

# **GLASSROOTS: DESIGN AND EVALUATION FRAMEWORK FOR AN INNER CITY GLASS-BLOWING PROGRAM FOR AT-RISK YOUTH**

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## **Abstract**

GlassRoots is a multivalent program, designed to address the critical developmental issues facing a segment of the at-risk youth population in the inner city, through the medium of glass blowing. Based on previous work in Tacoma WA and Taos NM, it is an extensive adaptation and extension of existing models. Two of the extensions involve basic, advanced and computer-aided design and entrepreneurship skills development. This paper presents the program design and evaluation framework for the Entrepreneurship component of the venture.

## **Description of the GlassRoots Project**

### **Situational Description**

Newark has been New Jersey's largest city for nearly 300 years, yet its population has been declining steadily for more than a century. Much of the world's attention was drawn to Newark's agony in 1967 when several days of race-related riots devastated many blocks of the inner city. Those riots confirmed a "white flight" pattern that had seen the city's downtown office and commercial strengths migrating to the suburbs. By 1995, much of the commercial retail and office space downtown had been vacant for more than a decade, and the trend appeared likely to continue. Urban decay and downtown Newark had become practically synonymous in American urban discussions.

That situation was exacerbated by the decay of the city's school system, to the point that the State of New Jersey intervened to seize control in the early 1990s. Indeed, the picture facing Newark's young people was bleak and getting worse. The schools were not preparing them properly in such basic areas as literacy and employable skills. Violence and drugs were rampant, and economic prospects were "not here!" Poverty, dependency, and violence, and their associated evils were widespread.

Like most such profiles, however, there were bright signs in the midst of the squalor. The IronBound (Hispanic) district had been spared from the riots and was a vibrant, energetic community. Five institutions of higher learning were located in the city core (Rutgers-Newark, New Jersey Institute of

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Technology (NJIT), the University of Medicine and Dentistry of New Jersey (UMDNJ), Essex County Community College, and Seton Hall Law School). Several hospitals, the Newark Museum, the Newark Public Library, and other institutions provided stable economic bases and a higher more positive vision than the “mean streets.” Some businesses remained downtown, most notably the headquarters of Prudential Insurance and several of its related companies, the Gateway Hilton, and the Robert Treat Hotel. Some government agencies, including the court system, remained. And bright, energetic kids continued to offer their talents to the world, even if they had to fight their ways out of the “projects” and blasted neighborhoods of the Central, North and South wards.

Apart from the thriving ventures of the IronBound, entrepreneurship in Newark resembled that in smaller centers and poor communities in many cities: discount stores, street vendors (“hawkers” and push-cart vendors), small “mom-and-pop” shops on secondary streets, and those across legal lines into fields of endeavor such as drug-dealing.

Across this generally unhappy picture, points of light emanated from passionate, committed individuals like Prof. Clement Price, of the History Department at Rutgers Newark, and Ray Chambers of the Amelior Foundation. They and many others remained determined to “fix Newark,” to stop the erosion and rebuild a viable, attractive city. Acting individually, none of them would be likely to stem the decline. Acting in concert, they just might be able to turn it around. During the 1990s, these passionate advocates began to make significant differences by supporting the endurance and recovery of existing institutions, and by building new ones.

### Antecedents of GlassRoots

In his hometown of Tacoma, internationally renowned glass artist Dale Chihuly supported the development of the Hilltop Artists-in-Residence Project. [For a short introduction to the project, see: (Cheakalos, Bates & Morehouse, 1999). For a more detailed, description of the program and its awards, see: (Kaperick, 1998).] Hilltop was created to be an alternative learning and development channel for at-risk youth. It offered street-smart, school-rejecting young people a place to hang out, and to learn something that tapped a different set of skills than those touched by the formal school system. For young people who could learn and demonstrate self-discipline and teamwork, it offered the opportunity to work with fire and very hot glass (ca. 2500°F). It offered the chance to be creative in new and challenging ways. And it offered the alternative career model of Dale Chihuly himself, an unconventional citizen with artistic talents and an entrepreneurial bent, making a great name and living for himself in glass art. [For a visual feast of the work of this National Living Treasure, see: (Kuspit, 1998).] For these young people, rejecting and being rejected by the mainstream system, Chihuly offered personal testimony that there was hope – provided one worked hard and smart.

As Hilltop developed, became established, and grew, its message traveled to other communities. One in which it resonated particularly strongly was Taos, New Mexico. Taos had a strong arts tradition, an alternative society orientation, and a youth problem. Hilltop established a spin-off site in Taos, using Tacoma founder Kathy Kaperick and including senior youth participants, to seed the new site. [See (anonymous, 1998) for the story of the extension to the Taos Pueblo.]

That began the processes of establishing adaptation and transferability.

Prof. Pat Kettenring, Director of the Business and the Arts Program at Rutgers-Newark, is a West Coast native and travels back there frequently. She became aware of the Hilltop project through her interest in Chihuly's success as an artist. She conducted the original research to see how the Hilltop experience might be transferred to Newark.

### The Cognitive Development Framework of Glassblowing

Glassblowing is based on an advanced skillset. Good glassblowing requires numerous high-level skills. Thus it is not an entry-point for dysfunctional youths. Instead, it is being used at Hilltop, and in GlassRoots, as an attractive destination point, an end that will be sufficiently powerful to motivate participants to overcome the intermediate barriers.

At-risk youth for whom the program is designed often exhibit several of the following symptoms, which collectively put them at risk of failing society's established developmental processes:

- Rejection of established authority;
- Learning disabilities, including ADHD;
- Lack of self-discipline;
- Inability to work constructively with others;
- Inappropriately channeled artistic and creative energies (e.g., graffiti);
- Petty criminal behavior, including violence towards self and others; and

- Poor performance in school. (Americans for the Arts, 2001)

To reach the "cool" level of Senior Student Glass Blower / Assistant Instructor, participants will have to overcome these behaviors.

The glass-working development sequence begins with elementary skills such as bead making, in which participants can unleash some of their creativity – provided they develop sufficient self-discipline to remain focused on the tasks. They have the opportunity to select materials, plan their own designs, and adapt to the intermediate outcomes in the process of making glass beads. They also become familiar with the nature of glass as a medium, including its chemical and physical properties. In return they have to behave responsibly with the propane-fired burners, glass rods, and fellow students. They also have to concentrate on the series of tasks required to implement the bead-making process.

Kiln-formed, slumped, and cast glass, as well as stained glass work can also be accommodated into the program as part of an intermediate set of skills.

The higher end of the program involves the glass blowing. To make that work, participants have to work cooperatively with several others, or the work can become extremely dangerous. Participants have to demonstrate that they can be trusted by the staff and by their peers before they can move up to each level of responsibility, finally attaining the level of being able to blow their own glass with one or more partners.

In the GlassRoots version of the program, we have added significant program extensions in several areas of design, web-site design and maintenance, e-commerce, gallery

management, event management, shipping of art glass, etc. We have also added a substantial entrepreneurship component, teaching students how to operate the business elements of GlassRoots, and how to develop new business opportunities, both inside GlassRoots, and outside on their own. Each of these components is designed to allow students to test their interests in areas that could become academic or career interests, and to develop advanced skills in ones that they find particularly motivating.

We expect very few of the student participants to become professional glass artists. A small number may translate their skills into careers in industrial glasswork, either in custom work in the scientific / chemical and pharmaceutical industries, or in production glass companies. Most will make use of the GlassRoots experience to progress to other careers. GlassRoots will benefit them primarily through their development of life skills. It is also likely to introduce them to a wide array of skills that may also turn into careers in such diverse fields as shipping and logistics, gallery management, graphic design, and business ownership. In this sense, it is at once both similar to other arts education programs for at-risk youth (YouthARTS Development Project, 1998), and more specifically oriented toward entrepreneurship and employable skills.

#### Organizational Design of GlassRoots

GlassRoots is legally organized as a 501 (C)(3) corporation, with tax-exempt, not-for-profit status under the Internal Revenue Act of the USA. It has a Board of Trustees, on which members with extensive networks in related fields participate. It has established several informal networks and partnerships of its own.

The project has been developed with substantial volunteer effort from skilled and committed individuals, and bootstrap

financing from the State Arts Council, and the Business and the Arts and Entrepreneurship programs at Rutgers. It is moving in 2001-2002 to an operational level in which it is seeking substantial start-up and operating funding from philanthropic individuals and organizations. Current estimates indicate that approximately \$1 million will be needed for the start-up phase, and annual operating budgets of ca. 500K\$ will follow.

One important element of the organizational design is a mentorship component that will link students and young alumni from the Rutgers MBA program with the youth participants.

The computer-aided design component is structured as a supervised partnership with Aljira Design Inc., the for-profit arm of Aljira, A Center for Contemporary Art, a major gallery in Newark.

#### The Entrepreneurship Component

The entrepreneurship component of the GlassRoots project has several elements, including:

Attitudes;

Small business skills;

Mentorship; and

Experience.

#### Attitudes

The whole GlassRoots project will communicate clearly to the participants that they can achieve results far beyond what they and others around them may have expected. Confidence, self-esteem, career targets, and life expectations will be raised.

Small business skills

Students will participate in the operation of the project's art gallery, including the management of the store (dealing with customers, operating hours, cash management, marketing, advertising, selection of merchandise, bookkeeping, etc.) They will also participate in the annual (eventually – quarterly) sales of pieces produced by the project. That will entail marketing and event management skills. In addition, they will learn how to package and ship art glass (one of the most challenging materials handling niches). They will design, maintain, redesign, and operate the project website, including both informational and commercial aspects. They will be involved with the selection of suppliers, ordering materials, and management of inventory. Learning how to understand and manage the financial elements of the project will challenge the more business-oriented students. In addition, they will be involved in establishing and maintaining the workplace rules.

Mentorship

Project staff are being carefully selected for their professional skills, as well as their ability to work with challenging young people. Working with the professional staff, on both the management and artistic sides, students will see the personal and professional skills required to establish successful careers in the diverse fields associated with the project. In addition, the mentorship programs will allow the students to meet and get to know Rutgers' graduate students and alumni, and to ask them questions about translating their own abilities and dreams into adult careers.

Experience

GlassRoots is a hands-on project. Most of the learning will be based on experience, on the

artistic, personal, and business sides. The learning models include supervisor-coaches who can show, and explain, how and why things are best done in certain ways. Classroom time is added throughout the program to enhance that experiential learning with more structured and contemplative learning. In between, there is space designed into the facility for informal discussions and the peer-to-peer, and mentor-peer learning that occurs that way.

Students will have the opportunity to make limited errors as they experiment with new ideas and possibilities.

Evaluation Framework

The evaluation framework outlined below has been designed to ensure that the maximum learning curve is attained. The designers of the program have begun by assuming that, as good as the initial program model may be, much will still be learned in the processes of implementation. This Framework lays out our initial assessment of the issues expected to be most important, and the ways the project can be run to maximize the rate of knowledge acquisition and improvement. It is, in important senses, the experimental design, intended to clarify initial uncertainties and document critical outcomes. With its implementation, this Framework will allow the project leaders to rapidly improve the project model.

Key Stakeholders

At-risk, inner city youth

The central stakeholders in GlassRoots are the youth involved with the program. GlassRoots is designed to make a positive difference in their lives. At the heart of the Hilltop

Program, and also GlassRoots', is a belief that the medium of glassblowing is especially well-suited to help certain kinds of at-risk youth translate their thirst for fiery risk into positive risk-taking (Archibold, 1998; Baldwin, 1998). Indeed, the story of Hilltop shows that several of its success stories made that transition, from throwing cherry bombs and running from the police, into success through the hot shop. [See especially the story of James Kinnard, told in several places, including: (Cheakalos et al., 1999).] From taking relatively uncontrolled adolescent social risks, these program participants are learning how to translate their drives for creativity into taking calculated risks in art, entrepreneurship, and interpersonal relations. [For discussion of similar programs in other fields of the arts, see: (anonymous, undated; Madden & Bowen, 2001) (Chicago, undated)]

Because we have no conclusive way to measure the real impact of such a program on the life of any one participant, since we cannot know what they would have done without its intervention, we must use surrogate measures. Furthermore, it is unlikely that program effects will be identical and uniform across all participants. In addition, the effect of GlassRoots is only one of many influences on the lives of each participant, so attribution of impacts will be a concern.

The generally accepted way to measure program effects on a group of participants is to track outcomes over time, of both the participants, and of a statistically matched control group (Baker & Witt, 1995). In this case, the matching sample may be difficult to track over time, so we propose to use broader social statistics. Data on origins, educational levels, and career development are available from many sources, ranging from the US Census to numerous neighborhood studies. We propose to use those sources to estimate the probabilities of various career-stage

outcomes for youth with characteristics similar to those participating in GlassRoots. For example, what is the probability that an inner-city male will die violently before the age of 25? What are the probabilities of incarceration? College admissions? Marriage? Two-parent household formation? Academic success? Successful career starts, etc.? We will then track those kinds of outcomes for the GlassRoots participants, and test for differences.

In order to draw useful and valid conclusions from such analyses, we need to control certain kinds of errors. The first consideration is contamination of the reference population by inclusion of the participants. We will control for that potential problem by ensuring that our reference group is many times larger than our participant group. GlassRoots is expected to involve ca. 400 Newark young people each year, at levels that could be considered significantly effective. The overall population of young people in the Newark SMSA is more than 10,000. While using aggregate statistics for the Newark youth population may dampen the estimated effect of GlassRoots, we do not expect the dilution effect to be significant.

The second methodological consideration is to ensure that our participant and control populations have identical characteristics, to ensure that outcome differences are derived from program effects, not from input differences. We will try to do this by collecting demographic and behavioral data on our participants that will allow us to correct for sample biases that may occur. To the extent that such adjustments may not be fully satisfactory, we will consider supplementing them with a Bayesian analysis of career-stage outcomes. That technique will be based on the expert knowledge of veteran workers in Newark's many youth programs, using a methodology developed by one of the present

authors (Bryant, 1987; Brystra Consultants, 1986).

The key issues are identified and discussed below.

### Other stakeholders

There are numerous other groups of stakeholders participating in this project. Their interests will need to be considered and the extent to which they are being met assessed. In all cases, however, the *sine qua non* of their participation is a faith that GlassRoots will be effective in assisting the young people for whom it is designed. As a result, within the limited framework of this paper, we will restrict our discussion to the at-risk youth.

### Key Issues

The key issues are:

**Does participation in GlassRoots reduce the risks of life failures for the targeted youth? In what ways does it increase the probabilities of life success?**

That issue can be subdivided, or made more specific in various ways.

- Which GlassRoots sub-components have the most impact or which risks?
- How are GlassRoots project components linked to life and career outcomes for the participants?
- What indirect effects does GlassRoots have on participants' families and peers?

Other issues of value to other stakeholders include:

- How well is the knowledge base accumulating with GlassRoots communicated to people who can use it for adaptation, extension, and replication?
- What effect does GlassRoots have on staff, mentors, funders, and other youth-oriented programs?

### Data Sources and Architecture

Four categories of data will be needed to conduct ongoing evaluations of the effectiveness of GlassRoots:

- A. External population statistics, such as those collected by the Kids Count project (The Annie E. Casey Foundation, 2001);
- B. Participants statistics;
- C. Within-program tracking data; and
- D. Post-program tracking data on participants.

External statistics are available from numerous government and academic agencies. They will help us benchmark the characteristics of the populations from which our participants are drawn. In a dynamic sense, they will also help us to define the "control group" model of life and career outcomes against which we will be assessing the differences induced by participation in GlassRoots. In this project, we will be using these data as secondary users.

Participant data will be collected on young people entering GlassRoots programs, and as they proceed through and exit the project. Most of these data will be participant-contributed, so should be cross-checked with parents, guardians, or referral counselors to ensure validity. Items such as age, gender, school grades, attitudes toward school, art, and

other values will help us ensure we are taking in the right people (i.e., the ones for whom the project is designed). They will also give us a baseline against which changes and outcomes can be assessed. As primary collectors and users of these data, we will need to ensure they meet commonly accepted standards for the use of human data in research, and high standards for individual confidentiality.

Tracking data will be added to individual records as participants move through program achievement stages, and as they exit. While this process may help us to identify individuals who need special attention, they will be used primarily in aggregate form to track program performance on several dimensions, such as the time taken between stages.

Post-program tracking data will be much more difficult to collect. We have no means to compel participants to report their activities after they leave the program. As a result, we anticipate incomplete information for the “alumni.” In addition, tracking studies will face rising costs, as alumni become more difficult to track. Nonetheless, we do not accept a reduction of outcome assessments to the level of individual stories, as useful as those may be. In order to maintain the best aggregate pool of outcome data we can, we expect to develop a peer network that links the alumni to the project on an ongoing basis. One of the techniques to accomplish that may be the provision of lifetime addresses on the GlassRoots Internet server. From time to time, we will survey groups of alumni to see how their careers are progressing. We will also update our alumni records with significant life events as we become aware of them. The alumni database will then become the basis for drawing samples for follow-on surveys and analyses.

To the extent that tracking data are incomplete, we may need to undertake special projects to increase data. We may also need to estimate aggregate group outcomes using peer or expert assessment in a Delphi or Bayesian manner.

### Alternative Methodological Designs

The primary evaluation design is shown in Exhibit 1, below.

<u>Exhibit 1: Testing the Effectiveness of the Program</u>	
Prior characteristics	→ expected life outcomes
Program interventions	→ expected changes in life outcomes
Post-program characteristics	→ reveal actual life outcomes
Test for differences between expected outcomes and actual, and test for the strength and direction of correlations with the expected effects.	

Important subsets of the design include examination of the intermediate outcomes. For example, participation in the entry level of bead making may have some effects that are not enhanced for some sub-populations by participation in the more advanced components. Alternatively, some program effects may only occur when students advance beyond the entry level.

Additional considerations include the environmental circumstances surrounding the

students. Some may have numerous alternative outlets for their cultural and business ideas, but others may have few or no alternatives. We expect that availability of alternative channels will have a significant impact on their initial ability to make good use of the GlassRoots option, and perhaps an opposite effect on the likelihood that they will stay and collect the full program effect.

### Phases of Implementation

GlassRoots itself is being implemented in phases. The first level of implementation has begun during the Spring of 2001, with bead-making workshops conducted at one of the Boys and Girls Club sites in Newark. Progressively more advanced bead making, followed by other forms of glassworking, will be phased in as the program grows. Full implementation of the "hot shop" with customized space and significant capital investment is scheduled for the winter of 2001-2002. Participant programs may take as long as five years to reach full capacity, given the layering of skills and attitudes required to reach the higher levels.

Full implementation of the evaluation framework will take even longer. Most of the participants are expected to begin working with GlassRoots at the ages of 10-14. Their career outcomes are unlikely to be evident until they reach at least their mid-20s, and full effects are really lifetime matters.

Nonetheless, numerous intermediate stages allow us to assess the performance of GlassRoots against its objectives and expectations. The initial test was simply to see whether or not the key stakeholders would find the program attractive. Preliminary data show that they do. Children, backed by their families, have over-subscribed the initial classes. The program has been able to recruit an exceptionally talented Board, staff, and

volunteers. Several outstanding glass artists have offered to help on the technical side. Initial responses from philanthropic institutions and local social service organizations have met or exceeded expectations. Thus, the first test, the appeal of the program to the right mix of stakeholders needed to make it work, appears to be in the process of passing with flying colors.

Upcoming assessment points will include:

- Artistic assessment of the work done by the participants;
- Additional fund-raising;
- Participation of volunteer mentors from graduate students and alumni;
- The first pre-Christmas sale of products;
- Implementation of the physical facilities;
- Recruitment of additional classes of participants;
- Progression of initial participants into more advanced components; and
- Partnerships with existing youth-service agencies, including government programs that can provide long-term program funding.

### Anticipated Management Alternatives and Decision Criteria

One of the key elements in the launch phase has been the matter of scaling the program to fill a significant need, with likely resources. Both sides of that equation have been based on the best available assumptions. As the program moves forward, it will stimulate additional interest that may lead to alternative choices about rescaling the operation. Among

the alternatives presented to date are the development of satellite or cloned operations in Jersey City and other parts of New Jersey; development of a production glass program in association with a proposed industrial arts complex; and involvement with an arts-based incubator facility being discussed for downtown Newark.

The program may also find that its arts and business programming is inadequate to deal with the social and psychological challenges accompanying its projected participant group. Such a finding may lead either to a repositioning of the project to help less disadvantaged youth, or to an increase in social and personal development programming to make it more accessible to the less advantaged people for whom it has been designed.

The need for operating funding to sustain the project will certainly lead to consideration of a range of alternative revenue models. Those may include leasing of the facilities in whole or in part to other groups, including adult arts programs. It may also lead to more closely linking GlassRoots programming to needs identified by the Board of Education or the Department of Youth and Family Services, or both.

### **Unresolved Issues: The Research, Thinking and Learning Agendas**

The key unresolved issue at this time is the extent to which the scale of the project and its entry criteria match the design population. For whom is GlassRoots going to be a life-changing experience? How many of those people are there? How do we find them and bring them into the project? What do we really have to do to make it effective for them? How will we adapt GlassRoots to deal with the other things that happen in their lives? These are all questions for which there

will be no definite answers for some time, but for which the answers are critical to the project's evolution and ultimate success. (Center for Arts and Culture, 2001)

The extent to which this evaluation research can assist in answering those questions is also dependent on such matters as data availability and attribution of outcomes that may prove to be significant obstacles. Still, by focusing on appropriate intermediate tests, we expect to be able to contribute to the ongoing development of the GlassRoots project. By extension, this project will contribute to the development of knowledge about programs designed and operated for the benefit of at-risk young people, and especially of entrepreneurship and arts programs for that group.

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