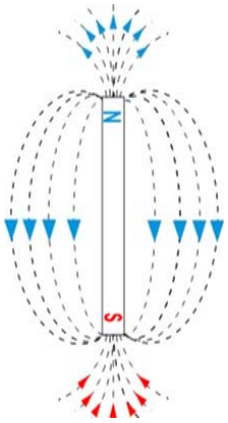
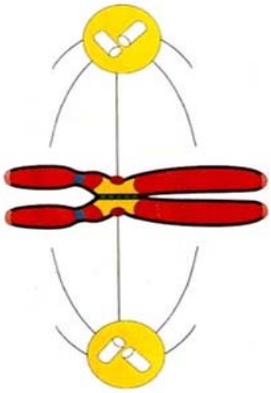


IMHOTEP'S LEGACY AFTER-SCHOOL PROJECT

Project V Report

Prepared by: Emmanuel Nfonoyim • Project Coordinator



THANK YOU…

Dear Stakeholder,

This report is a review of the Imhotep's Legacy after-school initiative at Dalhousie University to directly address the contemporary challenge of increasing the participation of young African Canadian learners in tertiary level Math and Science programs. As you may know, Imhotep's Legacy offers junior high learners in the Halifax Regional Municipality an exceptional experience – one that is sufficiently different from but is congruent with their daily school instruction, and that supports their academic, social and personal development.

We are gratified by the contribution of the following groups to the successful delivery of this initiative: Faculty of Science (Dalhousie University), Department of Physics & Atmospheric Science (Dalhousie University), Black Student Advising Centre (Dalhousie University), African Canadian Services Division (Department of Education), and the Office of African Nova Scotian Affairs (Government of Nova Scotia). We would like to acknowledge the vital role played by many community leaders in facilitating the delivery of this initiative, especially members of the group Opportunities for Blacks in Engineering.

Imhotep's Legacy After-School Project is a partnership that has benefited immensely from the contribution of school administrators. Instrumental facilitators during the delivery of Project V include, Robert Upshaw (Vice-Principal, Caledonia Junior High), Chris Phee (Teacher, Caledonia Junior High), Wendy Mackey (Vice-Principal, St. Patrick's-Alexandra School), and Kwamena Aidoo (Teacher, St. Patrick's-Alexandra School).

Special appreciation is extended to the steering committee (Barb Hamilton-Hinch, Wayn Hamilton, Margo Hampden, and Dr. Kevin Hewitt) and project mentors (Khadija Douglas and Tesia Rolle) for their valued input, steadfast support, and dependability.

We hope you will read this report knowing that we are grateful for the way you have helped us improve the quality of our program. As Imhotep's Legacy continues to evolve, we invite you to remain committed to the initiative. Please, visit our website (**imhotep.dal.ca**) and send us your reactions to this report, as well as ideas about how the initiative could best contribute to the development of young African Canadian learners.

Together, we can help develop the scientists of tomorrow!

Sincerely,

Emmanuel Nfonoyim
Coordinator,
Imhotep's Legacy After-School Project

AFTER-SCHOOL HOURS THAT MATTER

IMHOTEP'S LEGACY AFTER-SCHOOL PROJECT DELIVERY PARADIGM

Imhotep's Legacy is a university-community partnership that provides an opportunity for junior high learners of African Canadian descent to engage in activities designed to strengthen their aptitude in Math and Science, as well as promote their social and personal development.

After-school services offered at each project site are delivered by Dalhousie University Science and Engineering students. Enrichment activities occur on-site at participants' schools, although some outreach activities are held in the community. Enrollment is voluntary and all junior high African Canadian students are eligible for participation free of charge. On-site sessions commence at the end of the regular school day and last until 5 p.m.

Math and Science enrichment, homework help, and test/exam preparation are the main services provided by Imhotep's Legacy projects. However, programs are typically designed with a view to nurture healthy social and personal development by fostering fruitful adult and peer interactions and positively reinforcing the opportunities to participate in the community and pursue tertiary level education.

There exists in North America today an upsurge of interest in after-school programs that has elicited a strong response from both provincial/state governments, institutions of higher learning, and local communities. Many of the current after-school initiatives exist as partnerships between these three groups. One reason advanced to account this heightened interest is the establishment of more rigorous standards and demands for higher academic performance thus placing new challenges on students. To meet this change in academic performance expectations, many children require more time, educational resources, and tutoring opportunities. After-school programs effectively provide students the opportunity to extend their learning experience beyond the daily school instruction to improve on their academic performance.

Imhotep's Legacy After-School Project exists as a partnership between the Government of Nova Scotia, Dalhousie University, and Junior High Schools within the Halifax Regional Municipality. The initiative offers a unique approach to enriching the quality of Math and Science education for African Canadian learners by focusing on several subject areas in science while adopting a mentoring scheme to accentuate the relevance of school-day Math and Science curricula to participants' daily lives.

This report evaluates the quality of Imhotep's Legacy Project V services delivered in the 2005/06 academic year. Also outlined are the perceived benefits for program participants.

Core Features of High-Quality Imhotep's Legacy After-School Projects

The successful delivery of Imhotep's Legacy After-School Project on an annual basis can be attributed in part to the consistency in the elements that constitute the framework of each new program. While the current initiative (Project V) was preceded by four other programs, certain core elements remain constant. These required components form a practical, effective framework that can be replicated each year.

- Imhotep's Legacy remains a not-for-profit university-based organization that teams up with individual public schools in the Halifax Regional Municipality to negotiate the details of the after-school program partnership.
- A year-round program coordinator is maintained for strong, successful leadership. The coordinator designs and implements programs, supervises staff and cooperates closely with other stakeholders.
- Participants receive individualized attention from a staff comprised of university students of African descent.
- Strong focus on educational enrichment and homework help. Field trips and other off-site events are also organized to expose learners to a broad range of subjects and disciplines beyond their usual experience.
- Each program is designed to complement the regular school curriculum and to support the benchmarks established by the Department of Education.
- Every junior high student of African descent enrolled in the target schools is eligible for enrollment creating an equitable and inclusive environment to facilitate learning.
- Regular attendance is required to ensure continuity and enhance quality of delivery.

"The opportunity to visit the Engineering Department and learn from professional engineers from the African Nova Scotian community will help my students feel less intimidated about pursuing programs like Engineering. They see that engineering can be fun and they interact with professionals from their community who can act as role models…they can only benefit from this experience."

- School Administrator

"I totally enjoyed my experience working with the mentors. You guys are cool. I also like the activities we did this year and I can't wait to be part of the program next year. Thank you very much."

- Project V Participant

Measuring Key Outcomes

Imhotep's Legacy After-School Project is committed to the principle of continuous quality improvement to ensure the best outcomes for its participants. Central to the sustainability of after-school programs is the development of a system or standard for staff training, supervision, and performance evaluation. Self-evaluation leads to self-improvement as it sets standards by which all stakeholders can appraise, plan, design and implement strategies to improve program quality. The following assessment casts a critical eye on seven (7) key quality indicators that define the successful delivery of our latest initiative, Imhotep's Legacy Project V:

- Organizational Infrastructure
- Staffing and Professional Development
- Attendance and Participation
- Community Outreach
- Programming
- Stakeholder Relationships
- Program Sustainability

"It is about realizing our dreams, seeing them come true one day. That is what Imhotep's Legacy is all about ."
- Project V Participant

Quality Indicator:
ORGANIZATIONAL INFRASTRUCTURE

Imhotep's Legacy Project V was led by a team of four steering committee members, a coordinator and two mentors who had years of experience working for this initiative and/or similar programs within the local community. These individuals had strong ties to the African Nova Scotian community, some had grown up or attended school within the community and are raising their children in the same school system or had nieces and nephews attending the target schools.

The steering committee had a clear vision of what the project was set to accomplish and convened a staff who shared a common belief in African Canadian youth and their capacity to achieve academically and socially.

The coordinator was charged with ensuring sound fiscal management by reviewing the budget regularly, recording expenses, and ensuring supplies are maintained and accessible to the mentors.

The mentors were charged with establishing clear expectations vis-à-vis young learners' attendance and participation. A system was set in place for monitoring participants' attendance records. In addition, mentors were required to design enrichment activities and adhere to a predetermined schedule of delivery.

A clear remuneration structure, though modest, was put in place for program staff (coordinator and mentors, only) and there was a clear channel of communication between all members of the Project V staff. Communicating appreciation and encouragement had far-reaching effects in building a spirit of commitment and collegiality among the team. A family atmosphere was cultivated with all staff members actively contributing towards project planning.

"I will be upfront with you…you will be doing much more work than you will be paid for. I can only say thank you for making such a strong commitment to this program…It is teamwork that ensures our success"
- Steering Committee member

Quality Indicator:
STAFFING & PROFESSIONAL DEVELOPMENT

Qualified mentors were hired using both formal and informal employment networks from a pool of undergraduate students of African descent. The selection criteria included commitment to hardwork, previous mentoring experience, and understanding of Afrocentric issues related to accessing educational opportunities at the tertiary level. Mentors' competence in core academic areas was taken into consideration as an imperative indicator of program quality.

Given that trained mentors are more effective in program delivery, ongoing staff professional development was fundamental to the successful implementation of the program. After assessing the professional development needs of the staff, training was provided according to a predetermined schedule to cultivate skills such as using icebreakers, setting up ground rules, encouraging imagination and creativity, and monitoring group dynamics.

Given the relative inexperience in teaching competencies, an experienced member of the Dalhousie University Science faculty was charged with working with the staff during training and activity development. Staff training involved designing activity lesson plans that corresponded to the participants' developmental needs.

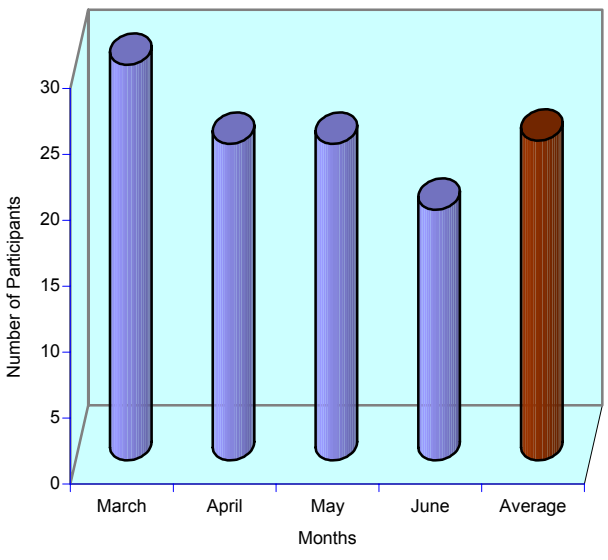
Staff meetings were held on regular intervals to build team morale as well as assess the status of the program. All staff members were overwhelmingly satisfied with the quality of the activities delivered. The mentors were especially satisfied that the staff-to-participant ratio was maintained at 1:5 at both target sites for the duration of the project.

Quality Indicator:
ATTENDANCE & PARTICIPATION

Crucial to the quality delivery of Project V was the adoption of a participant engagement strategy that provided young learners opportunities to exercise choice, participate in program planning and remain actively engaged in various program offerings. This was seen as the best way to maintain participants' interest for the duration of the program.

The excellent record of attendance (Figure 1) is indicative of the high level of participation in program sessions. Of the thirty (30) young learners who enrolled in the program an average of twenty-four (24) attended the weekly sessions. An average attendance rate of 80% was maintained for the duration of the program. Fluctuations observed in the monthly attendance rates were attributed mainly to participants' engagement in other extracurricular activities at school of within the community (such as volunteering, sports, school trips, etc.).

FIGURE 1: ATTENDANCE RECORD



Project V staff were deliberate in their approaches to creating a learning atmosphere that promoted the building of positive relationships. This engagement strategy fostered an equitable and inclusive environment for all participants. Staff showed positive affect toward all learners, listened attentively, responded appropriately, and paid particular attention as they completed program tasks. Young learners were also involved in the development of disciplinary guidelines or "groundrules", affording them the opportunity to express their ideas and concerns. A strong focus was placed on teamwork and the development of positive peer-relationships. Participant norms and expectations were highlighted at the beginning of the program and reinforced at the start of each session. The consequences of not meeting the expectations were also clearly communicated.

Staff observed that young learners demonstrated the effectiveness of these engagement strategies by:

- Maintaining friendly, relaxed interactions with peers.
- Refraining from disrupting program sessions and respecting the opinions of their peers.
- Consistently completing their individual and group tasks.
- Listening actively and attentively to staff and other peers and asking questions to foster better understanding of science concepts.
- Demonstrating positive affect to staff through friendly interactions on-site, and through phone and e-mail communications outside regular sessions.

In one activity at Caledonia Junior High, participants were asked to work in groups to build a pinhole camera. They intently followed the staff's demonstration and were very friendly and respectful of one another as they tried to replicate the activity.

Quality Indicator:
COMMUNITY OUTREACH

Project V staff regarded the connection with families and the community as vital to the program's success. However, few families could afford the discretionary time to be actively involved in program planning and decision-making. Nevertheless, project staff ensured that all families received information about the program's mission, didactic philosophy, and policies. The policies established participant expectations including attendance requirements, behavioural expectations, and the consequences of not meeting these expectations. The coordinator maintained regular contact with families who picked young learners up at the end of the after-school sessions, using this opportunity to convey participants' successes and information on impending program events. Families were encouraged to attend the project's closing event, and most heeded the invitation. This provided a great opportunity for participants to showcase their work and for parents/guardians to gain first-hand knowledge about the nature of their child's participation and the value of the program in their academic, social and personal development.

"Before [my child] became involved in the program, she wanted to be a nurse but did not know if that was possible or how to go about it. Now, she is confident that she can be a nurse and knows what to do to get there."

- Project V Parent

In order to expand and enhance program offerings, other community institutions were invited to develop activities in partnership with project staff to build participant's awareness of community resources available to them. The group Opportunities for Blacks in Engineering facilitated a one-day workshop held in the premises of Dalhousie's School of

Engineering. These professionals shared a common feature with the participants – they were members of the same African Nova Scotian communities. In addition to reinforcing the relevance of science education to participants' communal life, the professionals also brought a strong discipline and sense of passion for their profession. During the workshop, the professional engineers adopted the same equitable, inclusive, and informal didactic strategies used in regular on-site sessions.

> ***"I enjoyed the opportunity to learn how to build a bridge and how to make an electric motor. I did not know that electric motors are found in many things we use at home… I am amazed to learn that engineering is not as difficult as it thought. It can be fun too."***
>
> **- Project V Participant**

Quality Indicator:
PROGRAMMING

To balance the responsibilities for supporting the academic, social and cognitive development of all participants with a commitment to engaging them in a high-quality enrichment environment, Project V exposed learners to an attractive variety of activities and opportunities that adequately reflected the program's mission. These activities comprised of homework help, simple science experiments, and cognitive games.

Science and math enrichment activities occurred on a school day for almost three hours per session. The staff strived to develop youth-centered, developmentally responsive and holistic learning activities. This meant that project staff took even the finest factors into consideration in designing the activities. For example, the activities were designed to take into account the language style and culture of participants to reinforce the relevance of science education in their daily lives.

Several key elements were observed between and activity content and structure. Participants overwhelmingly regarded the activities as being well-organized, intellectually challenging, interesting and beneficial to their academic improvement (see Figure 2).

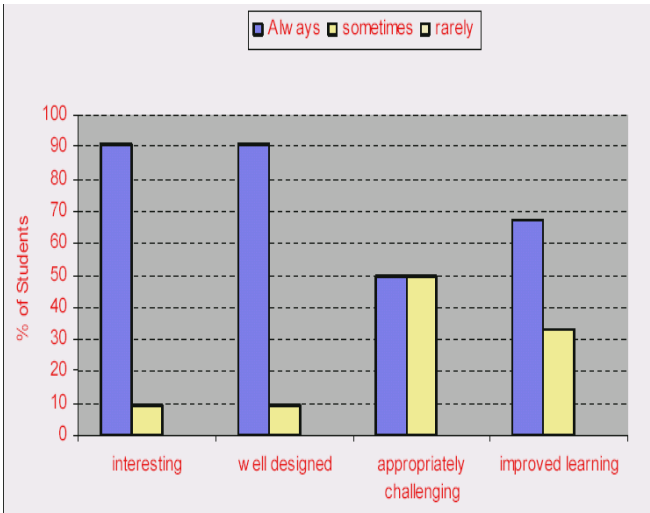


Figure 2: Student Evaluation Survey Results - About the Science Activities

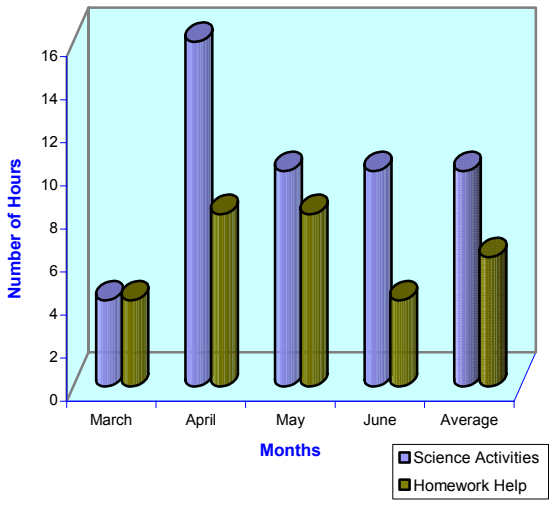
An example of a well-designed and appropriately challenging activity that developed skills and required analytical thinking was the "DNA Extraction" activity observed at St. Patrick's-Alexandra School. The project staff commenced the session by establishing clear guidelines for carrying out the activity. Learners were required to build on knowledge gained from previous sessions. The staff first gave an overview of the concept, then introduced participants to the materials they would be using, and proceeded to walk them through the process of applying their content knowledge to the activity. During the session, staff were always ready to answer any questions and monitor the progress of each participant. At the end of the session, each participant had successfully extracted DNA from a vegetable of their choice and they were allowed to take their end result home to show their families and friends.

Weekly sessions included homework help that occurred in small groups, or in some cases, on an individual basis. The goal of homework help sessions were three-fold: to practice new skills or apply previously learned skills to new situations; to extend student's academic instruction beyond the regular school day; and, to provide an opportunity to foster critical thinking.

The obvious benefit of these sessions was that students went home with their assignments already completed. However, the intended benefit is that homework completion improves student achievement. This holds true for both genders and across the different levels of cognitive ability. It is no surprise, therefore, that it was the perception of participants' teachers and parents that the program had a positive, wholesome ripple effect in the academic and non-academic growth of the young learners.

The hours of didactic instruction offered to learners varied during the life of the project. However, each participant received an average of sixteen (16) hours of didactic instruction per month for a total of sixty-four (64) hours of which sixty-three percent (63%) was devoted to science and math enrichment activities, while thirty-seven (37%) was devoted to homework held (see Figure 3).

FIGURE 3: DIDACTIC INSTRUCTION



Quality Indicator:
STAKEHOLDER RELATIONSHIPS

A key ingredient in the successful delivery of a quality after-school program is the development, nurturing, and maintenance of positive interactions between all stakeholders – project staff, school authorities, participants, families and communities.

Project V was lead by a staff that realized that efficient management and training could only take them so far without the development of quality informal relationships with each other. The strength of the program depended heavily on the ability of the staff to function effectively as one team. Deliberate relationship-building strategies included holding meetings at informal settings and shared participation in social events.

> ***"We are cultivating a climate of trust so that the young ones can truly see us as role models. They should be able to say to themselves: 'She is African Canadian and she is in University studying Biochemistry. I can do that too'…"***
>
> **- Project V Mentor**

Strong partnerships with the leadership and staff at target schools facilitated the efficient delivery of the project. Essential ingredients of these partnerships were: appreciation of the value of the program for participants; flexibility among school staff vis-à-vis planning and scheduling of events; mutual respect between the project coordinator and school authorities. Expectations for learners' behaviour in the program were aligned with the school's expectations. A school teacher was appointed to act as a liaison between the project staff and the school to enhance communication. Other strategies were undertaken to ensure that Project V's academic components were aligned with day school standards and curricula, including:

- Sharing the school's communication strategy to facilitate the connection between the after-school program and participants' families.
- Using science resources available to participants during the school day to help focus after-school academic support.
- Regular collaboration and planning with school personnel regarding the use of school facilities and the monitoring of learners behavioural and academic progress.
- Participation of school staff in the closing ceremonies to celebrate the success of their collaborations and share ideas about ensuring the continued success of the program.

Intentional relationship-building between project staff and participants was a key characteristic of Project V. The success of the project pivoted heavily on the development of such informal, healthy relationships. Project staff judged this relationship by the degree to which young learners interacted like "one family" in their tasks and during informal interactions; in their respect for one another, and in their willingness to extend the relationship beyond the school environment. This was echoed in the families' willingness to allow participants to attend social events and organize group visits and a sleepover.

As earlier mentioned, there was sufficient opportunity for families to be involved in the life of the project. Meaningful community collaborations were also established and maintained, as was the case with the group Opportunities for Blacks in Engineering. There is room for growth in this area and future programs will be designed to improve on Imhotep's Legacy partnerships in the community.

Quality Indicator:
PROGRAM SUSTAINABILITY

Project V was just one of the programs that have been successfully delivered in recent years under the Imhotep's Legacy banner. The project has benefited from healthy partnerships with both public and private institutions, some of which have already committed to providing sponsorship for future programs. There is a coherent plan in place for expanding the capacity of the program and ensuring its continuous growth. This strategy includes:

- Having a clear and consistent mission and statement of objectives.
- Convening only staff members who understand and subscribe to the mission and objectives.
- Establishing an effective strategy to publicize the program, its achievement, and the success of its participants within the target schools and beyond.
- Navigating community resource networks to promote support for the program.
- Engaging families and school authorities in long-term planning and decision-making.
- Actively seeking the contribution of advocates for the increased availability of high-quality after-school initiatives such as local educators, church leaders, and elected officials.
- Ensuring sound fiscal management policies are enforced to allow better budgeting practices.

The overwhelming conclusion derived from evaluating all seven (7) quality indicators supports the premise that the latest version of Imhotep's Legacy programs, dubbed Project V, was successfully implemented. The program's mission and objectives were achieved. Most importantly, the program has shown that there is a solid structure in place to ensure continuous growth.

Afterthought: The Relevance of Project V

> ***"In Imhotep's Legacy sessions, we get the chance to shine."***
> **- Project V Participant**

These words encapsulate the need for and importance of this after-school initiative. It is widely noted that the profound lack of participation and contribution of African Canadian learners in tertiary level Science and Math programs is a reflection of several factors, not least of which is the apparent lack of relevance of these subject areas to their everyday lives. Other factors reported include the absence of mentors, role models, career counseling, and perceived outcomes for their communities.

The after-school environment cultivated by Imhotep's Legacy Project V staff offered learners a safe environment to actively participate in hands-on learning activities that reinforced the Science and Math education received during regular school instruction. Compared to the regular school day, Project V participants were exposed to a broad array of opportunities like smaller group sizes, longer time slots of one-on-one tutoring, a conducive and nurturing studying environment, opportunities to visit science facilities in the community, acquaint themselves with the University environment, and perform interesting science experiments using common household equipment. In addition, to foster participation, teamwork was emphasized through group projects so participants were able to nurture positive and constructive peer relationships.

Consider this fact: three out of four Nobel Prize laureates in science claim to have first cultivated their passion for science outside their regular class environment. This echoes the sentiment that a well-designed, high quality after-school program like Imhotep's Legacy Project V could have far-reaching effects on the ability of young learners to unlock their true potential in Science and Math.

Moreover, research consistently shows a positive correlation for young learners between the time spent on educational tasks and academic achievement. Hence, a program that offered learners a chance to extend their learning experience should engender better performance in regular coursework. Project V participants showed more engagement with their studies, were more willing to ask for assistance as well as voluntarily provided assistance to peers. The program nurtured well-behaved learners who showed more positive interactions with peers and school authorities.

The higher attendance record shown by Imhotep's Legacy participants enhanced in-school learning. It is believed that given the strong correlation between the time spent on educational activities and academic achievement, improved daily school attendance will lead to better academic performance and higher graduation rates among after-school participants.

Through project-based and experiential learning Imhotep's Legacy provides ideal after-school environments for young learners to engage in scientific inquiry, teambuilding, critical thinking, and problem solving and to make real world connections between the theoretical and the observed. Together, we can encourage many young African Canadians to become scientists. *We can encourage them to shine!*