Imhotep's Legacy: Project III

A Math and Science Pilot Mentoring Project for African Nova Scotian Learners (Grades 7, 8, 9)

Final Report • August 2004

Prepared for: Department of Physics • Dalhousie University
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Much is owed to Caledonia Junior High School, especially to Principal Edy Guy-Francois and Vice Principal Ken Johnston, who were instrumental facilitators in the delivery of this project.

Finally, I am grateful to the tutors and tutees for the successful completion of this important initiative.

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INTRODUCTION

Imhotep's Legacy Project III is a university-community partnership lead by the Department of Physics at Dalhousie University, the Black Student Advising Centre (BSAC) at Dalhousie University, and the African Canadian Services Division (ACSD) - a unit of the Nova Scotia Department of Education. The project is the brainchild of three influential leaders in the African Nova Scotian community – Wayn Hamilton (position?), Barb Hamilton-Hinch (Black Students Advisor, Dalhousie University), and Dr. Kevin Hewitt (Assistant Professor of Physics, Dalhousie University).

The pilot project is designed to foster interest in scientific inquiry among young learners of African descent within the Halifax Regional Municipality. To accomplish this undertaking science and engineering students from Dalhousie University are enlisted to engage in the design and implementation of science enrichment activities for young learners (Grades 7, 8 and 9). Through a high degree of participatory and informal interaction the university tutors will deconstruct concepts and dispel some of the myths about science in a casual and convivial atmosphere. This approach should engender increased engagement in scientific inquiry among young African Nova Scotian learners and increase the likelihood that they will be interested in pursuing math and science studies at a post-secondary level.

PROJECT OBJECTIVE

Imhotep's Legacy Project III is aimed at providing an opportunity for junior high learners of African descent to engage in activities designed to strengthen their math and science aptitude. The project seeks to redress some of the issues preventing learners of African descent from developing a better appreciation for scientific inquiry with a vision to improve on the representation of African Canadian professionals in the various fields of science.

CONTEXT OF THIS PROJECT

Nova Scotia is home to the largest indigenous African population in Canada spread out in forty (40) plus communities. According to the 1996 Census, this is the third largest African Canadian population next to Toronto and Montreal. Our arrival to Nova Scotia is resultant of both voluntary circumstances – based on the assurance of freedom and land, and involuntary circumstances – as a form of social control.

African Nova Scotians continue to hope for equality and struggle to regain control over their destiny. The hope that the abolition of slavery would bring about social equality has not truly been realized. Sociological institutions such as the educational system continue to operate from a bigoted perspective. Consequently, racial discrimination has been identified as a crucial casual factor in the failure of a large portion of young learners of African descent to partake, perform or develop into academic achievers in science and math. In conjunction with social discrimination,

other variables have been recognized as contributory to this outcome. These include inadequate parental involvement, the nature of classroom instruction and interaction, insufficient exposure to the world of science as it relates to the life of the young learner, and failure to promote skills fundamental to the development of an appreciation for scientific inquiry.

A number of community organizations are engaged in developing academic programs that benefit young learners of African descent. Most notably, the Black Educators' Association (BEA) has sponsored programs such as Math Camp, Career Jam, and CAEP (Cultural and Academic Enrichment Program). For many years, the Department of Physics at Dalhousie University has also been engaged in science outreach activities. On their part, the ACSD has also established literacy and numeracy programs for learners of African descent province-wide. By focusing on several subject areas in science and adopting a mentoring scheme, this pilot project offers a unique approach to enhancing the quality of math and science education for young learners of African descent.

RECRUITMENT

The target group was junior high school students of African descent at two schools within the Halifax municipality: Caledonia Junior High School and St. Patrick's-Alexandra School. The criteria for the selection of the two schools were as follows:

- large pool of learners of African descent
- relatively low level of academic achievement (especially in Math and Science)
- cooperative administrations prepared to endorse the project
- resource teachers at each school willing to facilitate the project
- accessibility for Dalhousie University mentors.

Additionally, both schools were located within or in close proximity to African Nova Scotian communities: St. Patrick's-Alexandra is located in the Halifax North-End, while Caledonia Junior High draws its students from the Montebello and Caledonia areas.

School administrators agreed to explore the prospect of including their students in this mentoring initiative after discussions with members of the steering committee. They also reviewed promotional material explaining inter alia the project objectives, activities, expected outcomes plus the anticipated method and schedule of delivery. Admittance in the project depended on the receipt of a signed Student Agreement form and Family/Parent Agreement form. Both forms explicitly outlined the roles and responsibilities of young learners and their parents/guardians vis-à-vis this initiative. The forms were created with a conscious effort to incorporate language that was simple, inclusive, and reflective of the project objectives.

The mentors enlisted to deliver science enrichment activities were chosen from a pool of respondents to ads posted by the Black Student Advisor on the Student Employment Centre jobsite. A combination of criteria was employed in mentor selection including the fact that the students

- were registered at Dalhousie University full-time or part-time in the 2003-2004 academic year
- were pursuing courses in a science and/or engineering stream at either the undergraduate or graduate level
- were of African descent and could identify with African Canadian learners' largely mediocre attitude vis-à-vis the pursuit of postsecondary science education.

Resultant of the above recruitment strategies fifteen (15) students from Caledonia Junior High were chosen to participate in this project as well as eight (8) mentors plus one (1) project coordinator from Dalhousie University.

The 15 students were identified solely by school administration as appropriate candidates for this initiative. These students met the additional criteria (set by the school) of being generally of good behaviour and good academic standing. Given the relative inexperience of the prospective mentors in tutoring young learners, the administrative staff was keen on selecting only those students who were unlikely to pose a major problem in aptitude and attitude. The number of students chosen is reflexive of:

- Five (5) from Grade 7;
- Eight (8) from Grade 8;
- Three (3) from Grade 9.

DATA COLLECTION

The main methods used to collect evaluation information involved one (1) of four (4) following ways:

- Conducting interviews with key participants – students, mentors, school administrators, Math and Science teachers and parents/guardians.
- Participant observation - allowed the coordinator to gather information about the project from the point of view of a participant thereby capturing the nuances of the delivery process first hand.
- Event logs - written accounts of the initiative compiled by the coordinator immediately following each delivery session including information on the 5 W's: when the session took place; why it was important; what was the result; who was involved; what support was provided for the session by the school.
- Questionnaires - rating participant satisfaction (see Appendix 1).

DESCRIPTION OF PROJECT ACTIVITIES

This project was piloted in three phases – the professional development phase, the tutor training phase, and the project delivery phase.

Professional Development Workshops:

In order to accomplish the objectives of this initiative, representatives from the ACSD, teachers, faculty, and Dalhousie University students of African descent were brought together in two professional development workshops to work on some of the tools and approaches for the project.

The professional development team met for the first time on the evening of January 16, 2004. Wayn Hamilton presented a synopsis of the project as well as a profile of St. Patrick's-Alexandra School. Chris Phee, a teacher at Caledonia Junior High School, presented a profile of that institution. Jay Jarvis, who had recently been involved in coordinating a similar tutoring initiative, shared some experiences on how best to develop this initiative to meet the desired outcomes. All three aforementioned individuals imparted instruction on an assortment of issues including:

- dealing with attitudinal problems
- managing social stereotypes/stigma
- communicating with school administrators, teachers, tutees and parents/guardians
- maintaining tutees' focus on the lesson at hand.

Maureen Finlayson, an ASCD representative, emphasized the importance of structuring the project activities to accommodate each grade grouping. To this end, she engaged participants in a comprehensive discussion on the Math and Science General Curriculum Outcome used in Nova Scotia at the target grade levels (Grades 7, 8 & 9).

A subsequent meeting was held by the professional development team the next day to further develop the didactic scheme to be adopted for this project. Lesson plans will be developed to act as instruction manuals (see Appendix 2 for a sample lesson plan). The lesson plans will be tailored to answer fundamental scientific questions using simple materials some of which are common in the household. The aim is to get the tutees to "learn by doing" during the site delivery sessions and at home using common household materials. For example, all that was required for the *How are crayons made?* module were pigment and paraffin wax. This straightforward pedagogical approach is expected to be effective in evoking the relevance of science in the daily lives of the learners. Additionally, it should prove effective in getting them to appreciate the simplicity in how numerous things work. To make the link between the learner and science more identifiable, the contributions of scientists of African Canadian lineage will be accentuated.

Tutor Training Sessions:

Tutor training was fundamental to this initiative given the relative inexperience of the tutors in dealing with young learners. As well, it has been shown that tutees of trained tutors can perform significantly better than those of untrained tutors. Following the professional development workshops several tutor training sessions were held through the auspices of Dr. Kevin Hewitt. The training sessions aimed to help the tutors understand the need to facilitate the learning process as well as teach Math and Science concepts.

Training sessions dwelt on the following:

- different learning approaches
- icebreakers
- setting up ground rules
- how to start off
- session strategies
- how to help students think creatively
- how to re-direct questions

Tutors also explored good group practice techniques such as

- probing
- brainstorming
- monitoring group dynamics
- developing listening skills
- closing techniques
- working in pairs/larger groups

Tutors were also assigned specific activities for which they developed lesson plans (see Appendix 2). The effectiveness of these lesson plans were tested by having tutors perform all the experiments according to the prescribed methods outlined in the plans. These were done in a simulated tutorial setting with other tutors role-playing as students. This approach was expected to help tutors develop confidence in engaging the tutees' attention. Ideas and experiences were brainstormed followed by a discussion on possible solutions. These were put into practice in subsequent simulated tutorial sessions.

Site Delivery Sessions:

The pilot tutoring initiative was run throughout the third trimester of the 2003/2004 academic year. Weekly after-school sessions were held at Caledonia Junior High School according to a predetermined schedule (see Appendix 3). The first session comprised of a meeting with the entire teaching staff during which the nature of the initiative was presented by the project coordinator, and tutors were introduced to the respective Math/Science teachers. Subsequent sessions ran for up to ninety (90) minutes immediately following regular school time. Naturally, a staff representative was present at each session for supervisory purposes. The teacher provided

assistance to the tutors when solicited but generally observed unobtrusively. The project coordinator liaised between the steering committee, school administration, teachers, parents/guardians, tutors and tutees to ensure the smooth running of each of these sessions.

Two tutors were assigned to each of the three grade levels. The tutors were engaged in delivering four science enrichment activities per grade level according to the schedule outlined in Appendix 3. These activities were:

- GRADE 7
    - How do candles work?
    - Why do onions make you cry?
    - How are crayons made?
    - What is foot-and-mouth disease? How do viruses work?
- GRADE 8
    - How can you make a wine glass sing?
    - Whys is the sky blue?
    - How does a sewer and septic system work?
    - How does a ballpoint pen work?
- GRADE 9
    - Where does the colour in purple cabbage come from? Is it true that you can use it as a pH indicator?
    - How does an electric motor work? How do electromagnets work?
    - Why does biting on aluminum foil hurt? How does a battery work?
    - How do I build a telescope at home?

At the end of each session students were allowed to take home some of the materials so they could replicate the experiments at their leisure.

Blended with the above activities were tutorial sessions designed strictly to help the students with homework assignments/class projects and to prepare them for impending class assessments (quizzes, tests, and exams). The tutors had access to homework assignments and upcoming test dates online from the school website (www.caledonia.ednet.ns.ca). The program coordinator was charged with compiling this information and disseminating it to the tutors well in advance of the tutorial sessions (see Appendix 4).

The final session was a science enrichment workshop held in the Department of Physics at Dalhousie University. The following activities were delivered at this workshop according to the schedule outlined in Appendix 5:

- DALHOUSIE WORKSHOP ACTIVITIES

    - Superconductivity
    - How do baby diapers work?
    - Scratch-o-grams
    - How does a radio work?
    - What causes lightning and thunder?
    - Profiles of African Canadian Scientists (PowerPoint Presentation).

EVALUATING KEY OUTCOMES

This section of the project report elucidates reasons for the project's success and the challenges presented. Data was collected through a variety of methods mentioned earlier and the following information was collated and analyzed:

- Recruitment of target group
- Attendance at site delivery sessions
- Student feedback on the delivery modules and their perception of the tutoring initiative through a dedicated questionnaire and interviews
- School teachers and administrators perceptions
- Tutor perceptions by a focus group session facilitated by the coordinator

Recruitment of Target Group:

As mentioned in a previous section, two schools were targeted for the piloting of this tutoring project. While the project was successfully delivered at Caledonia Junior High School, its implementation at St. Patrick's-Alexandra School was deemed unfeasible.

The following are some reasons why Caledonia was a viable target:

- Pro-active school administrators who were committed to ensuring their students benefit from such a significant program.
- There was a larger pool of learners of African descent at the school from which a small number of willing participants could be drawn.
- School administrators were in charge of recruiting potential participants thereby impressing upon the students the benefits of taking part in the project.
- The administration willingly offered to contact parents/guardians of potential tutees to promote the project.
- School administrators invited interested parents/guardians to an information session at the school where they successfully secured parental consent.
- The administration remained immensely supportive throughout the delivery phase of the project.

- A teacher was assigned the role of supervising all delivery sessions including being present at the Dalhousie science enrichment workshop, hence impressing on the students the administration's perception of the value of this initiative.
- School administration were quick to follow-up on absentees and parents were updated regularly on their child's status vis-à-vis the tutoring initiative.
- Tutors had access to a logbook of homework assignments and test dates via the school website, hence tutors were able to keep abreast with the lessons taught in class and prepare for tutorials more effectively.
- The students were very agreeable and showed an enthusiasm to learn, especially after the first after-school session.

The end result of numerous comprehensive consultations with, primarily, Principal Mary-Lou Donnelly at St. Patrick's-Alexandra, was the disappointing decision that the school was not a workable target at the time for the delivery of this initiative for the following reasons:

- Following a demonstration session in December 2003, students were solely responsible for the decision to take part in project. Despite learners' exuberance at that session, the school failed to play a bigger role in securing student participation.
- According to the Principal, students were generally reluctant to commit to after-school tutoring. This underscores the need for school administration to have played a bigger role in recruiting participants rather than leaving the decision entirely to the students.
- There was a relatively smaller pool of students of African descent to draw from.
- Staff scheduling difficulties necessitated that a lunchtime program was a doable but unattractive option.
- Failure on the part of school administrators to promote the program to parent/guardians was compounded by the reluctance to allow the project coordinator to contact the parents/guardians directly in an effort to inform them of the nature of the project.

Student Perceptions:

Student feedback was obtained through an anonymous questionnaire (see Appendix 1). The questionnaire consisted of twelve open ended questions that asked what students thought about the activities and about their mentors. Some students mentioned problems with a few experiments, most notably the *How do crayons work?* module on which the complain was that the "crayons didn't work." Despite these problems, most students felt that the tutoring initiative had been a positive experience. Some students commented that the initiative had led them to approach their science/math class activities with more enthusiasm. In a telling moment of unqualified youthful exuberance, one student was so overwhelmed by the outcome of the *How does an electric motor work?* experiment that she dashed out of the classroom, ran down the hallway in search of the Principal and proudly presented her new creation. Comments such as the following, albeit shrouded in juvenile jargon, best capture the level of student satisfaction:

- "Cool"
- "Good job"
- "This was really fun and I would love to do it again"
- "You guys make it so easy to learn"
- "I can't wait to show my mother what I can do"
- "I learned [the concept] better than I did in class."
- "Awesome! I am a *scientist*!"

Figs. 1 and 2 contain student responses to questions outlined in the Instructional Development questionnaire (Appendix 1). Fig. 1 shows their response to questions about the tutors' competency. Although some students felt the tutors were not sufficiently clear and understandable in their speech, most students felt the tutors were effective in facilitating their learning. It is noteworthy here that most of the tutors were international students of African descent, hence naturally speak with an accent unfamiliar to most of the tutees. The tutees found the pilot project interesting and beneficial to their learning as shown in Fig. 2.

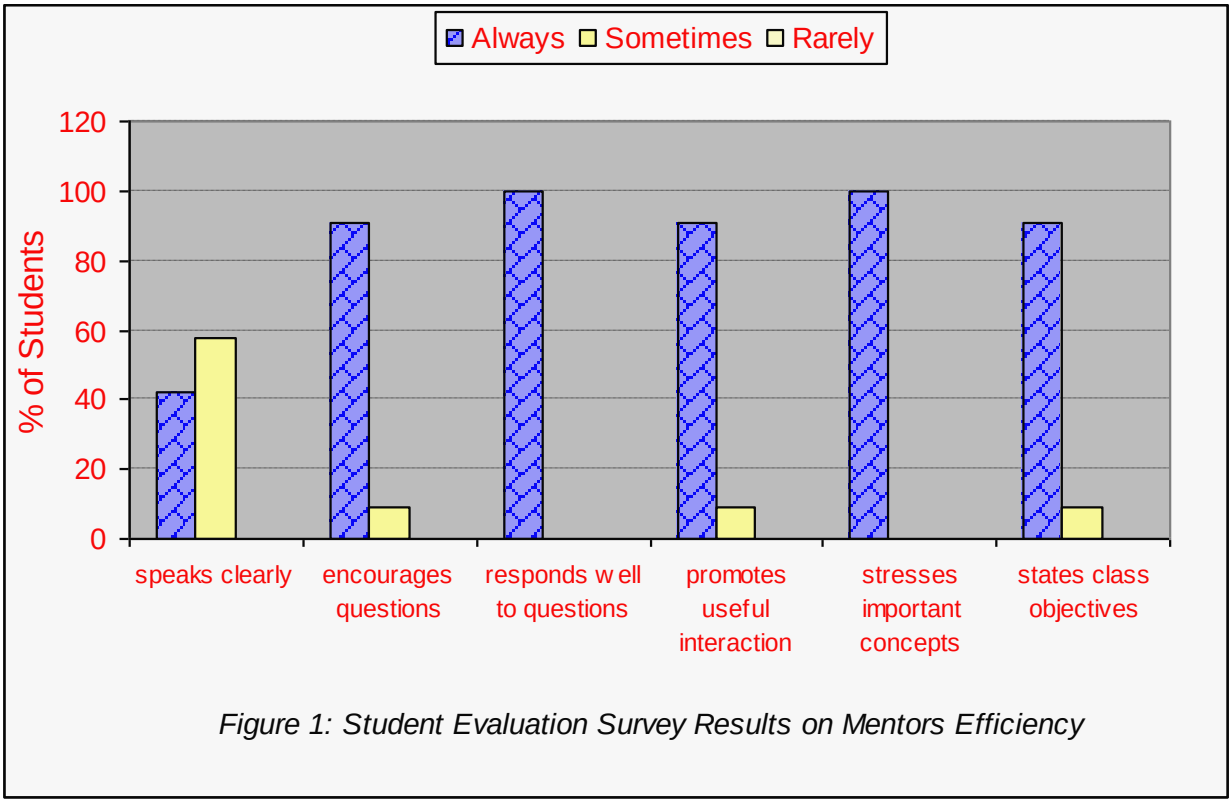

Figure 1: Student Evaluation Survey Results on Mentors Efficiency

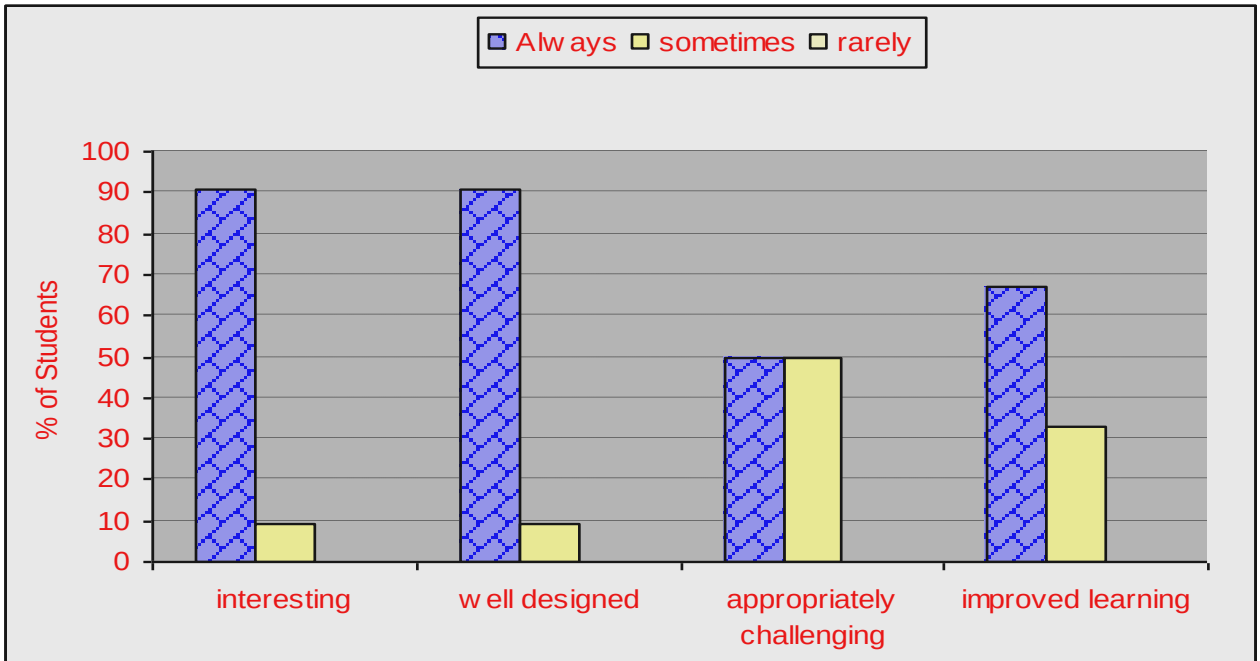

Figure 2: Student Evaluation Survey Results - About the Science Activities

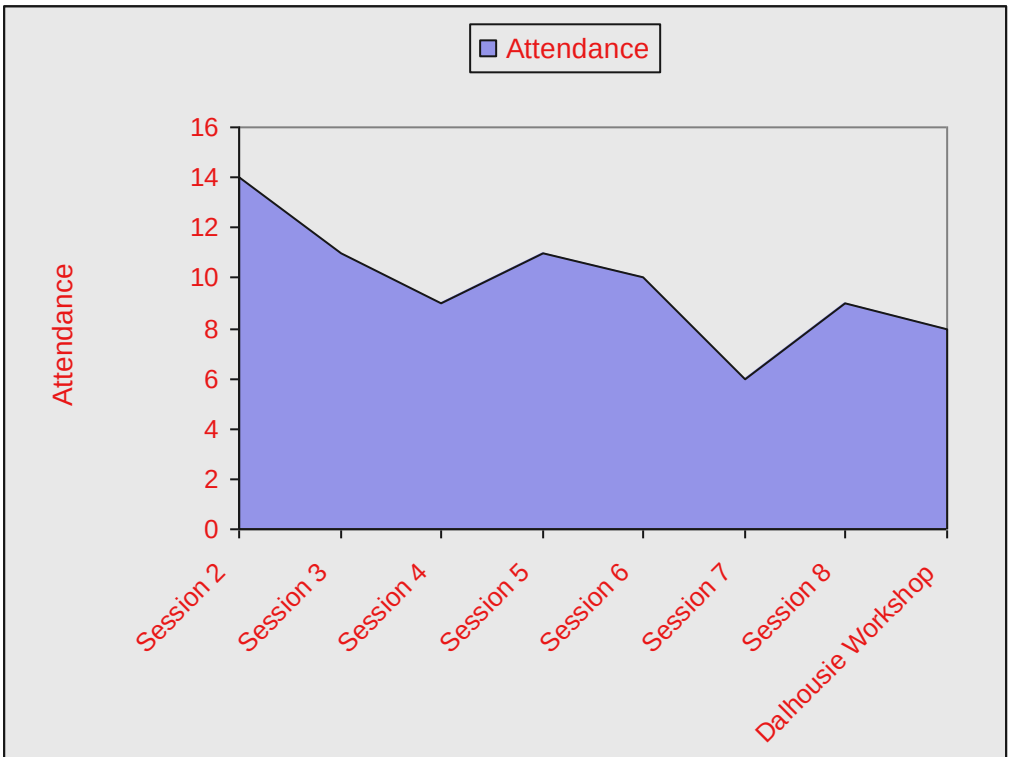

Figure 3: Number of students present at each of the delivery sessions.

Attendance Record:

From the attendance records kept by the project coordinator, more than 70% of the students attended most of the tutorial sessions with some tailing-off towards the end as Fig. 3 indicates. Two students dropped out of the program after Session 2 for health and personal reasons. As an after-school program, the school administration had warned that many students were involved in extracurricular activities within the school and in their communities. A couple of the tutorial groups were less well attended, mainly due to this problem.

Teacher Perceptions:

Informal discussions between the subject teachers, principal, vice principal and the project coordinator suggest that the initiative has been well integrated into the specific course designs and intended learning outcomes. The teachers commented that the tutoring initiative encouraged self-learning and maturing of the students and took some pressure off the teaching staff. Additionally, the teachers were impressed by a noticeable change in the students' motivational level and attitudes. They also felt that participants in the project would readily learn from university students they could identify with, equipping them with improved learning skills and a better appreciation for Math and Science. All of the teachers, like the students, felt that the experience had been a positive one, and would definitely encourage the students to take part again if given an opportunity in the future.

Tutor Perceptions:

Tutors were evaluated by a focus group in which they were asked to focus on the process and content of the tutees' learning, on benefits to the tutees' developments and ways in which future projects could be improved. The following points were discussed:

- What happened during the tutorials?
    - The tutees discussed different ways of solving math and science problems.
    - Tutees were encouraged to ask questions and pursue a fuller discussion of important concepts.
    - Tutees pondered more about different approaches to solving Math and Science problems.
    - An informal atmosphere was maintained to make learning non-threatening and more enjoyable.
- Did the tutees change their approach to learning?
    - Tutees became more enthusiastic about participating in the activities.
    - They evaluated and checked their own work more, and those of fellow participants.
    - They became less dependent on the tutor for ideas and input.

  - They also used other resources as references and became more adept at finding relevant information on the internet.

- How did tutees benefit from the tutorials?

  - Had a better mastery of science concepts taught in their regular lessons.
  - Developed key skills that were applicable in their regular coursework.
  - More responsible attitude towards learning.
  - Became more confident about their academic abilities as well as their ability to engage in scientific inquiry beyond a secondary level.
  - Developed good relationships with university tutors who could be seen as positive role models

- What could be improved?

  - Having the tutorials on days when the tutees are less likely to be involved in extracurricular activities.
  - Having the tutorial sessions match more closely what the tutees were being taught in their regular coursework.
  - More communication between tutors and teachers to better monitor progress and constantly identify areas where tutees could improve.

All of the tutors were especially pleased with the experience and tutees' attitude towards learning. Tutors also expressed their readiness to take part again if presented the opportunity in the future.

FUTURE YEARS

A number of observations were made during the piloting of this project that would be of benefit in future schemes.

- The approach adopted to recruit students at Caledonia Junior High School will be effective in other schools. School administrators should be encouraged to play a very active role in deciding who participates in the initiative. They should also be encouraged to assist in promoting the initiative to students and their parents/guardians.

- Establish a feedback mechanism to Math and Science teachers to assess the effectiveness of the tutoring programme in improving class performance. For example, an improvement in regular coursework marks would indicate that the students were becoming more capable of defining and solving Math/Science problems.

- Obtain the specific Math/Science curricula for each school in order to tailor all activities to closely match the intended learning outcomes per grade level.

- The appointment of a teacher liaison is important to facilitate communication between the project staff, school administrators, students, and parents.

- Scheduling of delivery sessions should be mutually convenient for both tutors and tutees. Hence, some flexibility should be allowed to account for those times when attendance might be low because of tutees' involvement in other activities. Strict adherence to a predetermined schedule might result in a low attendance record for some sessions.

- To promote an appreciation for all the major areas of science, the Dalhousie Workshops should incorporate visits to other departments. For example, attractive sites in the Life Sciences Building include the Green House, the Marine Biology lab with life sea animals, and an Electron Microscope lab. Also, the Chemistry Building houses a state-of-the-art Mass Spectrometer, while the Kellogg Medical Building is home to a fascinating Anatomy Museum.

- The results of the initiative should be disseminated to a wider audience to promote the project and encourage the creation of similar initiatives. This can be made freely available on a website hosted by Dalhousie University.

CONCLUSION

Imhotep's Legacy Project III has been successfully piloted at one school in the Halifax municipality. The project has yielded valuable insights on how to engage young learners of African descent in Math and Science explorations. It appears to have been effective at enabling students to take more responsibility for their own learning, promoting creative problem solving, and developing group-working skills. It has been of significant benefit to the students who evinced more interest in Math and Science as well as a growing confidence in their ability to pursue these subjects at a post-secondary level. The pedagogic approach adopted in this project was one that was easy to implement. It allowed for the tutorials to take place in a casual and convivial environment thus facilitating the learning process.

This pilot project is testament that a similar mentoring approach can be successfully implemented on a yearly basis at local schools to encourage young learners of African descent to develop a sustained interest in Math and Science. Although much work is still required the objective behind the creation of this project – to enhance the representation of African Canadian professionals in the various fields of science – seems absolutely attainable.

APPENDIX 1

INSTRUCTIONAL DEVELOPMENT FORM FOR CALEDONIA JUNIOR HIGH

The purpose of this evaluation is to help your mentor improve on his/her mentorship, and therefore, help you improve on your learning. Your feedback and suggestions are appreciated.

GRADE	ROOM #	NAME OF MENTOR

About your Mentor…	**Always**	**Sometimes**	**Rarely**
The mentor speaks clearly and understandably			
The mentor encourages students to ask questions			
The mentor responds well to students' questions			
The mentor clearly states the objectives of the class			
The mentor promotes useful interaction between students			
The mentor makes clear what concepts are important			
About the science activity…	**Yes**	**Somewhat**	**No**
Do you think the activity was interesting?			
Do you think the activity was well designed?			
Do you think the activity was appropriately challenging?			
Do you think the activity improved your learning?			

Comments:

Do you have any additional comments to your mentor?

Do you have additional comments about the activity?

APPENDIX 2

Lesson Plan on How to Build an Electric Motor

Prepared by: Hycienth Onovwiona Target Grade: 9

Time allocated: 1 hour

Lesson Objective: To learn the principle of operation of an electric motor and to understand how electromagnets work.	
Pre-assessment: Electromagnet, Permanent magnet, electric motor and electrical and mechanical energy conversion	
Motivational Statement/ Strategy: Where motors are used should be mentioned e.g. CD players and refrigerator.	
Instructional Activity: - Demonstrate the force on aluminum foil in a magnetic field and to show the attraction and repulsion force around the field. - On the blackboard, use the learner's rule to find the rotation of the wire loop in a magnetic field. - Construct and demonstrate how a nail and coil of wires can be used to attract a small clip. Explain the difference between the electromagnet created by this experiment and a permanent magnet. - Show on the blackboard that if the current is not reversed, the torque on the loop will cause it to rotate in the opposite direction, once it passes a point perpendicular to the magnetic field. - Explain the use of the armature to correct the above problem. State that motors convert the electrical energy provided by the battery into mechanical energy. - Construct and demonstrate a simple motor using the materials provided. - Supply learners with parts to build their own motor and explain how to build the motor. - Ask how the rate of rotation can be increased or decreased.	*Learner Activity:* -Come up with rule describing the direction of force e.g. Right hand rule. - Determine the force on the wire as drawn on the blackboard as it passes through equilibrium. - Learners should repeat the experiment -Learners construct motor. -Responses
Post Assessment: Demonstrate working motor to class. If not working, explain why not.	
Summary: Provide everyday examples of the use of electric motors.	

APPENDIX 3

PROGRAM DELIVERY SCHEDULE FOR CALEDONIA JUNIOR HIGH

SESSION	DATE	ACTIVITIES DELIVERED		
		GRADE SEVEN	*GRADE EIGHT*	*GRADE NINE*
Session 1	March 30th	Program presentation at a meeting with Caledonia staff members		
Session 2	April 6th	How do candles work?	How can you make a wine glass sing?	Where does the colour in purple cabbage come from? Is it true that you can use it as a pH indicator?
Session 3	April 13th	TUTORING – Assignment Help and Test Preparation		
Session 4	April 20th	Why does slicing onions make your cry? Is there any way to stop it?	Why is the sky blue?	How does an electric motor work? How do electromagnets work?
Session 5	April 27th	TUTORING – Assignment Help and Test Preparation		
Session 6	May 4th	How are crayons made?	How does a sewer and septic system work?	Why does biting on aluminum foil hurt? How does a battery work?
Session 7	May 11th	TUTORING – Assignment Help and Test Preparation		
Session 8	May 18th	What is foot-and-mouse disease? How do viruses work?	How does a ballpoint pen work?	How do I build a telescope at home?
Session 9 At Dalhousie	May 29th	**Dalhousie Workshop** 1) Superconductivity & How do baby diapers work? 2) Holograms 3) How does a radio work? 4) Profiles of African Canadian Scientists? 5) What causes lightening and thunder?		
Session 10 At Caledonia	June 6th	**Wrap-Up Session** Parents, staff and students meet with mentors at Caledonia. Presentation of certificates of achievement and participation.		

APPENDIX 4

HOMEWORK SCHEDULE FOR CALEDONIA JUNIOR HIGH – WEEK OF APRIL 5, 2004

ROOM	MATH	SCIENCE
701	Math Test Wednesday, April 7	Test and Lab due Wednesday, April 7
702	Test Tuesday, April 6 on "Ratio & Percent"	Test Wednesday, April 7 on "Solutions"
703	Ration Quiz on Wednesday, April 7	Review Viscosity notes
704	Algebra Test & Ratio Quiz on Wed, April 7	Viscosity Lab report due Tuesday, April 13
705	- - -	Viscosity Lab report due Tuesday, April 13
706	Pg. 258: 1-4; Work on the PDLS for April 8	- - -
801	- - -	Project; pg. 244-247: 1,2,3,4,5 & 7; Test on April 14
802	- - -	April 13 - Graphing Tides; April 14 - H_2O Systems
803	- - -	Tide tables; Review notes and check the website www.lau.chs-shc.dfo- mpo.gc.ca/english/Canada.shtml
804	Quiz today, April 6	Tide tables are due Wednesday, April 7
805	Quiz on Monday, April 5 (yesterday)	Test on Thursday, April 8; Finish questions on Water, Weather, and Climate
806	Quiz on Monday, April 5 (yesterday)	Test on Thursday, April 8; Finish questions on Water, Weather, and Climate
901	- - -	Complete handout - Investigation 10-A, questions 1 - 7. Read pgs Section 10-2 (begins pg 331) and answer questions 1- 5 on page 336. Remember, homework is your entry to class - no homework, no entry
902	- - -	Complete handout - Investigation 10-A, question 1 - 7. Read pgs Section 10-2 (begins pg 331) and answer questions 1- 5 on page 336. Remember, homework is your entry to class - no homework, no entry.
903	- - -	- - -
904	Complete word problem sheet (Books Never Written, Solving Problems Algebraically)	Think about your partner for Biotechnology project; Review notes on DNA & DNA Structure.
905	Complete both sides of Pythagorean theorem sheet: Due on Friday, April 9	Project due

APPENDIX 5

DALHOUSIE SCIENCE ENRICHMENT WORKSHOP

Workshop Schedule – Saturday, May 29, 2004		
Time	**Activity**	**Presenter**
10.00 AM	Arrival and Introduction	
10.15 AM	Superconductivity & How do baby diapers work?	Kevin & Dunni
10.45 AM	Scratch-o-grams	Wilber & Yvonne
12.00 PM	LUNCH – LUNCH - LUNCH	
1.00 PM	How does a radio work?	Dunni & Bridgette
2.30 PM	Profiles of African Canadian Scientists	Dunni
2.45 PM	What causes lightning and thunder?	Kevin
3.00 PM	Depart for Caledonia campus	

RADIO

Capacitance	*Station*
0.0078 F	780 KICKS
0.0050 F	920 CJCH
0.0046 F	96 CHNS