experience and benefits of this public speaking event. In addition, an age-stratified sample (N=37) was randomly selected for 10-15 minute interviews (see Attachment B) with experienced youth professionals and volunteers regarding the broader impact of participation. Youth completed surveys and interviews after their presentations but before the awards ceremony to minimize stress effects on presenting and reduce halo effects of judges' feedback on their self-evaluation.

Approximately one-half of participants were in the 11-13 year age group, with fewer in the 9-10 (23.5%) and 14-18 (25.5%) age groups. Mean and median age of participants was 12 years. A majority of participants were female (N=63), white (N=90), with most doing individual, rather than team, presentations. About half the youth (N=48) were presenting for the first time, but nearly one-third (N=28) were involved three years or more. One-third had placed first or second in district or state competition in previous years.

An additional 19 participants in a non-competitive creative performance activity also completed the survey. Due to differences in the purposes of events and overlap in participants (8 performers also presented topics), separate analyses were conducted for Presentation and Creative Performance groups. Data was analyzed using SPSS-PC, Version 15.

Results

Presentation Contest Participants

Nearly all presentation contest participants reported that their decisions to present were due to

- personal interest (N=81),
- urging of others (N=50),
- rewards such as money or a trip to 4-H Congress (N=42),
- enjoyment of speaking (N=34), and
- competing with friends (N=26).

Over half (N=54) indicated both internal and external influences on participation. Only seven youth cited external factors such as the urging of others or rewards as sole influences on participation.

Consistent with Hypothesis 1, youth indicated that preparation and competition helped them build self-confidence, learn more about their topic, and build other learning skills. The vast majority viewed participation as very helpful (mean scores from 3.54 to 4.33 on a 5-point scale) in every life skills area. Paired-samples T-tests indicated significant differences between Confidence and Communication means ($p < .005$) and between Subject-matter Learning and Working with Others ($p < .002$). These results are reported in Table 1. Other mean differences were non-significant. Cronbach alpha reliability for the Outcomes scale was .77.

Table 1
Level of Benefits of Public Speaking as Viewed by Youth Contestants

(number responding from N=98*)						
	Little		Some		A Lot	Mean
Self-confidence	0	7	11	21	57	4.33/5.00
Learning about my topic	3	7	12	27	49	4.14
Communicating ideas to others	4	0	17	34	37	4.09
Organizing ideas	4	24	30	34	34	4.02
Setting and reaching goals	5	8	10	33	39	3.98
Working with others	6	12	20	27	32	3.69
Doing research	10	9	21	31	25	3.54

- Cumulative totals less than 98 reflect missing data

Note 1: Significant differences ($p < .05$) between Confidence and all but Learning from Topic; between Learning from Topic and Working with Others, Research ($p < .02$).

Youth views of the benefits were moderately correlated, as follows: Youth who reported that the event boosted Self-Confidence also reported increases in Working with Others ($r = .42$; $p < .01$) and Goal Setting ($r = .40$; $p < .01$). Those who felt helped with Subject Matter Learning were also likely to report that presentations helped in Research Skills ($r = .52$; $p < .01$). Similar patterns were observed between Research Skills and Organization ($r = .42$; $p < .01$), Communication with Goal Setting ($r = .42$; $p < .01$), Working with Others ($r = .42$; $p < .01$), and Organization ($r = .40$; $p < .01$). Smaller, but significant correlations were detected between most other variables. Non-significant correlations were found between Confidence and both Subject Learning and Research Skills, and between Communication Skills and both Subject Learning and Working with Others. Years of participation was correlated significantly only with improved Research Skills ($r = .23$; $p < .05$) among all life skills outcomes. Interview results discussed below corroborated and extended survey results.

Hypothesis 2 was supported by a non-significant Independent Samples T-test by Gender and non-significant Oneway ANOVAs comparing self-perceived outcomes by Age group (9-10, 11-13, 14-18 competitive categories), Years of Experience groups (1, 2-3, more than 4 years). Independent Samples T-tests by Performance Score group (e.g., above and below median on total of three judge ratings) was significant for only one outcome, Subject Matter Learning ($p = .018$). Judging rubric reliability was high ($\alpha = .91$).

Interview Results

Over 80% of youth interviewed agreed that they were able to apply knowledge and skills gained in public speaking, including subject matter, goal-setting, organization, communication, and working with others to school, work, and other social settings. Nearly 90% reported greater self-confidence as a result of participating. Youth most often commented on continuing subject matter learning: "I want to learn more in-depth about cats...fly fishing...nutrition..." "I will major in music...pursue a career in

nursing..." Many comments implied application or expansion of life skills such as goal-setting, organizational, and communication skills in and out of school: "I am able to teach workshops...give speeches...do music...teach dance classes..." A few also noted areas for growth: "I don't follow through yet...I am a little nervous [during speeches]..." Youth were least likely to report application of presentation experience in research and study skills, yet 78% agreed that participation made a difference in those endeavors.

Most youth interviewed indicated that participation had improved school performance especially with self-determined projects (84%), volunteer skills (81%), and ability to relate to others (94%). Youth commented that subject learning enabled them to work effectively with livestock and pets as well as people, express themselves and work in groups. Many youth noted how public speaking had increased their self-confidence: "[It] helped in school presentations, Irish dance, and instruments...helped to know what I can do...I used to be shy but now am more confident...I am more confident in riding, soccer, and speaking to others."

Other Factors Surveyed

Most youth in this study reported that they received about the right amount of help in understanding the topic (55%), preparing a speech (48%), and practicing the speech (46%). About 10% reported a little less help than needed, while about 20% felt help was a little more than needed. Youth were more likely to indicate that they received much more help than needed (16-22%) than not as much as needed (1-4%). The Help scale reliability was $\alpha=.72$ and correlations among items ranged from $r=.40$ to $r=.57$. Program climate at the District Activity Day was rated positively, although the Climate scale reliability was less than ideal ($\alpha=.53$). Almost all youth (85-99%) viewed event rules and judges as fair, room arrangements adequate, and audience friendly. Program climate items were moderately correlated.

Youth views of the climate for preparation and competition represent a significant, if brief, program quality check. Both preparation and event reports indicate a fair and supportive climate. Evidence for program quality supports the claim that helpful outcomes derive from the program itself rather than extraneous factors.

Creative Performance Participants

Thirteen girls and six boys, mostly in the 11-13 and 14-18 year-old groups, who participated in the non-competitive "4-H Entertains" event valued opportunities to build performance skills. Eighteen of 19 cited personal interest as their principal motivation, with 8 mentioning external influences. Hypothesis 3 was not supported as Performers perceived the helpfulness of their experience in a slightly different order than presenters: Goal-setting ($X=4.28$), Confidence ($X=4.17$), Working with Others ($X=4.06$), Organization ($X=3.89$), Communication ($X=3.72$), Subject Matter Learning ($X=3.53$), and Research ($X=2.83$). Independent Samples T-test comparisons of groups found significant differences in level of perceived benefits only for Communication and Research. Presenters gave higher ratings on both life skills. Performers were likely to say they received about the right amount of help and were generally satisfied with the climate of the event.

Conclusions and Implications

Participation and Recruitment

Although this study was brief and exploratory, results suggest that public speaking events are positively regarded by and have significant impact on young people. In general, youth participated by

choice with social, competitive, and personal development motivations outweighing external incentives. Thus peer invitation, emphasizing the opportunities to share favorite subjects, will likely prove the most effective recruiting strategy for the event. Program outcomes for current participants suggest that a wider audience might benefit from the public speaking experience. Marketing research with a cross-section of youth might lend insight on barriers and incentives to engaging in public speaking. Special interest events such as science fairs could enable youth to share interests briefly and informally and receive coaching that might interest them in a more formal presentation opportunity.

Developmental and Learning Processes

Confidence and Subject Matter Learning were considered the most helpful outcomes of the presentation experience. This finding is consistent with event objectives and youth motivation to explore and share a favorite topic. Goal Setting and Working with Others were viewed as most important by performers, consistent with the self-determined and topic-free focus of this event. Additional research is needed to better understand the processes by which these events help youth grow in confidence and life skills. However, findings suggest that public speaking serves as a valuable self-directed expressive skill that fosters competence, confidence, and when associated with club activity, represents connectedness. Lerner, et al. (2005) identified these elements as building blocks for positive youth development.

Interview results suggest that public speaking experiences prepared youth for contributions such as club and class leadership, community service, and citizenship. This pattern of applying lessons from speaking supports the notion that contribution emerges from a context of confidence and competence (Lerner, et al., 2005). However, more research is needed to better understand how these experiences compare to and complement other activities in the development of life skills.

Differential Benefits to Participants

All life skills outcomes were highly valued by youth, with few differences by age, gender, years of participation, or performance scores. Significantly, experiences were perceived as helpful by those whose performances judged positively as well as not-so-positively. Youth viewed their experiences as beneficial from the first year of participation and those who continued reported confidence, subject matter learning, and life skills growth with each experience. Moreover, youth typically apply these skills in other settings. Public speaking events, like other project-based experiential learning, provide a context in which youth at different levels of experience can benefit in their own way. Thus the same event may foster successive growth experiences and applications. More research is needed to document these processes of change and the learning experiences that facilitate them. Research with non-participants and non-continuing participants would help youth professionals better understand limits and benefits of public speaking for 4-H members and broader youth population.

Connections Between Life Skills

Views of life skills outcomes were moderately correlated. This finding is not surprising since public speaking cultivates many skills simultaneously. Also, enjoyment of the presentation experience may enhance perceptions of all elements. Gains in confidence were most highly correlated with life skills such as communication, goal setting, and working with others but not significantly correlated with subject learning or research skill gains. Those who valued research skill gains were more likely to report that presenting enhanced their knowledge and organizational skills. These trends suggest that youth view public speaking as increasing confidence, regardless of gains in expertise. However, research skill was the only outcome significantly correlated with years of experience.

Early experience may be most likely to yield general benefits such as confidence and organizational skills that later aid youth in pursuing more in-depth knowledge and research skills. It is also likely that the meaning, as well as the degree, of perceived helpfulness-of-event or skill growth varies across individuals, particularly by age and experience. In-depth and longitudinal research on public speaking experiences will be needed to adequately explore these patterns of growth and meaning.

Overall, the vast majority of responses on or near the “about right” category for preparation suggests developmentally-sensitive coaching and/or effective youth-adult collaboration in preparing for presentations. Mean scores indicate a consistent pattern of assistance from research through practice, with youth most likely to say that they received too much help during the practice phase. Ongoing observations and feedback from youth and adults would be helpful in documenting these processes, especially differences between first-time and more experienced participants. In general, youth rated the climate of the District Activity Day very positively. Future research might provide a more extensive list of climate factors and determine both their meaning and importance to presenters from different age groups.

Limitations

This study engaged a convenience sample of largely white, middle class 4-H youth who may not be representative of all Public Speaking event participants or of the broader youth population including those who choose not to participate or those not selected for district competition. Additional in-depth and longitudinal designs including unbiased observers as well as participant self-report could provide a more detailed and accurate description of the presentation experience and benefits. However, the high reliability of the Helpfulness and Judging Rubric scales and the extensive examples provided in interview speak to the credibility of self-report methods. Moreover, the general conclusions derived from the data seemed reasonable to experienced coaches and judges who reviewed them.

Summary

Evidence from this exploratory study points to the immediate and sustained impact of participating in a public speaking and creative performance events, including self-reported improvements in confidence, subject-matter learning, and life skills. Personal interest was a more important motivator for participation than external influence. More in-depth and long-term research on event conditions and effects with a more diverse and randomly selected audience would provide further insight on the role of public speaking experience in youth and young adult development.

Results from the 4-H Public Speaking experience suggest that all youth organizations could enhance youth life skills growth by incorporating public speaking opportunities in their programming or partnering with a 4-H program locally. Public speaking is often cited among the experiences people fear most. Thus, qualities of positive youth development programs (Eccles & Gootman, 2002) such as emotional safety, adult support, structured learning and presenting, peer encouragement, and making a difference through sharing and applying subject matter and life skills lessons are especially important in optimizing the experience of presenting or performing. Informal opportunities for speaking in club meetings and community settings support and extend the formal opportunities of a contest in 4-H programs.

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APPENDIX A

4-H Presentation Skills Learning

You are asked to complete this survey because you are participating in the 2007 4-H presentation activity day in your district. There are no right or wrong answers. Your answers about the program will help 4-H improve the Presentation Skills event in years to come.

Presentation Topic: _____

Presentation format (check one): Individual Group

Years in presentation contest: ____

Highest award ever received in presentation contest (county district, or state): _____

Age ____ Gender ____ Race _____ County _____

Why did you decide to do a presentation this year? (check all that apply)

- a) I was interested in the topic
- b) I like to speak to groups
- c) I enjoy competing with my friends
- d) Someone else (adult or friend) urged me to do it
- e) Reward (money, a ribbon, etc.)

How has participating in this 4-H presentation event (preparation and competing) helped you in each of the following areas? (circle one number for each item):

	Little		Some		A Lot
Learning about my topic	1	2	3	4	5
Doing research	1	2	3	4	5
Organizing ideas	1	2	3	4	5
Communicating ideas to others	1	2	3	4	5
Setting and reaching goals	1	2	3	4	5
Working with others	1	2	3	4	5
Self-confidence	1	2	3	4	5

How much help you received from adults or friends in preparing your 4-H presentation? (circle one number for each item):

	Not as much as I needed		About right		More than I needed
Helped me understand my topic	1	2	3	4	5
Helped me prepare my speech	1	2	3	4	5
Helped me practice my speech	1	2	3	4	5

Describe your experience at 4-H District Activity Day (circle one number for each item)

	Not at all True		Somewhat True		Very True
Rules were clearly explained to me	1	2	3	4	5
Judges were fair	1	2	3	4	5
Room was arranged well for me	1	2	3	4	5
Audience was friendly	1	2	3	4	5

Thank you for participating in this survey and helping 4-H *make the best better!*

APPENDIX B

4-H Presentation Skills Interview

You are invited to complete this interview because you are participating in the 2007 4-H presentation activity day in your district. 4-H would like to know more about how this activity, from preparation through this contest, has been helpful—or not-so-helpful to you. There are no right or wrong answers. We just want to hear about your experience. Your answers about the program will help 4-H improve the Presentation Skills event in years to come.

How have your 4-H presentation experiences affected you in each of the following areas?

	Strongly Disagree	Disagree	Agree	Strongly Agree
I want to learn more about my subject Examples:	1	2	3	4
I use the subject knowledge I gained Examples:	1	2	3	4
I use research and study skills for other projects Examples:	1	2	3	4
I use organizing skills for other presentations Examples:	1	2	3	4
I can communicate ideas well in many settings Examples:	1	2	3	4
I use goal-setting skills to get things done Examples:	1	2	3	4
I can work well with others Examples:	1	2	3	4
I am self-confident in most things I do Examples:	1	2	3	4
I have improved my school performance Examples:	1	2	3	4
I have improved my volunteer or work skills Examples:	1	2	3	4
I have improved my ability to relate to other people Examples:	1	2	3	4

Child's name _____

Thank you. Your time and ideas about 4-H presentation contest will help us make the best better.



Assessing Service-Learning in a College-Level Adolescent Development Course

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Assessing Service-Learning in a College-Level Adolescent Development Course

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Abstract: Service-learning is an instructional method in which students learn course content by actively participating in thoughtfully organized service experiences related to the content. Effectively linking service-learning to course content not only offers students a powerful opportunity to maximize academic learning, but also promotes their personal growth and instills a commitment to lifelong, civic engagement.

Service-learning was integrated into an upper level Family and Consumer Sciences Adolescent Development course. In addition to completing the traditional course work, students also completed a service-learning experience at a community agency that served adolescents. In order to evaluate the effectiveness of the service-learning component, students were surveyed at the end of the semester about their service-learning experiences. All agreed they had learned more about course concepts as a result of their SL experience, and the majority felt their service-learning activity provided a needed service to the agency and community.

Introduction

Educators have increasingly embraced opportunities to prepare college students for future leadership roles by integrating service-learning into their courses (Ash, 2003; Batchelder & Root, 1994; Boss, 1995; MacDonald, 1994; Smith, 2002; Truesdell, 2001). Service-learning is an instructional method in which students learn course content by actively participating in thoughtfully organized service experiences related to that content.

Service-learning is distinguished from other approaches to experiential education by its intent to benefit both the provider and recipient of the service, giving equal focus to the service being provided

and the learning that is occurring (Furco, 1996). The service must be linked to course learning objectives; it is not simply volunteering. Experiences that enable students to think, write, and/or discuss what they are doing during the service activity are integrated into the course. Effectively linking service-learning to course content not only offers students a powerful opportunity to maximize academic learning, but also promotes their personal growth and instills a commitment to lifelong, civic engagement.

Service-learning does, of course, involve challenges. Depending on the course and its content, educators may need to invest considerable time in locating appropriate service learning sites and preparing effective service activities. The reflective experiences which are necessary to help students make connections between course content and their service-learning require time and may mean a reduction in the amount of class time available for content coverage. In addition, educators may occasionally need to assume the role of mediator between students and their service-learning sites if miscommunication occurs.

At Appalachian State University, service-learning was integrated into an upper level undergraduate course, Adolescent Development, to enable students to connect research and theory with active practice. The purpose of this study was to evaluate the service-learning component of the course.

Methodology

In the original Adolescent Development course, students examined the basic changes, contexts, and developmental tasks of adolescence. The course outline indicating the content is provided below:

- Basic changes of adolescence
 - Biological transitions
 - Cognitive transitions
 - Social transitions
- Contexts of adolescence
 - Families
 - Peer groups
 - Schools
- Psychosocial development during adolescence
 - Identity
 - Autonomy
 - Intimacy
 - Sexuality
 - Achievement
- Psychosocial problems in adolescence
 - Substance abuse
 - Externalizing problems
 - Internalizing problems

While the content in the original Adolescent Development course was certainly appropriate, the course seemed to provide primarily facts and information about the stage of life called "adolescence." The class did not seem to connect the students with the various challenges experienced by

adolescents. Therefore, while the content remained the same, the class was revised to incorporate a service-learning project that would enable students to observe and apply course concepts through association with adolescents. The service-learning project required students to work with adolescents for two hours per week for nine weeks of the semester. Students completed their service-learning by working at community agencies that served adolescents, such as after-school programs and residential treatment centers.

Students completed their service-learning at a variety of community agencies, from programs that served typical adolescents to centers for at-risk youth. Students chose from the following agencies:

- Watauga Youth Network, a big brother/sister program for adjudicated youth
- Watauga Youth Network Resource Center, an after-school program for adjudicated youth
- GEAR UP, an after-school program for high school students planning to attend college
- Upward Bound, a program assisting first-generation beginning college students from low-income families
- Mountain Alliance, an outdoor experiential program for at-risk youth
- Watauga County after-school programs
- Cherokee Park Youth Center, a residential treatment program for adjudicated adolescents

Depending on the site, students engaged in a variety of experiences with the respective agency adolescents including: tutoring, sports activities, arts and crafts, hiking canoeing, caving, and just "hanging out." Although students were often engaged in group activities, they selected one adolescent upon which to focus their observations and reflections and generally had ample one-on-one time with that adolescent.

Throughout the semester, students engaged in several class activities that enabled them to reflect upon their service-learning and connect it to course content. For example, as the concept of identity development was addressed, students not only read about and discussed it, but also assessed the identity development of the adolescent upon whom they were focusing. In the study of internalizing problems, students not only researched the latest adolescent suicide statistics, but they also reflected upon any warning signals their adolescent might be exhibiting.

In addition to the class activities, students prepared a report in which they applied the concepts they were learning in class to their particular adolescent. They used the theories and research to explain their adolescent's development and behavior. For example, students utilized Piaget's theory of cognitive development to assess adolescents' stages of cognitive development and referred to Erikson's eight stages of development to explain adolescents' identity development. Students researched characteristics of juvenile offenders and compared to their adolescents' particular characteristics and risky behaviors.

Evaluation

At the end of the semester, all 24 students completed a survey that evaluated the service-learning component of the course. Respondents represented the following majors: child development, family and consumer sciences education, sociology, and psychology. Thirteen were seniors, nine were juniors, and two were freshmen.

The majority of students felt that the academic projects associated with their service-learning experience helped them to more effectively learn and retain the course material. On a 4-point scale, with 4 being "strongly agree," the average response was 3.5. Their level of satisfaction seemed particularly significant considering the additional time commitment outside of class associated with the service-learning. Other findings included the following:

- 84% of the students agreed that they had been adequately prepared for their service-learning experience
- 96% agreed that the service-learning made the course more interesting and applicable to "real world" issues
- 80% agreed that their time was effectively used while serving at their agency
- 88% agreed that the class had helped them to become more aware of social issues that existed in the community
- 88% felt their service-learning activity provided a needed service to the agency and community all agreed they had learned more about the concepts presented in the course as a result of their service-learning experience
- All agreed they had learned more about the concepts presented in the course as a result of their service-learning experience

Almost every student agreed that the service-learning experience made the course more interesting and applicable to the "real world." One student noted, "It is different to see things rather than just read about them in a textbook. It was interesting to get to see how the adolescent I was observing exemplified the concepts we were learning in class." Others noted the value of gaining experiences related to their futures: "I am a prospective teacher, and the service-learning put me in that role" and "Observing at-risk adolescents helped me to see who I will be working with in the future."

Several students noted the personal growth they experienced through the service-learning.

- "I felt like I made a difference to the girls with whom I worked."
- "I got to take a look at what it was like to be a teenager again. Adolescents are just trying to find out who they are, and a lot of people forget about that."
- "I found that I could learn as much from the adolescents as they could from me!"

The service-learning helped many students become more aware of social issues that existed in the community. As one student said, "I never realized that there were so many adolescents who came from bad homes or who had gotten into trouble and needed someone to help them out. My service-learning experience showed me that there are people out there who need help and I can make a difference by being involved." Another stated, "More kids drink and do drugs than I thought."

This service-learning experience seemed to give many students their first meaningful experience with diversity and helped them to question some previous assumptions and stereotypes they had held.

- "The service-learning experience caused me to look at adolescents differently than I had before and also to understand better that a person's lifestyle does not always dictate the person that they are inside."
- "I believe that it made me more empathic to other people's situations."
- "I became more accepting towards others and realized that they aren't much different from me, other than they might not have been given the opportunities I have."

In a final open-ended question, students were asked to share the most important thing they had learned during their service-learning experience. Responses including the following:

- "How adolescents think and work"
- "That I love getting to know all kinds and ages of people"
- "That I do enjoy service"
- "How blessed I am to have the family situation and opportunities that I do"
- "You can't learn everything from a textbook; it can't prepare you for the real experiences"
- "That all adolescents have their own unique personalities"
- "That not everyone had a good life like me"
- "Positive interactions can greatly influence adolescents in the right direction"
- "Adolescents are unique and interesting individuals who deserve respect and a chance to express who they are"

No formal evaluations were completed by service-learning site supervisors; however, several commented on the success and helpfulness of the project. One site supervisor shared, "The service-learning enabled our agency to better carry out its mission of helping young people."

Implications and Future Plans

In this Adolescent Development class, the service-learning project enabled students to apply course concepts in the real world and then bring the lessons they learned back to the classroom; this experience enriched the learning environment for all. Therefore, the service-learning component will continue to be a part of this class. Efforts will be made to secure additional sites to provide further diversity for future service-learning experiences. Further reflection activities will also be developed to provide even more opportunities for students to connect the course concepts with their service-learning.

In addition, the university's service-learning office is developing more assessment strategies to better evaluate all service-learning courses across the campus. Increased emphasis is being given to faculty development in the form of workshops and actual service experiences. Most recently, the university has implemented a Designated Service-Learning Faculty Program to recognize and reward faculty for their dedication to improving their teaching effectiveness related to service-learning, as well as engaging in scholarship and service in this area. It appears that both educators and administrators are recognizing the value of service-learning as an instructional method.

Other programs and classes might also utilize service-learning to enable students to better understand course concepts, as well as broaden their perspectives. There are numerous opportunities in all communities to "give back" by allowing student to apply what they are learning in class. For example, students in nutrition or food service programs could provide menu-planning or food preparation services for homeless shelters or organize a food drive for a food bank. Child development majors might serve at the local "Head Start" program, utilizing the developmentally appropriate practices they were learning in class to provide high quality early childhood education and care. Students in a marketing/advertising program could assist non-profit agencies in promoting their programs and services. Such service-learning experiences would require students to "humanize" the

information they were learning in class, and in the end, benefit not only the community, but themselves.

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Mapping Out Your Success: Using Mind Maps to Evaluate Youth Development Programs

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Mapping Out Your Success: Using Mind Maps to Evaluate Youth Development Programs

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Abstract: A primary component of any youth program is documenting and promoting the results through evaluation. Frequently, however, administrators in youth development programs struggle to find meaningful ways of evaluating the impacts they have on the lives of youth. It is often difficult to capture the unique benefits these programs offer to participants, especially when traditional methods such as focus groups and interviews may be too time consuming and questionnaires may yield poor response rates. This article presents a creative form of evaluation targeted at demonstrating the success of programs in outcomes that are historically more difficult to measure. A "mind map" is designed to be a pictorial representation of the impact of programs in areas such as connections to community organization and adult role models. Employing this technique can enable administrators in youth development programs to demonstrate to stakeholders the benefits they provide in a non-traditional, but highly effective, way.

Introduction

Evaluation in Youth Programs

The importance of evaluation in youth programs cannot be underestimated. In fact, it is a critical part of the entire programming cycle for any program (DeGraaf, Jordan, & DeGraaf, 1999). It is through evaluation that administrators are able to find ways of improving their services, determine areas that are ineffective, and assess their goals and objectives. Evaluation can also help them to improve decision making, justify expenditures and accountability, communicate successes to stakeholders, and comply with external regulations (DeGraaf et al., 1999; Henderson & Bialeschki, 2002).

While evaluation has always been an important component of youth programs, it is perhaps, even more crucial in the current era of limited and competitive funding. Reduced internal funding has necessitated most youth serving agencies to seek outside sources of funding from foundations and other granting agencies. Funds from these organizations almost always require that an evaluation component be adequately described in the grant application and future funding is often contingent on the results of these evaluations. In essence, funding agencies want to know that their funds are being used wisely and effectively (Caldwell et al., 2008).

Many youth program administrators, however, may struggle with this particular aspect of managing youth services for a variety of reasons. Those without a background in evaluation may find the process overwhelming, may find it difficult to collect reliable data (Bocarro, Greenwood & Henderson, 2008) or may find themselves needing to hire external evaluators. Unfortunately, this is often difficult in already tight budgets. Those who do have evaluation experience may still struggle with the evaluation process due to limited budgets, personal or program time constraints or staffing issues. All of these factors may lead to significant difficulty in conducting focus groups or interviews or poor response rates from questionnaires.

Furthermore, several of the important benefits young participants gain from these types of programs are more difficult to quantify in typical evaluation formats. Consequently, even when the evaluations are done well, there is a concern that they are not reflective of all the benefits youth receive from participation (Gilliam & Zigler, 2000; Witt & Crompton, 1999). For example, the Search Institute's 2004 list of 40 developmental assets provides an inventory of specific building blocks that are critical to positive youth development. Among these, are several which are difficult to measure such as a caring neighborhood, other adult relationships, youth as resources, and positive peer influences. Youth serving agencies designed around improving these areas may find it difficult to demonstrate their impact on the lives of youth simply due to a lack of adequate measurement tools. Based on all these difficulties, it becomes apparent that new and unique evaluation methods would be tremendously beneficial in helping youth serving agencies to publicize their benefits to stakeholders and meet the requirements of current and future funding opportunities.

Mind Maps as Evaluation Tools

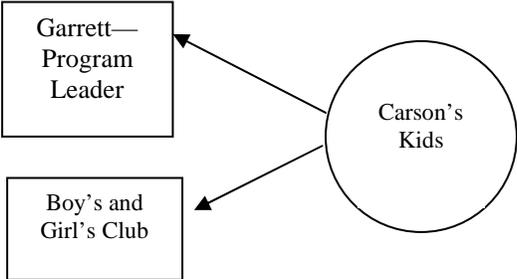
One potential evaluation method that might be utilized in these cases is a "mind map." The mind map is a pictorial representation of connections that have been developed as the result of a particular program. It has been successfully used in community serving programs and could be similarly applied in youth serving agencies (Wells & Arthur-Banning, 2007). So far, when the mind map has been used by the authors, funding agencies and other stakeholders such as boards of directors and community partners have been highly receptive. In fact, some stakeholders have stated that this form of evaluation has helped them more clearly present and explain the impact and sustainability of their programs (Sharon Lone, personal communication, February 10, 2009). The validity of this form of evaluation can be determined much in the same way as through any type of qualitative analysis. In particular, it would be useful for at least two individuals to go through the mind map independently to help ensure objectivity when reporting the number and strength of the relationships and connections listed (Cresswell, 1998).

Essentially, the mind map records the relationships that exist as a result of program participation in year one. In subsequent years, a new map is created using the existing map as a base from which to expand and once the years are compiled; a visual representation exists of the changes that have

occurred from year to year. A series of mind maps from one year to the next not only assist the agencies in highlighting their program effectiveness, but allows various stakeholders to see just how far reaching and interconnected their programs have the potential to be.

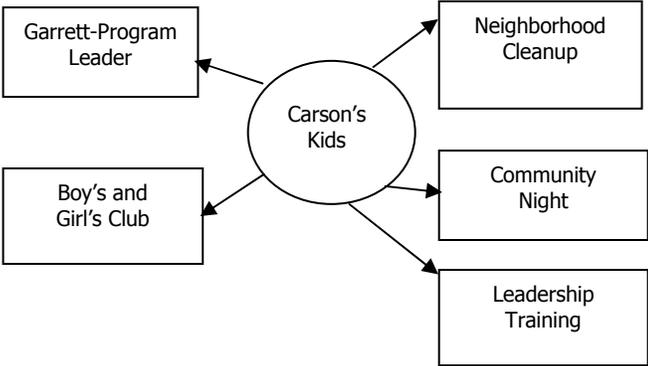
As an example, if an agency (Carson’s Kids) begins accepting children into their program, the relationships that currently exist when the program begins would represent the baseline (see Figure 1).

Figure 1
Baseline Carson’s Kids Example



In this example, the youth in the program take part in activities at the local Boy’s and Girl’s club and they have a leader (Garrett) who can be seen as a positive adult role model. During the course of the year, the participants in Carson’s Kids continue to build relationships and are introduced to new activities. The director of the group can record these changes as they occur and at the end of the year it is clear what has taken place (see Figure 2).

Figure 2
End of Year 1 Carson’s Kids Example

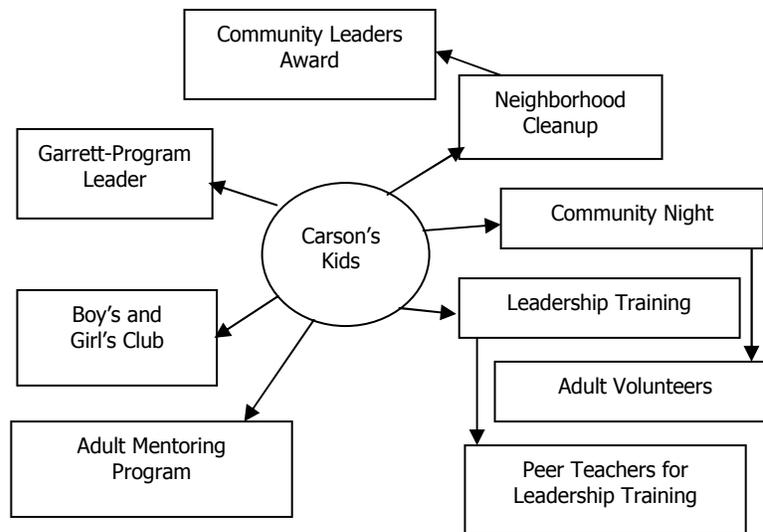


In this instance, the youth in this hypothetical program have added to their experience in the Boy’s and Girl’s Club by taking part in a neighborhood park clean-up (Youth as Resources), hosting a

community night at the center (Caring Neighborhood), and beginning a leadership training program (Positive Peer Influences).

This process could continue for future years (see Figure 3), in which, for example, children in the program continue their current opportunities, but add additional ones such as an adult mentoring program (Adult Relationships) and youth teaching new members through the leadership program (Youth as a Resource and Positive Peer Influences). Furthermore, the community night at the center could lead to involvement of more involvement of volunteers in the after-school homework program (Adult Relationships and Caring Community) and the Neighborhood Cleanup might get recognized with an award from Community Leaders (Caring Community).

Figure 3
End of Year 2 Carson's Kids Example



Together, these mind maps capture some of the more difficult assets to measure in a typical assessment. In this example, it is clear that following two years in the program, Carson's Kids has helped participants increase their relationships with non-parent adults, has demonstrated that the community cares and is connected to the youth in the program, has provided positive peer role models for younger participants, and has proven to the youth that they can be a resource for change. Consequently, stakeholders will be able to instantly recognize the contribution of the program on several of the developmental assets, thereby demonstrating the effectiveness of the program on positive youth development. It might also be beneficial to color code these connections or to provide a brief narrative at the bottom to make it even more apparent which of the developmental assets or other goals have been met (see Figure 4).

Figure 4
End of Year 2 Carson's Kids Example – Color Coded



Using a mind map has several clear benefits. To begin with, once it has initially been constructed, it is relatively inexpensive and requires little time to continue from year to year. As new connections are created or old ones are dissolved, it will simply take minutes to adapt the model. In addition, the pictorial representation of the changes that have occurred within an agency during a year provides stakeholders and funding agencies with a clear and concise picture of what a particular organization has accomplished and why it should continue to receive funding. This is perhaps the most important benefit for both administrators and participants as it will help valuable programs to continue serving the lives of youth.

While youth serving agencies continue to struggle with how to best conduct the evaluations that are necessary for their programs without compromising services, new and unique methods of data collection and analysis must be used that are inexpensive, not time consuming, and that accurately represent the multitude of benefits young participants receive as a result of their programs. The mind map is one example of how creative techniques can be effectively used to both gather information and promote successes to stakeholders.

Recommendations

In addition to serving as an evaluation tool, the mind map may also serve other purposes within an organization. In particular, the mind map could help youth serving agencies to maintain a focus on their missions. Many times opportunities are presented to make connections with partners that may or may not be the best fit for agencies. By mapping out the potential relationship it might be easier for administrators to quickly see how these relationships fit within the realm of their mission and can then determine as to whether it would be an appropriate use of their time and resources. Similarly,

administrators may note when completing their mind map that relationships or connections are missing in certain areas that are key to their mission. This would provide them guidance on areas where they should seek out connections that would further their service to participants.

Although the mind map can be a useful tool for evaluation, there remain some issues that need to be addressed. More research should be conducted to confirm its efficacy and usefulness. This might include determining the venues in which the mind map would be most beneficial and those venues in which other forms of evaluation may be more appropriate. Evaluators of youth programs should also be careful to remember that it is only one method of presenting data. Mind Maps should not be used to completely replace current methods of evaluation which are effective in reporting program results. Instead, it is a tool that is meant to enhance these methods in order to give a more complete picture of the program and its successes, particularly those that are more difficult to enumerate. Through the information provided in the mind map, administrators will be able to demonstrate the true value in their programs, thereby helping to ensure that they will continue providing a positive impact on youth development in the future.

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New Designs for Participatory Research: Modified Photoethnography and the Personal Resource Systems Management (PRSM) Model

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New Designs for Participatory Research: Modified Photoethnography and the Personal Resource Systems Management (PRSM) Model

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Abstract: Learning environments significantly influence student behaviors, academic success, school attendance and participation, all of which are problematic today. Less than half of high school students surveyed in 2005 would select the same high school again if given the opportunity, and only 38% agreed that the support they get at school encourages them to learn more. Pursuing increased educational effectiveness, this paper discusses a study that gathered and evaluated middle and high school students' concepts of ideal student-centered learning environments in selected classrooms. This multi-method, participatory approach put cameras in student hands and ask them to photograph elements desired in their ideal classroom, "things that help you learn." Interviews were conducted to explore the meaning behind each photo. Analysis was performed using the Personal Resource Systems Model (PRSM). Findings clearly indicate existing physical and emotional needs, left un-addressed by *No Child Left Behind*, that might be met by improving the material and social classroom environment.

Introduction

Americans feel that one of the main purposes of education is to prepare students to become responsible citizens (Rose & Gallup, 2000) – the type of adults that help make the world a better place. The public also believes strongly (88%) that the achievement gaps associated with ethnicity and socio-economic status must be closed. Of those responding to the 2005 Phi Delta Kappa/Gallup Poll, 74% attribute the gap to factors other than schooling, but 56% say it is the responsibility of the schools to close it (Rose & Gallup, 2005). Successful living in the 21st century will require both, self-management and lifelong learning, according to prominent business leaders (Drucker, 1999; Peters, 1994). Psychologists and educators contend that development of these personal capabilities is

dependent upon adequate nurture (Brazelton & Greenspan, 2000; Garbarino, 1999; Search Institute, 1997a & b; Sergiovanni, 1992).

The mandate goes well beyond mastering data and information (standards). The mandate speaks to the knowledge required for daily application and the wisdom of choice and is the vital issue of our time. Secondary and traditional undergraduate students (15-24 year olds) represent a significant portion of our population and the immediate future of our society. The 2000 Census reported over 39 million Americans (13.9% of the total population) transitioning from childhood to adulthood, most of whom attend school. Yet the coming-of-age remains rocky. Violence and suicide are the number 2 and 3 causes of death for this segment of the population (U. S. Department of Health and Human Services, July 24, 2000). Motor vehicle accidents often linked with drinking and drugs, were number one.

During the 1996-1997 school year, the Search Institute (1997 a & b) studied nearly 100,000 youth in 312 towns to find specific contributors to the emergence of unacceptable behaviors. They found a complex but significant relationship between factors they termed "developmental assets" (i.e. support, empowerment, clear boundaries and expectations, constructive use of time, commitment to learning, positive values, social competencies and positive identity) and illicit drug use, violence, health, and success in school. The study indicated that the average American 6th-12th grader experienced only 18 of 40 assets traditionally flowing from home, family, and friends.

Yet these assets are vital. Only 1% of youth reporting 31-40 assets used drugs as opposed to 42% of those limited to 0-10 assets. The rate of violence was 6% among the highest asset group and 61% among the lowest. Good health was reported by 88% of high asset responders but by only 25% of low asset participants. Success in school also reflected these trends, with 53% of high asset students reporting success in school as opposed to 7% of low asset students. Subsequent studies yielded remarkably similar results.

Low asset rates and poor test scores are also correlated with childhood poverty. The Trends in International Mathematics and Science Study (Gonzales, et al., 2008) showed that wealthy schools (less than 10% poverty) posted fourth grade and eight grade science and math scores well above the US and International averages. Schools with poor students (75% poverty) posted scores approximately 100 points or 20% lower. Poverty short-changes children across a wide range of family and community assets leaving them simply not ready to learn.

Given the impact of all non-academic factors on school success, public education might have stepped in to fill the gap. In *The schoolhome: Rethinking schools for changing families*, Jane Roland Martin (1992) suggests that 3 C's (care, concern, and connectedness) should share equal billing with the 3 R's (reading, 'riting, and 'rithmetic) in education. Lynn Jenks (2001, p. 17) asserts: "the ideas, ideals, and the procedures of creating designs for living and handling age appropriate problems should be an essential part of the curriculum from elementary school through secondary school." Closer mentoring generally results in more engaged students and research indicates that engaged students get more from school on all levels than their disengaged peers (Fredericks, Blumenfeld & Paris, 2004; National Research Council, 2004; Norris, Pignal, & Lipps, 2003). Sadly, the High School Survey of Student Engagement 2005 (80,094 students in 2005 and a total of 180,000 since 2004) found that more than 52% of students had not discussed ideas from their readings with a teacher outside class during the school year. Sixty percent had not communicated with a teacher by e-mail and less than half (48%) said that they had frequently discussed grades or assignments with a teacher. Not surprisingly, only

53% of all respondents agreed that they cared about their current school, and 47% were disinclined to select the same high school again if given the opportunity. Slightly more than half (55%) felt safe at school.

Some analysts have suggested that the secondary curriculum in Family and Consumer Sciences (F & CS) be repositioned to supplement engagement and developmental assets within the standard school day (McFall & Mitstifer, 2005). For more than a century, F & CS practice has espoused a mission that included in some fashion - *nurturing the individual and improving quality of life* [building assets] *through improving the relationship between people and their environment* [enhancing engagement] (AHEA, 1993). The F & CS core is unique in academic circles; its approach to education is subjective, multidisciplinary, holistic/systemic, and applied. Linked to the community through cooperative extension, F & CS is poised to provide balance to, and more importantly a foundation for, the content standards established by *No Child Left Behind*.

The Research Question

As Interior Design Educators at a Land Grant University, we decided to explore our small corner of the larger problem. Research shows that environment strongly impacts IQ (Berliner, 2005, p. 23; Turkheimer, et al., 2003) and that classroom design has a significant effect on behavior and learning (e.g. Dodd, 1997; Colbert, 1997). Furthermore, greater changes are expected to occur for the poor than the non-poor as positive changes in their environments occur (Berliner, 2005, p. 36). Anne Taylor, Director of the Institute for Environmental Education, observes:

This is an intensely active time in school construction, and yet schools are built or renovated every day without input from students. Architects design monuments to themselves instead of places to support learning and curriculum. Educators occupy environments and use equipment they don't fully understand and can't exploit to the fullest. Children learn to tune out the environment rather than to develop awareness and a sense of belonging. Now is the time for foresight, inclusion, and planning, not ten years from now (2001).

That said, it might be noted that many if not most classrooms, including Family and Consumer Sciences classrooms, seem to have evolved with limited understanding of the effect of rich and complex environments on student attitudes and behaviors. How, we wondered, might F & CS classrooms be redesigned to help build learner assets and enhance student engagement?

Taylor insists that "all stakeholders, from students to community, must be involved in the programming and design of learning environments." She advocates a model for participatory planning, which "establishes a system for learning across student developmental needs of the body, mind, and spirits; integrated subject matter disciplines; and learning processes." The envisioned educational system informs the design of the built, natural, and cultural environment so that the resultant environment serves as a three-dimensional textbook (2001).

This line of reasoning led us to question what contextual supports students might perceive as beneficial to their learning. We decided to let the students tell us directly. The stated academic purpose of this pilot study was to "determine student perceptions of an ideal 'student-centered' classroom through photographic representations." The findings, if useful, might find further application as preliminary programming for the design of a pilot classroom for Family and Consumer Sciences (FCS) and perhaps eventual adoption of that design by public secondary schools nationwide.

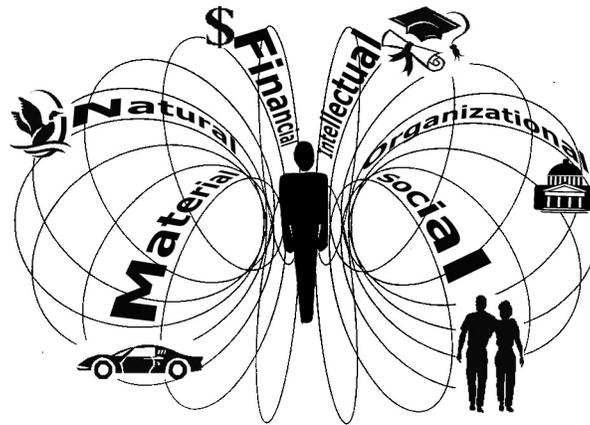
Methodology

Designers are visual people so we took a multi-method visual approach that allowed researchers to collect visual images from the students and clearly understand their intent behind the images.

Theory. First, we introduced a graphic model of learner in context. The PRSM model views the learner as being at the center of a multiple contextual interactions. In this convention, elements to be experienced are referenced around 6 named environmental dimensions (intellectual, organizational, social, material, natural, financial). (see Figure 1).

Figure 1

The PRSM Model of Personal Resource Systems Management.



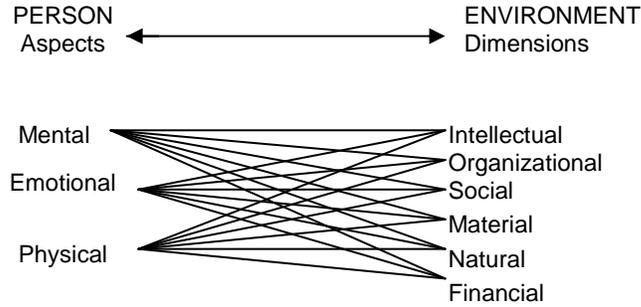
Adapted from "Personal Resource Systems Management: A Proposal for Interactive Practice" by B. McFall, 1998, p. 125. Unpublished master's thesis. Copyright 1998, (B. McFall, 1998)

The human agent at the center of this system engages his/her environment through 3 aspects (mental, emotional, physical). The beauty of this systems' view is that participants are forced to consider social issues as well as intellectual ones; financial influences as well as organizational plans, etc. They are also required to consider the emotional side of daily experience as well as mental and physical.

The three personal aspects (physical, emotional, mental) and six environmental dimensions (intellectual, organizational, social, material, natural, financial) delineate 18 distinct interactions (3 aspects x 6 dimensions) for further study. Each interaction group is stylistically unique and requires consideration on its own terms (see Figure 2).

Figure 2

Named quality-of-living interactions in the PRSM paradigm.
 From Future promise: Designing Personal Resource Systems Management
 as a platform for living and learning by B. McFall, (2002).



These interactions can also be represented in matrix format. Within the matrix format, the eighteen qualities of living sum by row to environmental satisfactions (i.e. social satisfaction, financial satisfactions), by column to personal well-beings (i.e. mental well-being, emotional well-being, physical well-being), and overall/over time to Quality of Life (see Figure 3).

Figure 3

Matrix format for PRSM data.
 From Future promise: Designing Personal Resource Systems Management
 as a platform for living and learning by B. McFall (2002).

	MENTAL	EMOTIONAL	PHYSICAL	SATISFACTION
INTELLECTUAL				
ORGANIZATIONAL				
SOCIAL				
MATERIAL		Quality of living		
NATURAL				
FINANCIAL				
WELL-BEING				QUALITY of LIFE

Data Collection. At the time that data was collected in 2003, the PRSM model had been piloted as a course module in the participating Erie classrooms for five years. The students were well oriented to that way of systems thinking. Most of them had completed personal PRSM portfolios describing their life in context. In this pilot study, photoethnography was used as a primary methodology to allow students the freedom to visually represent their ideas for classroom characteristics without being “led” by researcher-identified concepts. Also called photo-elicited interviews or visual ethnography, photoethnography is growing in popularity among visually oriented research fields (Clark-Ibanez, 2004). Photoethnography allows the participants to express their inner thoughts through visual means (photos), and provides an opportunity through an associated interview to express the meaning behind each photo. The photoethnography was supported by individual interviews with each photographer to clarify their representations. The photoethnographic methodology not only encouraged the sharing of their ideas, but also provided an enjoyable activity to provide fun while they were “working”.

To establish a benchmark, we began with a population representative of the “standard” view of public education – the type of school that politicians envision when policies are handed down. These visions include schools that are newer, clean, middle-class, and generally high performing. The participating schools were chosen from several within the Pennsylvania school district currently implementing the PRSM approach in their Family and Consumer Sciences classrooms. By including students familiar with systems thinking, representations were more thoughtful and relevant for the specific learner-centered classroom that was the focus of the study.

The researchers wanted to incorporate perceptions from both high school and middle school students to provide a range of developmental interpretations, and to explore possible differences identified between the two age groups. The district F & CS coordinator provided suggestions for one high school and two middle schools that would be appropriate for use in our study. The students in each F & CS classroom were representative of the diversity of the school district, the students had been involved in the PRSM program for over one year, and the teachers were willing to have their classes participate in the study. One high school F & CS class (n=22) and two middle school classes (n=33) were ultimately involved in the pilot study. Teacher commitment was an important component since several activities over the course of the project were conducted during the F & CS class time.

Participating F & CS teachers typically taught 4-5 different groups of students during the course of one day. We asked the teachers to choose one class group that represented their general student body and that they felt would be willing to be involved in the project. Each of the three teachers, in consultation with their district coordinator, chose the most appropriate group of students for the study, and provided the researchers with the names of the students and the class time they would be available. Students were informed of the study and asked if they would like to participate. While students were given the opportunity to decline, the overwhelming majority of students in each class chose to participate and indicated an excitement at being chosen to contribute their efforts to the study.

All appropriate IRB permissions were obtained. Prior to the project start, an introductory packet for each student was sent to the teachers in all 3 schools for distribution. The packet included a full description of the project, an explanation of activities within which the students would be involved, an assurance that the activities would not cost the student any money, and permission slips for both parents and students to sign. Descriptions covered both the photographic activity and the interview to be conducted at the completion of the photo portion. Each student was provided an opportunity to

decline to participate without penalty, and no students were included without parental and personal permission slips on file. Permission packets were distributed to approximately 60 students; 55 returned the signed forms and participated in the activities.

The teachers were asked to be the researchers' liaisons only to the extent of distributing and collecting packets. Classroom responsibilities for teachers are enough, and we did not want to burden them with additional tasks. Some teachers did choose to become more involved by way of monitoring student participation and including the activity in their classroom units. Other teachers willingly distributed and collected the packets without additional contribution. Teachers were asked not to include student participation or products in the grading structure for the grading period, and it was understood that the student work for this project was considered confidential unless the student chose to share their work with others. Since the researchers made it clear to the students that their participation was voluntary, we had assumed that the teachers would not be critical of students who chose not to participate. This was generally the case, but we believe that specific instructions to teachers indicating our commitment to student's right to choose without consequences or disapproval must be provided in writing at the beginning of future data-collection periods.

Upon collection of the signed permission packets provided by the students wishing to contribute, the researchers scheduled trips to each of the participating schools. Personal visits were made by the two researchers and the assistant to each classroom to explain the study, respond to questions, and distribute data collection packets. The personal explanation of the study and providing a "face" to go with the work encouraged students and they greeted us with an unexpected level of excitement about the project.

During the visits students were provided with pre-made packets constructed by the researchers. The packets contained a clear instruction sheet with start and finish dates, an "idea-generating" sheet with possible questions to consider to jump-start their thinking about the classroom, a set of notation sheets to record their reasons for taking each picture, and a disposable camera. Each packet was numbered, and the camera within the packet was marked with the same number. To alleviate any possible confusion during the developing of the pictures, we also took a picture with the camera of a card with the camera number on it as the first picture of each roll. As each packet was distributed, the student name(s) and associated packet numbers were recorded. The researchers' initial intention was to provide each student with an individual packet so they could develop their visual representations on their own. As the distribution began, students requested to work with a partner, so we allowed students to choose to work alone or with a friend to denote their personal images for a new classroom. We answered additional questions after the students had an opportunity to review the contents of the packet, then we left the classrooms. Each class was given two weeks to take their photographs and return their completed packets to their teacher. Students only needed to return the camera, but many included their note sheets also.

Teachers were provided with pre-addressed, pre-paid overnight mailing boxes and asked to place all of the returned materials in the box and send it to us as soon as possible after the student deadline. All boxes were returned, and the photos were developed and organized as they were received. Each photograph was assigned a number that included the camera number and the picture number. Photos were labeled on the backs, a small label with the number was also placed on the front of the picture, and the picture was inserted into a plastic photo page. A folder was created for each roll of film and all picture pages as well as note pages (also numbered) were inserted into the folder. Each folder was labeled with the student/camera number on the front for ease of retrieval. The level of

redundancy in labeling was determined necessary to assure that pictures could be returned to their proper folder if they became separated and mixed with photos from other students.

After the pictures were developed and organized within their respective folders, the researchers contacted the teachers to schedule time to conduct face-to-face interviews with each of the participating students. Individual interviews were conducted with each student or pair of students, and participants were asked to explain their reasons for taking each picture and how it related to the redesign of the F & CS classroom. To minimize the amount of time disruption to any particular classroom, interviews were conducted by the two primary researchers and the research assistant. Interviews were scheduled outside the classroom, and approximately 10 minutes were allotted for each interview. Formatted note-taking pages were provided to each of the researchers conducting the interviews, and all interviews were audio recorded and transcribed for further clarification of data. Students were asked to bring their note pages to refer to during the interview if they had not submitted them with the camera packet. We provided students with their hand-written notes for the interview if they included them in the camera packet.

The interviews consisted mainly of the students describing their reasons for taking each picture and how that representation showed a specific element, item, or idea that should be incorporated into the new, student-centered F & CS classroom. At the completion of the discussion about the pictures, students were asked three additional questions. First they were asked if there was anything else they would like to share or any additional pictures they would like to have included and why. Second, they were asked how they felt about being asked to participate in the project. Finally, they were asked if there was anything they could suggest to improve the activity or the project.

Analysis. All interviews were transcribed and data was organized based on the PRSM framework. The 55 participants provided over 350 pictures to be sorted, coded, and discussed. Each participant who worked on the photographic portion of the project also participated in the individual interviews, so all sets of photographs had accompanying explanations. The recordings taken during the interviews were all transcribed by the research assistant, and the transcripts were evaluated for content, clarity, and types of responses. With the exception of the final three questions described above, qualities of living were identified from student responses by recurring key terms that were assigned to appropriate cells within the PRSM matrix. Numbers of respondents using that term or an equivalent were noted.

Findings

Overwhelming consistency was found in the ideas expressed by the students. Forty individual characteristics were identified as important to the students and included elements such as environments that allowed for comfort and relaxation; more interest in the classroom by using color, details, and art; variety and flexibility in lighting; more supportive furniture; and more access to resources such as reference books, computers, and magazines.

When analyzed through the PRSM model, three major areas of concern emerged. First, students felt a need to have the *material dimension* modified to provide more *emotional* support in the classroom. This was represented by items such as more detailing within the space, lamps, candles, window treatments, and art/posters.

The second area of emphasis identified was the need to modify the *material dimension* to provide more *physical* support in the classroom. Pictures of soft seating, comfortable study furniture, additional storage, and temperature controls signify a need to change the balance between the material and physical areas.

Finally, photographs illustrated a need to manipulate the social dimension to improve students' emotional states. These photographs included animals, friends in classes, and elements that provided a "homey feel" within the space.

Students were also asked their feelings about being asked to participate in the project during the individual interviews. The responses were overwhelmingly positive, and most students felt excited and honored that someone wanted to hear what they had to say about their own classroom spaces!

The PRSM matrix is the tool used for organizing and analyzing the data gathered from the photos and interviews with students (see Figure 4). Each cell in the matrix describes a person-environment interaction in terms of one personal aspect (mental, emotional, physical) and one environmental dimension (intellectual, organizational, social, material, natural, financial). For instance, the cell highlighted in green is concerned with a physical experience of a social environment (i.e. lack of breakout spaces).

Figure 4

Student data from interviews organized with PRSM matrix. (N=55)

	Mental		Emotional		Physical		Total Environ. Satisfaction
Intellectual	Interesting things to do in spare time	24	Display of personal items	11			
	More visually interesting	06					
		30		11			41
Organizational					Comfort for teachers	03	
						03	03
Social			Real Animals	28	Small breakout rooms (proximity)	07	
			Friends in Class	28			
			Animal representations	10			
			Improved bathroom access*	07			
			Cell phones	05			
			Homey feel	05			
				83		07	90
Material	Computer access	15	Color on Walls	24	Sofas/soft seating	37	
			Stereo/Music	24	VCR/TV/DVD (available/placement)	20	
			Art/posters	23	Pillows	11	
			Lamps	18	Comfortable study furniture	11	
			Candles/scents	11	Temp. control	09	
			Window treatments	07	Place for personal items	08	
	Book access	02	Fireplace	06	Storage	07	
			Better ceiling treatments	01	Better light	03	
					Place for naps	02	
					Trash can placement	02	
					More space	01	
	17		114		111	225	
Natural			Plants/Nature	15	Food/drinks	25	
			Access to outdoors	05	Water in class	07	
					Fire extinguishers	01	
				20		33	53
Financial							
Total PERSONAL WELL-BEING		47		228		154	

During the transcription of the student interviews, key terms were identified and included in the PRSM matrix above. Each time a student referenced a key term or term similar, their response was entered into the matrix. For example, students identified their desire to have or interact with "real animals" 28 times within the interviews. Based on the conversations and the context within which they discussed the "real animals", the researchers identified this need as part of the social dimension/emotional environment satisfaction on the PRSM matrix. Other elements that represented the social/emotional satisfaction included friends in class, animal representations, improved bathroom access, cell phones, and a homey feel. These topics were referenced a total of 83 times within the interviews conducted. Responses are tallied in rows to determine environmental satisfaction, and in columns to determine personal well being.

Discussion: Further Research

Other Stakeholders. Additional data (mandates and constraints) are needed from parents, teachers, administrators, staff and other stakeholders before a final recommendation can be made for the re-design of F & CS classroom. That data is currently being collected and analyzed.

Design Proposals. Viable designs based on the student input as well as input from other stakeholders are necessary to move the information collected from this project into reality. Third and fourth year interior design students will create designs in a charrette format to provide initial visual responses to the data for review. The charrette is a frequently used method in design fields to produce several designs based on given parameters within a short amount of time. Participants will work in teams, and the guidelines for the project will be provided to each team at the same time. Teams will be given a restricted timeframe, and will be required to produce a viable solution to the design problem at the conclusion of the given time. Solutions are to be presented to an audience of reviewers, and designs are evaluated on the basis of the appropriateness of their end result. For the purposes of this project, each design would be presented to the students, teachers, administrators, parents, and other stakeholders, and critiques of each solution would be solicited. With all of the feedback in place, a final design based on a compilation of all input will be created.

Critical Evaluation. Ethnographies involve the study of a) an intact cultural group b) in a natural setting c) during a prolonged period of time d) by collecting, primarily observational data (Creswell, 1994; Wallen & Fraenkel, 1991). Critical ethnographies are a subset of that process in which the researcher "chooses between conceptual alternatives and value-laden judgments to challenge research, policy, and other forms of activity" (Creswell, 1994; Thomas, 1993). Creswell observes that "critical ethnographers attempt to aid emancipator goals, negate repressive influences, raise consciousness, and invoke a call to action that potentially will lead to social change (1994, p. 12)." This research was indeed local (secondary students in F & CS classrooms in Erie, PA) and it expressed an agenda. That agenda was to identify and advance certain elements of student success not addressed by current educational policy (the standards movement).

For qualitative (ethnographies) and critical (critical ethnographies) research, the goal is to comprehend another person's subjective meaning, which is quite different from establishing the objective answers sought by normative science. Schutz held that the grasping of subjective meaning was the goal of social sciences and such data could only be garnered face-to-face (Polkinghorne, 1983, p. 209). However, some traditional researchers feel that such local and partial inquiries deny the possibility of knowledge detached from particular points of view. More moderate voices maintain that although one should be suspicious of such projects, their rejection leaves unanswered the

question of how the human species will or can address the global problems that require informed action (Longino,1990, p. 213). The PRSM format that we used for analysis offers an opportunity to satisfy both moderate and hardline objectivists with further research.

The solution lies in an iterative design process true to the feedback loop characteristic of systems practice. Phase 1 (student photoethnography), phase 2 (adult stakeholder criteria), and phase 3 (design charrette) should produce a design proposal suitable for implementation as a pilot public school F & CS classroom. Additional qualitative research might result in a narrative describing use of the space by selected students over a limited time period. Quantitatively, schools could measure student performance over time (harmful behaviors, school success, etc.) before and after implementation to establish the impact of the design solution. Finally, both qualitative and quantitative results can provide data to be used in evidence-based design decisions, and approach used more frequently now in all areas of design.

Periodic Subjective Quantitative Measures. More broadly, the PRSM Matrix provides a method for ongoing collection and manipulation of rich and diverse data specific to our methodology across large populations. Non-specific "objective" measures for many of the 18 qualities of living have been readily available to statisticians in the form of banked survey and census data. These data have been used to "indicate" broader contributions to quality of life (infant mortality as an indicator of physical well-being, telephones per thousand as a cue to material satisfaction, etc.). However, there are issues with the validity of the indicators. Our preference would be for a subjective quantitative measure reporting experienced quality of living on an ongoing basis. There is ample precedent for subjective quantitative measures in our financial accounting system - balance sheets, income statements, Gross Domestic Product (GDP), etc.

If this F & CS design prevailed, an annual quality-of-living measure using the PRSM matrix could be used to a) identify areas of maximum benefit for each year's mentoring focus and b) document student gains year to year. Reporting is simple. Within the matrix, each of the 18 cells operates as a flow model (Csikszentmihalyi, 1990). In the neutral state (0) skills and challenges are equal at a routine level. If skills are perceived to exceed challenges boredom ensues (-1). Challenges exceeding available skills result in anxiety (-1*). The ideal state, flow, occurs when skills and challenges are matched at a level just beyond the routine. In the emotional-material realm cited as needing improvement by our respondents, the measure would be emotional well-being (skills) matched against challenges in the material dimension. In their newer minimalist classroom with gray walls, gray carpet and limited views, there was simply no stimulation. Our middle-class students were bored by their environment (-1). The 1's and 0's logged in each report might be summed to measure individual development over time and/or class, school, state, region or national status and progress.

Discussion: Suggestions for Future Research

The study described in this article is a starting point for determining student needs in a classroom within a specific context. Future research is necessary to move the design of the 21st century F & CS classroom forward. Suggestions for future research in the context of the F & CS classroom and other settings are listed below:

1. Additional studies collecting data from middle and high school students from different geographic and socio-economic levels are needed to broaden the vision of the classroom modifications discussed.

2. Similar studies may be conducted on classrooms with a different purpose than the F & CS classroom to determine how the specific use affects the needs of the students.
3. Research focused on the pedagogy and classroom design comparing student needs using the PRSM model and matrix would help determine how the classroom design can more fully support a specific pedagogical approach.
4. A longitudinal study of student needs across their academic careers using the PRSM format would provide data on changes in quality of life needs as they age.
5. An annual survey tracking individuals' quality of living needs within different populations outside of the academic setting using the PRSM format would help to determine needs of a more diverse population.

Conclusion

While much of the information provided by the students within this study was not surprising, the seriousness with which they approached the project, and their complexity and depth of thought was impressive. The issue of supportive classroom design seemed important to them personally. The data from this study clearly indicate that students consistently identify similar issues that must be addressed in the redesign of their "student-centered" classroom spaces. Although mental requirements were largely fulfilled in this exemplary school system, the material environment was deemed insufficient to meet their emotional and physical needs, as was the social environment.

As interesting as these findings were, the real benefit of this research is in the methodology and analysis tool. Photoethnography offers a way to gather rich and complex data from untrained participants in a way that is fun for the participant. Individual interview follow-ups to the photographic sessions are important to allow researchers to understand the meaning behind the photos, and to let the students' voices be heard within the research results. The PRSM model and matrix offer a powerful tool for analysis of subjective and objective, qualitative and quantitative data. Together these methods and tools provide a coherent and sophisticated format for valuable and effective classroom research.

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