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EVALUATION REPORT

THE ENVIRONMENTAL CONNECTION OPPORTUNITIES FOR STUDENTS (ECOS) PROGRAM OF GREEN WORKS IN KANSAS CITY, INC.

What are Academic Outcomes and Change in Student Behaviors in the Pilot Year?

Submitted by

Connie Campbell, Ph.D.
CW Interventions, Inc.

February 2009

EXECUTIVE SUMMARY

CW Interventions, Inc. was retained by Green Works in Kansas City to evaluate the 2007-2008 pilot processes of its flagship program, ECOS (Environmental Connection Opportunities for Students). ECOS educates young adults about local environmental issues, provides an opportunity for them to actively participate in environmental work, and exposes them to employment and entrepreneurial opportunities in the field.

This evaluation included norming the population of students studied, advising pilot testing and pilot year implementation standards, conducting individual one-on-one literacy assessments, observations and interviews of students, pre- and post-test student achievement and collection of qualitative data of the participating students at first-year internships and in the first semester of extended learning time implementation.

This report documents the research bases, outcomes, achievements and challenges of the ECOS program in its pilot year at DeLaSalle High School and community-based venues. It addresses analysis of achievement outcomes, changes in student behaviors, student perceptions, internship conditions and projected program impact and benefit-cost analysis. A summary of the findings indicates the following trends, outcomes and impact of the Green Works in Kansas City ECOS program within its first full year of implementation for participating students.

STUDENT IMPACT

The ECOS program produced structured learning pathways for positive and specific changes in the behavior and achievement of disadvantaged minority students with histories of school failure. These behaviors have the following effects by which the ECOS students exceeded their peers:

1. Direct benefit to water quality, energy conservation, air quality and solid waste reduction through citizen involvement and education.

The significant majority of ECOS students, and as compared to their normed peer group, took action to reduce their littering, increase their recycling, increase their use of cloth or recycled shopping bags and use compact fluorescent bulbs. Qualitative indicators to be presented in additional reports suggest they also now avoid water contamination and air contamination. ECOS students exceeded their peers in reporting community service and tree planting. ECOS students are much more likely than their peers to indicate that they have explored an environmental topic on the Internet or in the library, that they know a lot about environmental issues, and that it was true that they have studied things about the environment on their own.

2. Increased impact on the environment by example and influence.

Qualitative indicators to be presented in additional reports indicate that ECOS students are proactive in influencing the positive environmental behaviors of family and others in increasing recycling and use of reusable shopping bags, stopping or reducing littering from cars, refraining personally and stopping neighbors from pouring motor oil into street drains, discussing the environmental effects of family's jobs, and personally refraining from and stopping their hair stylists from using aerosol hairsprays.

3. Increased mastery of academic environmental science concepts.

The ECOS students far exceeded their peers' attainment of environmental science concepts and academic standards regarding the water cycle, natural resources, ecosystems, water quality concepts, rain gardens, climate change and earth science.

4. Increased self-perceptions, confidence and concern about the environment.

Every ECOS student documented that they cared a lot about the environment, that the school should use its influence to improve neighborhood life, that one person can really make a difference for the environment, and that they are troubled by the paper and plastic bags and containers we use one time and throw away. All also indicated they are not easily discouraged when they try to do something and it doesn't work. Most feel that they know a lot about environmental issues and indicated that it was true that they have studied things about the environment on their own. A majority of DLS ECOS students agree that they would call or write their city council representatives if they "had facts about environmental issues in my neighborhood affecting my family's well being." A majority of ECOS students indicate that their high school grades do **not** really reflect what they can do. Most of these self-perceptions are strikingly more positive and proactive than the responses of the ECOS peer group.

5. Avoidance of seeing science as a career.

One area of interest is the DLS peers and the ECOS student response about science careers and science classes. 25 percent of DLS students and 10 percent of DLS ECOS students indicate that they would like to consider a career based in science, although 42 percent of DLS students and 60 percent of DLS ECOS students checked that it is true that science is one of their favorite class subjects. This question requires further investigation and understanding of the students' point of view in their responses. This avoidance of "science" and its associations are indicators that the ECOS program may want to pursue greater clarity and learning connections of the environment and related career or civic opportunities that are scientific.

EDUCATIONAL AND COMMUNITY IMPACT

In addition to the direct benefits and successes for participating students, Green Works in Kansas City has initiated a program model with major potential impact for high minority and high poverty school institutions and groups interested in school reform, workforce development and environmental justice. While still in its early beginning stages, Green Works has demonstrated through ECOS numerous extended learning time systems and processes for connecting the most underserved students in Kansas City with opportunities for science learning, environmental stewardship, civic empowerment and a passion to learn.

This is no small accomplishment. Despite protestations to the contrary that all children can learn, Kansas City and the nation have not mobilized to any relevant degree the reform of high minority and high poverty schools. Almost all indicators suggest the stark reality that most decision-makers and influencers of American schools from policy makers to philanthropists have not found ways to make creative and innovative investments in the most poor, failing and underserved students (Gottlob, 2007; Kelly, 2005; Schmidt, 2008). Projects like ECOS should proliferate in excess, which they do not.

This evaluator commends the individuals, groups and foundations that took the farsighted risk to invest in the ECOS program in its pilot year. The return on their investment is high in student outcomes, hope and performance and promises future impact with adequate support, guidance and funding strategies. If these students persist to graduation, economists estimate that they will return on average a total benefit of $209,000 in reduced law enforcement, welfare and healthcare costs as well as increased tax revenues (Hoff, 2008; Levine et al, 2007).

Most of all, the evaluator recognizes the vision, determination and personal sacrifice of Green Works founder, Kate Corwin, and her dedicated board of directors and volunteers in seeing and serving the previously unmet learning capacity and potential among the least, the last and lowest served students in our community.

Possibly the most critical issue in urban education is not money but finding ways to bring talented, highly educated, capable, civic-minded and influential teachers, mentors and decision-makers into direct contact with students (Levine et al, 2007). Ms. Corwin and her associates have demonstrated through ECOS one beginning way of potentially skirting the morass of current in-school barriers – for a small but significant number of students annually - with an extended learning time model and summer internships directed and managed by successful and competent adults outside of the direct educational system.

EVALUATION REPORT:

THE IMPACT OF
THE ECOS PILOT PROGRAM
OF
GREEN WORKS IN KANSAS CITY

Submitted by Connie Campbell, Ph.D.
CW Interventions, Inc.

January 2009

CW Interventions, Inc. was retained by Green Works in Kansas City to evaluate the 2007-2008 pilot processes of its flagship program, ECOS (Environmental Connection Opportunities for Students). ECOS educates young adults about local environmental issues, provides an opportunity for them to actively participate in environmental work, and exposes them to employment and entrepreneurial opportunities in the field.

This evaluation includes norming the population of students studied, advising pilot testing and pilot year implementation standards and evidence-based research, conducting individual one-on-one literacy assessments, observations and interviews of students, pre- and post-test student achievement and collection of qualitative data of the participating students at first-year internships and in the first semester of extended learning time implementation.

This report documents the research bases, outcomes, achievements and challenges of the ECOS program in its pilot year at DeLaSalle Kobets High School and community-based venues. It is Part I of a three part analysis of achievement outcomes, changes in student behaviors, student perceptions, internship conditions and projected program impact and benefit-cost analysis.

What is Green Works in Kansas City?

Green Works in Kansas City is a not-for-profit corporation founded in February 2007 seeking to build and foster career and life management skills within the urban core through environmental stewardship and experiential learning.

Green Works in Kansas City was founded by Kate Corwin, a civic leader in housing and neighborhood development and former Internet commerce entrepreneur in green gardening products. As a Kansas City midtown resident, volunteer and consultant in urban core housing and historical designation policies, Corwin initiated Green Works in Kansas City after several years of consulting and research into the core issues of neighborhood sustainability (Campbell, 2009).

Green Works is governed by a board of six individuals including a full-time President/Executive Director. Green Works is organized as a networked community of leaders, influencers and volunteers throughout

the community. Green Works benefits from the support of over 25 community organizations (both for profit and not-for-profit), and 30 plus community volunteers (Green Works of Kansas City, 2009).

These supporters are mobilized by the Green Works founder and the organization's young, diverse board of directors to collaborate in delivering school and community-based curriculum, field trips, learning experiences, work-based simulations and internships to increase science knowledge, social justice empowerment, environmental stewardship and practical work skills among participating young adults.

This "virtual" and decentralized Green Works network attracted in 2007-08 collaborative support from diverse sectors in science, technology, environmental justice, governmental services, and the faith communities around issues core to the ECOS program. These factors in the community included the projected growth in environmental "green collar" employment, the difficulty local employers have in attracting minority young adults to this growing field, and the low educational options and achievement in the urban core (Green Works of Kansas City, 2009).

What is the pilot site for ECOS?

DeLaSalle Education Center's Kobets High School is an alternative school in Kansas City. MO, located at 3740 Forest Avenue in Kansas City, MO 64109. Over the course of a school year, approximately 350 students are served (DeLaSalle 2009). 195 are confirmed as currently enrolled by the School District of Kansas City, Missouri (KCMSD, 2009a). With a 74 percent average attendance rate based on the 2006-2007 school year (DeLaSalle, 2009), the DeLaSalle Kobets High School serves on average 144 students on any given school day.

According to its annual report, 100 percent of its students have experienced failure in other school settings (DeLaSalle, 2008). Students attending DeLaSalle must be referred from the Kansas City, Missouri School District (KCMSD, 2009b). DeLaSalle does not take students who have been identified as Special Education or students with a history of violent acts. Reasons for referral vary greatly but include teen pregnancy, behavioral problems, family issues, alcohol/substance abuse, legal problems, truancy, and deficiencies in basic skills.

This school is in a zip code contiguous with 64130, recently covered by The Kansas City Star as a "murder factory", home to 101 murderers incarcerated in Missouri prisons. This nearby neighborhood, which is one of the KCMSD communities served by DeLaSalle, contains 6 percent of Kansas City's residents, but 20 percent of Kansas Citians in prison for murder or voluntary manslaughter (Rizzo, 2009). The DLS staff, administration and students cope with dangerous levels of community violence, most recently experienced on January 31, 2009 at a basketball game between DeLaSalle and the Southeast Community Center. A group of young people unaffiliated with the school entered the gym and began fighting and then firing from at least four guns into the crowd, wounding 5 people and traumatizing the school's students, staff and families present at the site (Doughtery, 2009; KCTV5, 2009).

What are the founding principles of the ECOS program?

The foundation for the ECOS program is the idea that young adults can be educated about the local environment, provided opportunities to actively participate in environmental work, and then be connected to employment and educational opportunities in the field through summer internships.

ECOS was created to help the students understand that they can have a personal and financial stake in improving the environment and their positive outcomes are a win for the entire community. Students have new career opportunities, and the community benefits from the service learning projects and the involvement of these young minority students, not previously involved in the Kansas City environmental discussion.

The ECOS program is founded on several research-based learning theories, those of experiential learning, service learning, informal science and environmental justice. The goals of the ECOS program are as follows:

1. Improve the quality of environmental education in learning systems targeting underserved young adults in Kansas City's urban core through high standards, experiential learning and meaningful connections to real world applications and careers through interaction with local environmental organizations and employees.

2. Improve the impact of environmental education by directly connecting the self-interests of students through analysis of their individual personal and financial stakes in improving the environment.

3. Increase student aspirations for realistic, meaningful and self-supporting jobs and structure the educational and career pathways required for success.

4. Demonstrate a productive and cost-effective strategy benefitting the workforce needs of the Kansas City community.

5. Demonstrate an effective strategy for improving environmental stewardship among these underserved young adults.

What is the evaluation model?

The program evaluation model proposed by Rossi was used for this evaluation because Rossi's work encompasses Scriven's emphasis on needs assessment, Campbell's highlighting of experimenting with innovative programs, Weiss's understanding of the politics of evaluation and of the value of enlightenment, Wholey's advocacy of incremental improvement of existing programs, some of Stake's uses of case study methods, and Cronbach's emphasis on external validity, complex interactions and the study of causal mediation (Rossi & Anderson, 1983). Rossi offers three primary models: comprehensive evaluations, tailored evaluations and theory-driven evaluations. This evaluation is a tailored evaluation.

Model Tailored Evaluation Project (Rossi and Freeman, 1979)

Conceptualizing the evaluation	Implementing the evaluation
1. Identify the program needs 2. Redefine the objectives as needed 3. Design program modification based upon evaluation findings	1. Obtain baselines 2. Monitor program changes 3. Study accountability 4. Involve all stakeholders 5. Study efficiency & program impact 6. Provide report that can be utilized multiple ways by the agency

Figure1: Evaluation Model Utilized

A theory-driven evaluation is constructed from a model of program inputs, mediating processes, and outputs. Measures are designed to assess each of these different units; the data are gathered and analyzed. All stakeholders are involved in the evaluation process since each has a different perspective.

A Rossi evaluation model focus is on the delivery system design. In this evaluation method, the components of the delivery system are explicated and the criteria of performance is developed and measured. A formative evaluation was decided upon. Formative evaluation models are particularly useful to programs as they lead to programmatic retooling to improve program impact.

What are the evaluation questions?

1. Is the ECOS program design founded on research evidence, outcomes and educational standards?
2. How is the ECOS program being implemented in pilot and first year testing?
3. How satisfied are stakeholders with the ECOS program?
4. What are programmatic strengths?
5. What are programmatic weaknesses?
6. What are outcomes at the level of the school?
7. What are outcomes for the internship host sites?
8. What are outcomes for the students?
9. What are next steps for Green Works in utilizing formative evaluation findings to enhance the program?

How did this study investigate the evaluation questions?

1. **Research-based foundations:** The evaluator conducted a literature search of education and workforce development research to determine the evidence-based research for the ECOS learning model, assumptions and foundations.

2. **Norms of the DeLaSalle student population:** The evaluator assessed national and Missouri standards-based science knowledge of the DeLaSalle student body enrolled in science coursework in the fall of 2007. Additionally, the evaluator also normed self-perceptions and pro-active environmental behaviors of this population. Please note that this analysis is of a whole population, not a sample of a population, allowing the evaluator to more directly compare Green Works student outcomes with validity. These norms are used to determine the baseline achievement and personal expectations of the DeLaSalle population and the degree to which the ECOS program changes achievement and expectations.

3. **Norms of reading ability:** CW Interventions individually documented the reading capacity of participating Green Works students in the fall of 2008 to confirm levels of literacy comparable to the reading scores of the DeLaSalle population as assessed by the school.

4. **Environmental science achievement outcomes:** The evaluator addressed pretest and post-test achievement gains of participating students to Green Works courseware, hands-on experiences, field trips and internships.

5. **Perceptions of impact:** The evaluator observed one-on-one interviews of students participating in summer internships for their perceptions of locus of control, life issues affecting future goals and family circumstances. Additional documentation of this impact will be presented in later evaluation reports of case studies and stakeholder impact.

THE IMPACT OF
THE ECOS PILOT PROGRAM:
GREEN WORKS IN KANSAS CITY EVALUATION FINDINGS

PROGRAM DESIGN

The pilot curriculum for ECOS equaled 105 hours of structured learning. For each hour of structured learning, there was an hour of assigned individual work. Each module included classroom activities and most modules included guest speakers, hands-on projects and field trips.

Module	Total Structured Learning	Classroom*	Experiential*	Guest speakers	Field Trips
1 – Sustainability including population and world's water supply	14 hours	6 hours	3 hours - water carrying exercise.		5 hours - KC Zoo
2 – Water including urban water issues, gray (sewer) solution, green solutions	22 hours	10 hours	6 hours - enviroscape urban run-off experiment, water filtering experiments, design, planting a rain garden, Brush Creek clean-up	8 hours - Little Blue River Watershed, Black & Veatch engineers, Discovery Center, KCMO City Council, US Geological Survey	6 Hours - water and wastewater treatment facilities, Discovery Center prairie, Brush Creek monitoring
3 – Solid waste including recycling, reduce and reuse, plastic, hazardous waste	20 hours	11 hours	3 hours - demonstration of waste trucks, bio-degradability experiment, collecting recycling at school, trash sort	6 hours – KCMO Solid Waste, Bridging the Gap, Surplus Exchange	6 hours – Hazardous waste facility, Habitat Restore, midtown recycling center
4 – Consumption including life cycle analysis, food, buying green	13 hours	9 hours	2 hours – creating commercials, designing materials for cell phone and DVD collection	1 hour – Root Deep Urban Farm	2 hours – thrift shop scavenger hunt
5 – Urban Transportation	3 hours	2 hours	1hour – bike ride	2 hours – ATA, Metropolitan Energy Center	
6 – Air including indoor and outdoor air quality	5 hours	2 hours	3 hours – particle sampling, creating clean air cleaner	3 hours – EPA, MARC	
7 – Climate Change	10 hours	8 hours			2 hours – Discovery Center flooding scenarios
8 – Energy including alternatives and personal energy use	12 hours	2 hours	5 hours – energy audit of classroom, coal "mining" experiment, working at an urban farm	3 hours – Mo. Dept. of Conservation, Metropolitan Energy Center	5 hours – Discovery Center, Root Deep Urban Farm
9 – Urban Forest	3 hours	1 hour	2 hours – tree planting	1 hour – KCMO Parks & Rec.	
10 – Environmental Justice	3 hours	3 hours			
Totals	**105 hours**	**54 hours (51% of total)**	**25 hours (24% of total)**	**24 hours (44% of classroom time)**	**26 hours (25% of total)**

* *Classrooom –videos, discussion, worksheets, graphing, games, lecture (including guest speakers), student case studies. Experiential – science experiments, out of seat activities, service-learning projects.*

RESEARCH FOUNDATIONS

The ECOS program is founded on evidenced-based research that experiential, diverse learning and internship programs are needed for underserved populations.

Overall Workforce Shortages and Demands

Historical analysis shows that new entrants to the U.S. labor force have been better educated in the past than those leaving the workforce. Since 1980, the share of workers with at least some college education rose by 20 percentage points to 58 percent (Uhalde, Strohl, & Simkins, 2006). Current college going rates are at their highest levels, with 68.5 percent of the high school graduating class of 2005 enrolled in colleges or universities in October of 2005 (U.S. Bureau of Labor Statistics, 2006).

However, the proportion of the workforce with some college or a degree is likely to increase only 4 percentage points since the prime-age**, native-born workforce in the U.S. will not grow at all through 2020** (Organization for Economic Co-operation and Development, 2006). To stay economically competitive, some states will have to more than double the number of young people who obtain college degrees by 2025 to meet workforce demands (Reindl, 2007). **The importance of successful postsecondary education and workforce development throughout the population is clearly critical** to both economic health of both individuals and regions, and maximizing educational returns must be a top priority (Baum & Payea, 2005).

Numerous studies document the need for greater collaboration, policy and operational coordination between educational and workforce systems in the face of these challenges (Jenkins, 2006). Building a **coordinated career pathway through experiential learning, service learning and internships is a process** of adapting existing programs and services, and adding new ones, to enable students to advance to successively higher levels of educational and employment.

New National Workforce Priorities in Regional Kansas City

The Greater Kansas City Chamber of Commerce's Governor's Summit held Feb. 10, 2009 served as a forum at which the leaders of Kansas and Missouri come together with Greater Kansas City leadership to 1) identify and 2) explore points of intersection on key issues affecting the growth and development of the bi-state community and region. It resulted in a report of recommendations, *The Book of Big Ideas,* presented to the governors of the States of Kansas and Missouri (Kansas City Chamber of Commerce, 2009).

Clyde McQueen, CEO of the Full Employment Council located in Kansas City, Missouri has summarized in *Book of Big Ideas* the workforce development recommendations and conditions of the region related to

new federal and state workforce development priorities under the Obama administration:

- *(The Kansas City) region* ***stands to gain between ten to fifteen million dollars of local workforce development training funds*** *for laid off workers, low income youth and adults. Given the rapid velocity these funds, will be required to be spent, we can use different models of …education and training programs. This will enable us to develop a more just in time workforce training system that employers desire.*

- *We can use* ***summer internship programs to provide youth with work experience*** *enabling youth to develop the work ethic, which employers seek simultaneously with additional training in financial literacy and post-secondary school options.*

- ***We must develop more systematic efforts that focus on providing our youth with the work experience needed through jobs, internships, and career exploration activities.*** *Presently, youth employment efforts are sporadic, program specific, and tend to be viewed as important, but not necessary. Nationally, for the last five years, youth unemployment rates have hovered in excess of 30%, as employers complain about the lack of work ethic of our young population.*

- *Our regions suffers a brain drain as our young people attend schools in outside communities and appear to be embraced by other communities more readily than our own region. We must* ***re-double our regional efforts toward the employment of our youth*** *and understand that it is important for youth, at all income levels to secure education beyond high school that is* ***validated by the real prospects of employment.***

Expanded Learning Time

The Council of Chief State School Officers (CCSSO) is a nonpartisan, nationwide, nonprofit organization of public officials who head departments of elementary and secondary education in the states, the District of Columbia, the Department of Defense Education Activity, and five U.S. extra-state jurisdictions (CCSSO, 2006).

The CCSSO defines Extended or Expanded Learning Opportunities (ELOs) as *initiatives that provide safe, structured environments for students outside of the regular school day. Programs may be administered by youth-serving organizations or schools, often in partnership with local agencies and/or community and faith-based organizations. ELOs include before- and after-school programs; Saturday, weekend, and summer programs; extended day/year initiatives, distance learning, and early childhood education initiatives. ELOs vary significantly in duration, goals, structure, and content; however, they*

typically offer a range of programming that includes academic support (e.g., enrichment, acceleration, remediation, individualized tutoring, etc.) combined with recreation, mentoring, sports, and other extracurricular activities. School-based ELOs are housed in schools and typically staffed with both school and community-based personnel (CCSSO, 2001).

There are three basic categories that can be used to describe many programs operating outside the parameters of the regular school day: after-school programs, youth development programs, and extra learning time programs (CCSSO, 2006).

- **After-school** programs are sponsored by a variety of providers, including schools, child care chains, community education programs, grassroots organizations, parent-run nonprofits, and churches. Many programs are located in schools. The structure, goals, and nature of the programs vary greatly.

- **Youth development** programs are based on the premise that young people are resources to be developed, not problems to be solved. Programs are often sponsored by national youth-serving organizations in a club-type framework (e.g., the Boy Scouts and Girl Scouts, Y's, 4-H clubs or by local groups such as libraries, museums, parks and recreation departments, and police departments. Examples of activities include mentoring, art or sports clubs, and service learning initiatives.

- **Extended learning or extra learning time** programs offer children additional instructional time with the primary goal of increasing academic achievement. Extended learning providers deliver services after school is dismissed, such as tutoring, history or art clubs, and homework assistance. Programs focus on raising academic performance as well as keeping students safe and away from illegal or unhealthy situations. Programs after school dismisses are particularly critical to extend learning opportunities for students in low-performing schools. Quality expanded learning programs help students reach challenging state academic standards; provide opportunities for artistic, cultural, recreational, and academic enrichment; promote lifelong learning; and provide character and civic education.

Types of School-Age Expanded Learning Opportunities Programs			
	After-School Programs	**Youth Development Programs**	**Extra Learning Time Programs**
Major Goals	▪ Provide supervision for children of working families ▪ Support child development ▪ Provide enrichment and extra learning opportunities	▪ Promote youth development ▪ Prevent risky behaviors	▪ Improve academic achievement ▪ Decrease gaps in academic achievement
Accountability Framework	▪ Licensing ▪ Accreditation ▪ Requirements from funders	▪ Outcomes-based evaluation	▪ State tests ▪ School achievement
Staff	▪ Child care staff ▪ Staff from the regular-day school program	▪ Youth Workers	▪ Teachers ▪ Paraprofessionals
Major Sources of Funding	▪ Parent fees ▪ Child Care Development Fund ▪ State and federal grants (such as 21st Century Community Learning Centers)	▪ Philanthropic funds ▪ State and federal crime and drug prevention dollars	▪ State and federal grants ▪ Local district support ▪ Tuition for for-profit academic programs

Table 1: Types of School-Age Expanded Learning Opportunities (Griffin, 2004)

Difficulty in Expanded Learning Time in High-Poverty and High-Minority School Settings

The Center for American Progress (Rocha, 2008) has conducted research over a two-and-a-half year period to identify and study schools and districts across the country with more learning time. This report identified more than 300 current initiatives in high-poverty and high-minority schools across 30 states, implemented between 1991 and 2007.

It confirms that **one strategy, the expansion of learning time for high-poverty and high-minority schools, has great potential** to increase student performance, close achievement gaps, expand enrichment opportunities, and change school culture to better support learning and teaching. **This research confirms that school partners are integral to the expansion of learning time.** Many efforts to lengthen the day, week, or year were made possible by partnerships or agreements with universities, businesses, foundations, cities, school districts, or community improvement initiatives.

However most of the high-poverty and high minority schools identified in this mega-analysis expanded learning time for the elementary and middle school grades. **Significantly fewer initiatives add learning time for the high school grades**—where an expanded time school design becomes more challenging. Not one of the districts in the 30 states identified in this report expanded time for high school students.

The Center for American Progress report recommends that high school expanded learning time designs "be carefully crafted to **engage students in learning** and may **combine classroom instruction with workforce training or paid work opportunities** such as apprenticeship."

It notes the **dearth of research and evaluation of promising programs** that can aid a district capacity to lengthen learning time in multiple schools and recognized that districts may lack the knowledge, resources, staffing, or political will to implement such a strategy. It is seemingly difficult for districts to scale a district-wide improvement strategy based on a school-level model. Because so few districts have implemented expanded learning initiatives across multiple schools, and because many of these efforts are new, districts largely lack proven, long-term models of expanded learning time implementation.

Increased Diversity of the American Workforce

As diversity increases in the general population, it also increases within post-secondary education. **Students of color have been predicted to be 80 percent of the 2.6 million new college enrollees by 2015** (Carnevale & Fry, 2000). In several states, minority students already make up at least one third of the student body. For example, fall 2002 minority enrollments in the four most populous states—California, Texas, Florida, and New York—were 51 percent, 41 percent, 37 percent, and 32 percent, respectively (Pez-Rivera, 2007) States seeking to close workforce gaps must **more effectively serve a growing population of historically underrepresented racial and ethnic groups** (Reindl, 2007).

Increased Demands for Certified Competencies

At the same time that American workforce is slowing its educational growth and becoming more diverse, there is increased pressure on educational systems to demonstrate that students have gained knowledge and skills that employers expect of successful students and workers. These knowledge and skill sets are increasingly more advanced, such as orientation for inquiry, democratic values, and problem solving skills, and which require for mastery well-constructed experiential learning opportunities (Kuh et al., 2006).

Uhalde, Strohl and Simkins (2006) note that employers most are interested in potential employees' functional knowledge, skills and abilities, including innovation, critical thinking and social capacities, and that **educational credentials serve as a "signaling device"** for them to anticipate what new workers know and can do. Documented workplace-based internships and hands-on experiences can be among signaling markers to employers that students' educational preparation has been aligned with their marketplace values and experiential requirements.

Impact of Experiential Service Learning on Outcomes

ECOS is designed around a research-apply-reflect model of learning combining 105 hours of classroom-based study and analysis with interaction with speakers, personalized field visits and hands-on, applied service learning activities followed by debriefing, discussion and journaling.

Reflection is at the heart of service learning experiences because reflection transforms the experience so that service and learning both support and enhance each other (Callahan, Diez & Ryan, 2001). Reflection allows students to "address their concerns, challenge their preconceptions and connect their sense of self with others" (Giddens, 2003).

These findings align with the philosophy of John Dewey, one of the first educators to propose the concept of learning through direct experience (Dewey, 1938*)*. Dewey wrote that the two key aspects of the concept were: 1) the immersion of the student in a hands-on project; 2) followed by a period in which the student reflected on their experience before reporting on their learning outcomes.

Dewey's approach is nearly the opposite of the traditional learning cycle in which students read information, listen to lectures and then report upon what the experts have proposed. Both types of learning appear to be equal in the short term, as shown by Van Eynde's and Spencer's findings (Giles & Eyler, 1994) that experiential learning was no more effective than lecture two weeks after the event. However, **long term retention from hands-on or experiential learning opportunities were significantly greater** than lecture on long-term retention at thirteen weeks, showing that the **general effectiveness of experiential learning is more robust.**

It is thought that the most important aspects of service learning are provided by experiential learning. That is, the opportunity for the student to engage in genuine contexts, teamwork, ambiguity, higher level thinking, and transformational interactions. These **hands-on learning opportunities can create vivid sensory impressions, leading to long-term memory and capacity building in ways that less enriched learning methods cannot.** McGeehan (2001) synthesized the findings of brain research and their connection to the way students learn. He documents that first-hand experiences create the greatest opportunity for dendritic growth and synaptic connections. This incoming sensory information, and the meaning made based on the students' personal prior experiences, is encoded in networks of communicating neurons. The brain retains information that it

senses as useful and relevant for survival, and it discards that which is perceived to be meaningless and unrelated (Westwater & Wolfe, 2000). **Experiential learning creates the context for meaningful retention of valuable behavioral patterns.**

Service learning may decrease dropout rates. A recent study revealed that academic achievement may not be the primary reason that students drop out. The study found that 70% of dropouts reported that they did not see the real-world applications of their schoolwork. In addition, 80% of students believed that if schools provided opportunities for real-world learning including service-learning and internships, their chances of graduating would improve (Bridgeland, DiIulio, & Wulsin, 2008).

Effects of Competency-Based Internships

Survey data from the 1950's reveal that 55 percent of high school seniors in that decade planned to attend college and that 42 percent expected to work in professional jobs. These percentages increased in each subsequent decade, reaching 90 percent of seniors reporting that they planned to attend college and 70 percent reporting that they expected to work in professional jobs by the year 1999 (Schneider & Stevenson, 1999). However, many of these students have had unfocused and unrealistic career plans because they have worked at low-paying, non-challenging service jobs that do little to help them find the road to appropriate preparation and personal success.

Research demonstrates that those **students who obtain competency-based internships and other hands-on, pre-professional experiences increase their awareness of their talents, the potential in the community and the pathway to success** in a particular career. Kuh and others have diagnosed such student engagement as an essential indicator of student success (Kuh 2001, 2003; Pascarella and Terenzini 2005). These researchers report a substantial body of research indicating that a "key factor" to persistence to graduation and success in college is the extent to which students are involved in educationally effective activities, which also are more likely to produce the competencies that employers need.

The Effects of Paid Internships

On Scannell and Simpson's national survey, families rated the high cost of education as the most significant obstacle in the fulfillment of their educational dreams, next to catastrophic illness and environmental problems (Whitehead & Bassa, 2008). **Although there is widespread interest in service learning across the nation, the need for lower income students to earn their living may limit the ability of students from disadvantaged populations to participate.**

Using the more available internship data from higher education, it is interesting to compare the prevalently volunteer, service-based internships in the non-profit field with those in other sectors. The Experiential Education Survey conducted by the National Association of Colleges and Employers documents that 97.8 percent of the respondents reported paying their interns in 2005. The average hourly salary for undergraduates ranges from about $13 (marketing majors) to nearly $17 (electrical engineering majors) (National Association of Colleges and Employers, 2006).

Nonprofit interns were not included in this study. Especially for candidates from underrepresented populations, the **lack of paid internships in the nonprofit field** – where many environmental justice and green initiatives are seeded - **automatically excludes a significant segment of potential young leaders** from experiencing the professional networking, mentoring, skills development and personalized understanding that result from internships (Ballard, 2005). The internship stipend is one among numerous critical needs gaps in the capacity building, training and education of nonprofit leaders – professionals, board members, volunteers and civic representatives - prepared to address the growing complexity of nonprofit management in a global economy and interconnected international social service interventions (Halpern, 2006).

In one study (Pascarella & Terenzini, 2005), stipends provided to students for their (optimum) 10 – 15 hours per week of service-based internships were not originally expected to be an important component of the program. However, many testimonials and anecdotal comments expressed deep appreciation for the stipend by needy students. **Such students reported that they could not have afforded to participate in the program without the stipend,** since service learning took up hours that could otherwise have been spent in paid employment. Both disadvantaged and advantaged students reported that they valued the service learning experience - reporting that having participated in service learning made their educational experience "whole" (Pascarella & Terenzini, 2005).

Economic Impact and Return on Investment from Serving Failing Adolescents

Critical issues in American education are the allocation and effectiveness of educational resources. ROI of the ECOS program will be more fully documented in later reports, but the literature reports several "myths" related to adolescent literacy (Ehren, Lenz, and Deshler, 2004). These include the assumption that low-achieving teens are beyond the point at which instructional interventions can contribute to the learning outcomes achievable at lower grades. This pessimism is sometimes articulated directly in philanthropic funding limitations and restrictions (Campbell, 2009).

The Response to Intervention Action Network is a program of the National Center for Learning Disabilities, funded by the Cisco Foundation and devoted to intensive secondary interventions in literacy and content areas **(**Response to Intervention Action Network, 2009). Its research and documentation (Ehren, 2008) notes that it would be "unconscionable to give up on older students," as well as "ill-

informed." The RIA Network references numerous studies as evidence that intervention with failing secondary students can be effective (O'Connor & Bell, 2004; Scammacca, et al., 2007; Schumaker & Deshler, 1992; Vaughn, Klingner, & Bryant, 2001).

The benefit analysis of the ECOS program will be explored in a future report. However, one benchmark of economic impact by the Center for Benefit-Cost Studies of Education at Teachers College, Columbia University**,** indicates that reducing school failure has an economic return of more than $200,000 per student.

"The nation would reap more than twice the cost of wide-scale adoption of effective pre-K-12 educational interventions, resulting in a gain of $45 billion from increased tax revenues and reduced social costs over the lifetime of high school graduates", according to Henry M. Levin, a professor of economics and education at Teachers College, Columbia University (Levin, 2007). This study estimates intervention investments required of $82,000 over the 13 years of K-12 education to reduce dropouts and increase high school graduation among high risk students. If these students persist to graduation, economists estimate that they will return on average a total benefit of $209,000 in reduced law enforcement, welfare and healthcare costs as well as increased tax revenues.

In the Kansas City community, the America's Promise study documents that the graduation rate in the Kansas City school district is 45.7%. Missouri dropouts experience a correspondingly high level of unemployment (20%) compared to 4.4% for high school graduates, and earn on average $10,000 a year less than a high school graduate. The potential public benefit in state income and taxes, Medicaid and incarceration costs of reducing each dropout in Missouri is approximately $4,000 annually and $95,000 over the life of each dropout prevented (Gottlob, 2006).

The sustainable cost of student intervention through the ECOS program is projected for 2009 by GWKC President Kate Corwin at $3,000 per student covering the ECOS curriculum and internships. This cost includes 30 weeks of curriculum (5 hours/week average), planting materials, instructional subsidies to the school science teacher and 10 percent overhead, not including bus travel and volunteer participants. Also included in the cost are 6 hours of orientation and 120 hours of internship for each student ($1,000 going directly to pay the student intern).

This is a total of 276 hours in expanded learning instruction, hands-on field trips, community service learning and workforce internship placements. $45,000 serves 15 students during the school year, and summers, one-third of the total going directly to the students for internships stipends ($8/hour, 30 hours/week for 4 weeks) (Campbell, 2009).

THE IMPACT OF
THE ECOS PILOT PROGRAM
OF
GREEN WORKS IN KANSAS CITY EVALUATION FINDINGS:

Student outcomes compared to norms of the DeLaSalle student population

The ECOS evaluation pretest was created by the evaluator based on the ECOS science concepts, environmental science educational standards and noncognitive questions of attitudes and perceptions based on research with minority and nontraditional students.

Sixty students, 86 percent of all the students enrolled in the DeLaSalle high school's science classes, ages 16 to 18, participated in the ECOS evaluation pretest at DeLaSalle High School in October 2007. These students were assigned to one of 3 forms of the pretest (Form A, B, C) which were found to be equivalent in outcomes and measures. Each form had variations of 83 content and attitudinal measures.

Ten students, out an initial enrollment of 15, qualified for the fall post-test program assessment. Five students left the school or graduated before completion of the ECOS course. (Seniors at DeLaSalle are allowed to leave the school upon individual completion of contracted competencies, which can occur at any time throughout the school year.) Of these ten students, their pre-test scores did not vary statistically from the normed population and therefore are not separately reported. While this number is not adequate for a full-scale analysis of valid and reliable outcomes, we can compare the trend lines of this sample to the DLS science-course-taking population as a whole for more comprehensive study in the future.

The DLS ECOS students also were tested with the 11th edition of the Classroom Reading Inventory (Wheelock, Silvaroli & Campbell, 2008) by reading specialists Connie Campbell, Ph.D. and Elaine Mondschein, Ed. S. To date, 6 students have been tested, ranging in scores of 4th to 8th grade in reading comprehension and literacy levels averaging at the 6th grade.

Service oriented and related environmental behaviors

There were wide differences between the DLS student norms and the posttest outcomes of the DLS ECOS students on service oriented and related environmental behaviors:

- **37 percent** of DLS science students compared to **90 percent** of DLS ECOS students indicate that they **"have served others in community projects."**

- **23 percent** of DLS science students compared to **70 percent** of DLS ECOS students indicate that **their family takes their own shopping bags or reuses bags to shop.**

- **40 percent** of DLS science students compared to **80 percent** of DLS ECOS students indicate that they have **planted a tree**.

- **42 percent** of DLS science students compared to **90 percent** of DLS ECOS students indicate that their families **use curbside recycling**.

- **38 percent** of DLS science students compared to **80 percent** of DLS ECOS students indicate that they have **switched one or more lights in their homes to compact fluorescent bulbs.**

- **40 percent** of DLS science students compared to **60 percent** of DLS ECOS students indicate that **they have explored an environmental topic on the Internet or in the library.**

- **62 percent** of DLS science students compared to **20 percent** of DLS ECOS students agree that **they toss trash out the window after eating or drinking in their cars.**
    a. **10 percent** of DLS science students compared to **20 percent** of DLS ECOS students– **once a week**
    b. **32 percent** of DLS science students - **several times a week**
    c. **13 percent** of DLS science students - **almost every day**

Qualitative Indicators:

Qualitative indicators indicate that ECOS students also are proactive in influencing the positive environmental behaviors of family and others in increasing recycling and use of reusable shopping bags, stopping or reducing littering from cars, refraining personally and stopping neighbors from pouring motor oil into street drains, discussing the environmental effects of family's jobs, and personally refraining from and stopping their hair stylists from using aerosol hairsprays.

The following are documented student responses in class assessments, in class discussions, from journals and from service learning settings in the first year of operation of ECOS:

- *"I am trying to save as much water as I can after seeing all the processes that water hast to go through at the water treatment plants. I'm taking shorter showers, and turning off the faucet when I brush my teeth."*

- *"I've learned that we need to stop and think about our behaviors and how they will affect the environment before we act."*

- *"I hold onto my trash until I reach a recycle bin or trash can."*

- *"I want to live in a future world that is not polluted, where people recycle."*

- *"After seeing the river from the boat, I am now interested in helping with a river clean-up."*

- *"I want to plant native plants in my yard someday. Before this class I thought all native plants were poisonous, like poison ivy."*

- *"I'm going to stop putting hair, grease and chemicals in the toilet."*

- *"One person can make a difference and I want to be someone who helps make things better. Everything I'm learning is new. I've never studied the environment before."*

- *"I have been flushing things down the toilet and using it as a trash can. Now that I know the process it takes to clean the water, I will not do that."*

- *"I learned that we can do something about water pollution – each of us."*

- *"That film* (about waste) *is great. I had a Kleenex in my pocket that I probably would have thrown on the ground. Now I'm going to put it in the trash can."*

- Upon passing a bunch of paper that had fallen off a truck on the way to a field trip, and the students asked to stop and pick up the paper. When returning from the tour, the students noted that the papers were picked up and the students were very excited to see that and stated that they "*would like to do a project where they picked up trash."*

- *"I pick up the trash that my friends toss on the ground. I don't want to live in a trashy environment. They give me a hard time, but I still pick up the trash."*

- "*After being a regular student in the ECOS program, I committed to change the way I unintentionally harmed the environment by decreasing the amount of hair spray that I use, stopping littering, recycling, and urging people to quit smoking."*

- *"I don't use aerosol sprays any more and I don't let my stylist use hairspray on my hair."*

- *"I don't throw trash on the ground; I recycle."*

- *"I have changed a lot. I have stopped running water while I brush my teeth and I started recycling."*

- One student made invitations to his sister's baby shower and reported, *"I decided to reduce, reuse and recycle by cutting up old cards and making my own invitations."*

- *I have been collecting paper at home to recycle and won't let anyone else throw it away.* (This student and several members of the class have been bringing their recycling to the classroom between classes.)

- Numerous students confirmed their effort to go around the school collecting recyclable materials. *"Here at DeLaSalle, we're making a big effort for recycling,"* was a typical student comment to visiting speakers.

- Students made a safe cleaning solution with an expert from the EPA. A typical student remark in weeks following: *"I use it all the time – it really works!"*

- *"I know to recycle everything that can be recycled and I don't waste as much water."*

- "*Because of what I have learned, I haven't dumped anything in the toilets or down the sinks."*

- One student reports working frequently on cars and wanting to own a car repair shop. He reported, *"Don't worry – I will have a plan that is good for the environment for my shop to dispose of motor oil. I stopped pouring motor oil into the street drain, and I also stopped my neighbor from pouring oil in the drain, too."*

- ECOS student upon walking outside the school building, *"Wow, look at this trash out here – it's not from anyone in this class."*

Please see ATTACHMENT A for a full analysis of the environmental impact of service oriented and changed behaviors of students.

Attitudes and Perceptions: Environmental interest

Norm: A majority of DLS students (**63 percent)** documented that they **"care a lot" about environmental issues, the school using its influence to improve life in the neighborhood** (**76 percent)**, and that **"one person really can make a difference" for the environment** (**73 percent)**. However, only **7 students (12 percent)** checked that it is true that **they are troubled by the paper and plastic bags and containers we use one time and throw away.**

Post-test outcomes: All students **(100 percent)** who participated in the DLS ECOS program documented that **they cared a lot about the environment, the school should use its influence to improve neighborhood life and that one person can really make a difference for the environment, and that they are troubled by the paper and plastic bags and containers we use one time and throw away.**

Civic Engagement

Nearly half **(47 percent)** of DLS students compared to **70 percent** of DLS ECOS students agree that they would call or write their city council representatives if they "had facts about environmental issues in my neighborhood affecting my family's well being."

Interest in Science Workforce and Science Classes

25 percent of DLS students and **10 percent** of DLS ECOS students indicate that they would like to consider a career based in science, although **42 percent** of DLS students and **60 percent** of DLS ECOS students checked that it is true that science is one of their favorite class subjects.

Self-Perceptions

Most normed DLS students indicated that they are striving:

1. Most want opportunities to learn new things **(93 percent).**
2. They state it is true that they "act upon" strongly held beliefs" **(88 percent).**
3. They believe they are "as skilled academically as the average student in the school" **(75 percent).**
4. They want a chance to "prove themselves academically" **(83 percent).**
5. Most believe they are "sometimes looked up to by others" **(82 percent).**

100 percent of DLS ECOS students agreed with the statements above, except for 1 student who did not agree that he/she was as skilled academically as the average student in the school

While DLS students have strong self-perceptions in some areas, they are less confident in others compared to DLS ECOS students:

1. **63 percent** of DLS students and **100 percent** of DLS ECOS students indicate that they are not easily discouraged when they try to do something and it doesn't work. This suggests that more than one-third of the norm group might be more easily discouraged, and **the ECOS program appears to have an empowering effect on self-confidence**.
2. **43 percent** of DLS students and **60 percent** of DLS ECOS students indicate that their high school grades do **not** really reflect what they can do.
3. Only **30 percent** of DLS students but **80 percent** of DLS ECOS students feel that they know a lot about environmental issues.
4. **48 percent** of DLS students compared to **80 percent** of DLS ECOS students checked that it was true that they have studied things about the environment on their own.

Barriers to Graduation

The DLS students (60) and sub-group of DLS ECOS students (10) were given an opportunity to identify barriers that possibly would result in their leaving school before graduating. Some students checked more than one item; therefore percentages of the total are not included. Below are the numbers of respondents to each option and additional written inserts:

Barriers to Graduation	DLS Normed Group	ECOS Students
1. Absolutely sure I will graduate	23	5
2. To accept a job	15	1
3. Marriage or parenthood (one DLS student crossed out "marriage")	11	0
4. Care of a family member	17	4
5. Lack of interest in studies	10	0
6. School work not connect to my needs and interests	11	1
7. Lack of academic ability	5	0
8. Insufficient reading or study skills	6	0

9. Other:

- "Need money" (**1** DLS student)
- Flat out broke/poor" (**1** DLS student)
- "Nothing" (**1** DLS student)
- "Just lazy" (**1** DLS student)
- "Teaching thing (sic) I already know" (**1** DLS student)
- "Go to college to become a vet" (**1** DLS student)
- "College" (**1** DLS student)
- "Illness" (**1** ECOS)
- "Die" (**1** DLS student and **1** DLS ECOS student)

Environmental Science Content

The DLS norms demonstrate a student population lacking basic and fundamental knowledge about environmental science. DLS students scored below 70 percent on **all** science content items. Most content item scores were significantly below 50 percent, often times at lower than chance levels (i.e., equivalent to a score from random guessing), suggesting that some students could not read the questions.

By contrast, the students who had participated in ECOS generally showed marked improvements over these baseline indicators.

Water

1. **New water:** **32 percent** of DLS students and **80 percent** of DLS ECOS students correctly answered false to the statement, "additional new water is created when trees and grass release oxygen that combines with hydrogen in the air"; **45 percent** of DLS students and **100 percent** of DLS ECOS students correctly answered true to the reverse wording: "There is no way to create new water. The water in the earth's system is the same as when the earth began."

2. **Chemicals in water supply:** **55 percent** of DLS students and **80 percent** of DLS ECOS students correctly responded to the fact that there are chemicals that water treatment plants are not able to remove completely from our water supply.

3. **Water cycle:**
   a. **67 percent** of DLS students and **80 percent** of DLS ECOS students correctly matched **"evaporation"** to water that is exposed to air and becomes gas.
   b. **45 percent** of DLS students and **80 percent** of DLS ECOS students correctly matched **"condensation"** to water gas in the air that becomes liquid.
   c. **62 percent** of DLS students and **100 percent** of DLS ECOS students correctly matched **"precipitation"** to liquid droplets that fall to earth.
   d. **28 percent** of DLS students and **90 percent** of DLS ECOS students correctly matched **"transpiration"** to water is returned to gas by plants.

4. **Purpose of a rain garden:** Below are the numbers and percentages of correct responses:
   a. It uses plants for their ability to retain water and remove pollution and toxins: True: **30 percent –** DLS students; **100 percent** of DLS ECOS students
   b. It soaks up excess rainwater run-off from a house or other building and its landscape - True: **23 percent** - DLS students; **90 percent** - DLS ECOS students
   c. It is built below ground level - True: **13 percent** - DLS students; **60 percent** - DLS ECOS students
   d. It holds and percolates groundwater for over 24-48 hours - True: **12 percent** – DLS students; **80 percent** DLS ECOS students
   e. It captures rain in tanks, which is dripped through hoses to grow hothouse vegetables throughout the year - False: **10 percent** – DLS students; **100 percent** DLS ECOS students

Environmental Science Concepts

The numbers and percentages of students' correctly matching environmental science concepts to their definitions are listed below.

None of the 60 DLS students documented a minimal grasp of this vocabulary. Seven of the items were missed by 99 percent or more of the students. While some of these terms may be new to students, such as "bioretention area" or "hypoxia zone", most are from Missouri state standards for elementary level science vocabulary.

1. **Acid rain:** Droplets containing pollutants that are products of burning coal, other fuels and industry. **1 percent –** DLS students; **70 percent** – DLS ECOS students

2. **Bioretention area:** Places with high water run-off that are built with sand, soil and native plants to reduce drainage.**06 – less than 1 percent –** DLS students; **20 percent** DLS ECOS students.

3. **Ecosystem:** Living things all interacting as a group and with the surroundings in which they live. **.05 – less than 1 percent** – DLS students; **70 percent** DLS ECOS students

4. **Environment:** The air, water, light and land and their conditions that affect the living things in their surroundings. **.06 – less than 1 percent** DLS students; **60 percent** DLS ECOS students

5. **Erosion:** Eating away of a surface. **.06 – less than 1 percent** DLS students; **40 percent** DLS ECOS students

6. **Humus:** Decayed matter that provides nutrients for plants and makes soil able to retain water. **.06 - less than 1 percent -** DLS students; **40 percent** DLS ECOS students

7. **Hypoxia zone:** An area of oxygen-depleted waters. **.03 – less than 1 percent -** DLS students; **70 percent** DLS ECOS students

8. **Natural resource:** Materials from the earth like timber, fresh water, coal or oil that have economic value. **12 percent -** DLS students; **70 percent** DLS ECOS students

9. **Organism:** Individual forms of life and living things, such as plants, animals, bacteria, or fungus. **16 percent -** DLS students; **70 percent** DLS ECOS students

10. **Soil compaction:** Land in which the air and water is squeezed out through pollution and development. **.05 – less than 1 percent -** DLS students; **40 percent** DLS ECOS students

11. **Watershed:** The specific land area that drains water into a river system or other body of water**. 12 percent -** DLS students; **70 percent** DLS ECOS students

12. **Wetland:** A lowland area, such as a marsh or swamp, filled with moisture and the natural habitat of wildlife. **8 percent -** DLS students; **50 percent** DLS ECOS students

EVALUATION CONCLUSIONS

CW Interventions has completed preliminary norms, attitudes and learning assessments for Green Works in Kansas City after evaluating the 2007-2008 pilot processes of its flagship program, ECOS (Environmental Connection Opportunities for Students). Conclusions to date about progress and accomplishments are addressed to each evaluation question below:

1. Is the ECOS program design founded on research evidence, outcomes and educational standards?

The ECOS program is founded and developed on cutting-edge learning theory, experiential learning applications and the growing needs of America's educational workforce pipeline.

In addition, the program aggressively pursues with success some of the most intractable learning problems in the K-12 sector – enhancing and increasing expanded learning time in an alternative high school serving minority, high poverty students and advancing paid internships and community-based service learning.

Its pilot location, DeLaSalle High School in Kansas City, Missouri, documents a student population that has failed in other educational settings and that includes the following attributes (DeLaSalle, 2008):

1. 100 percent have experienced some kind of school failure
2. over 50 percent are medically indigent
3. 14 percent are pregnant or parenting teens
4. 20 percent admit drug use
5. 7 percent have considered suicide
6. 11 percent have been assigned to a probation officer.

2. How is the ECOS program being implemented in pilot and first year testing?

The Green Works' ECOS program is commended for successfully piloting and testing its standards-based curriculum and experiential learning applications with students from a high school population exhibiting almost every possible barrier to academic success. ECOS includes opportunities for rigorous science learning experiences and community-based networking, mentoring and paid internships.

It is the conclusion of this evaluator that the ECOS program success in building a baseline curriculum, developing and financing community internships, and maximizing community volunteers, resources and hands-on experiences is based on its community involvement philosophy. Green Works is governed by a small board of six individuals including a full-time President/Executive Director, and is organized as a networked community of leaders, influencers and volunteers throughout the community. Green Works'

support from over 25 community organizations (both for profit and not-for-profit), and 30 plus community volunteers is essential to its ability to innovate and overcome systemic educational obstacles.

Rather than organize through the DeLaSalle school system per se, Green Works leaders used a model similar to that in philosophy of Teach for America. Founder Kate Corwin and her board designed and leveraged the curriculum resources, speakers, materials, field trips, learning experiences, work-based simulations and internships first through her neighborhood and civic contacts from ***outside of the school rather from within the bureaucracy.***

Just as Teach for America connects college students to inner city teaching ***first*** through their ***passion*** to serve, Green Works started with the "green" passion of grassroots activists and students interested in environmental solutions.

From these edges of innovation, Teach for America moves beginning teachers toward certification through their hands-on classroom experiences; Green Works, in kind, moves students toward higher educational standards, increased literacy capacities, workforce internships, community service outcomes while educating and organizing more systemic community systems and opportunities among supportive sectors in science, technology, environmental justice, governmental services, and the faith communities.

Challenge: A key question for the future growth and institutionalization of the Green Work's ECOS program is its long-term institutionalization into school or other community educational systems.

While its service to 10 students (out of a DLS student population of approximately 70 students taking science courses) per semester appears small, it can be compared to one or more sub-populations of the Kansas City, Missouri, School District as documented by the State Education Data Center (SEDC). SEDC is a service of the Council of Chief State School Officers, funded by the Bill & Melinda Gates Foundation as part of the Council's National Education Data Partnership (**www.schooldatadirect.org**).

As documented on this website, 366 Black students and 205 Hispanic students took AP courses and tests in 2005 out of an estimated high school population of 8,795. Of these students, only 47 Black students and 23 Hispanic students took the AP science test, and 37.2 percent and 56.5 percent, respectively, passed it successfully (a score of 3 or higher on a scale of 1 to 5).

This means that only 17 Black students and 13 Hispanics successfully passed the AP science test in 2005 in the entire school district of Kansas City Missouri, with a student population at that time of 26,980 children and more than 4,000 teachers and administrators (Kansas City, Missouri, School District, 2009).

AP science college credit courseware is not necessarily correlated with the purpose and outcomes of the ECOS courseware and its 105 hours of classroom and learning applications. The purpose of this reference to not to compare the rigor or content of each but to demonstrate the challenges of our

community in finding innovative and breakthrough solutions to the abysmal education of minority and poverty high school student populations in our community.

It is mind-boggling that a grassroots virtual organization of green activists can successfully achieve the delivery of major science learning outcomes for 10 students a semester in an alternative high school serving failing students. These students are referred from the same school district that can only document 30 successful minority students per year in AP science.

This issue is of such magnitude that the evaluator advises much further community analysis and input into imagining, investigating and designing the scalability and management politics required of Green Works for long-term program institutionalization.

3. How satisfied are stakeholders with the ECOS program?

The levels of satisfaction by stakeholders will be documented in a following evaluation report of qualitative data. There are no indications in that data that the participating DLS science teacher and the great majority of students, community participants and host sites are not highly satisfied and even highly inspired by their ECOS experiences.

4. What are programmatic strengths?

As documented in the literature review and achievement outcomes, the ECOS program strengths are its success in reaching high minority and high poverty students at the high school level, pioneering extended learning time and hands-on community service programming at the high school level, creating community synergy with focused community experiences, applying cutting-edge learning theory and providing opportunities for extended paid internships in organizations aligned with course content.

5. What are programmatic weaknesses?

The ECOS program is in a delicate stage of growth and development. It has tested and proven research and evidenced-based strategies and outcomes for a small number of hard-to-serve youth. It has built upon the passion of a diverse array of supporters, including the students served, to make the environment a focus of personal and group commitment and positive green behaviors.

The next step is critical. The Green Works leaders, funders and community supporters must extend their vision, talents and influence beyond the pilot site concept and strategically address how the ECOS program can be adapted and delivered at scale.

This will affect all aspects of the Green Works capacity, including standardization of the curriculum, program teacher training strategies, a broader internship strategy with government, for-profit and non-profit host sites and a multi-partner funding plan.

6. What are outcomes at the level of the school?

The changes in school achievement are remarkable. While the sample of ECOS students is too small to conduct statistical measures of reliability, we can directly compare their achievements on state science standards as well as their attitudes and perceptions to their peer population at DeLaSalle High School.

ECOS students far surpassed the performance of their peers on virtually every question of academic performance. This is despite entering the program with numerous handicaps, including low level reading scores averaging 3 to 6 years below grade level and with real concerns about their capacity to graduate due to major barriers, including demands of care of dependent family members and fear of dying, among other issues shared with their peers.

7. What are outcomes for the internship host sites?

The outcomes for internship host sites will be documented in a following evaluation report of qualitative data. The indications in that data are that the participating host sites are satisfied with work performance, community participation and support of workforce development skills for their interns. There are also indications that the host sites support future internship opportunities at their sites.

8. What are outcomes for the students?

This report documents the extensive academic concept development and changed behaviors for the ECOS students. In particular, this evaluation notes among the ECOS students the following positive indicators of empowerment, self-confidence, motivation for independent study, personal responsibility and a sense of awareness and expertise about environmental issues:

- All students **(100 percent)** who participated in the DLS ECOS program documented that they cared a lot about the environment, the school should use its influence to improve neighborhood life, that one person can really make a difference for the environment, and that they are troubled by the paper and plastic bags and containers we use one time and throw away.

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- **70 percent** of DLS ECOS students agree that they would call or write their city council representatives if they "had facts about environmental issues in my neighborhood affecting my family's well being."

- **100 percent** of DLS ECOS students indicate that they are not easily discouraged when they try to do something and it doesn't work.

- **60 percent** of DLS ECOS students indicate that their high school grades do **not** really reflect what they can do.

- **80 percent** of DLS ECOS students feel that they know a lot about environmental issues.

- **80 percent** of DLS ECOS students checked that it was true that they have studied things about the environment on their own.

In addition, there were wide differences between the DLS student norms and the post-test outcomes of the DLS ECOS students on service oriented and related environmental behaviors. These behaviors substantially exceed the norm group behaviors by wide margins:

- **90 percent** of DLS ECOS students indicate that they have served others in community projects, and their families now recycle.

- **80 percent** of DLS ECOS students indicate that they have switched one or more lights in their homes to compact fluorescent bulbs and that they have planted a tree, and do not toss trash out of the windows of their cars.

- **70 percent** of DLS ECOS students indicate that their family takes their own shopping bags or reuses bags to shop.

- **60 percent** of DLS ECOS students indicate that they have explored an environmental topic on the Internet or in the library.

One area of interest is both the DLS and the ECOS student responses about science careers and science classes. **25 percent** of DLS students and **10 percent** of DLS ECOS students indicate that they would like to consider a career based in science, although **42 percent** of DLS students and **60 percent** of DLS ECOS students checked that it is true that science is one of their favorite class subjects. This question requires further investigation and understanding of the students' point of view in their responses. A high percentage of DLS and DLS ECOS students indicate that science is not attractive to them, although ECOS students are somewhat more positive about science as a subject. This avoidance of "science" and its associations are indicators that the ECOS program may want to pursue greater clarity and learning connections of the environment and related career or civic opportunities that are scientific.

9. What are next steps for Green Works in utilizing formative evaluation findings to enhance program?

The evaluator advises much further community analysis and input into imagining, investigating and designing the scalability, funding streams and management politics required of Green Works for long-term program institutionalization.