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IS PATHWAYS TO EDUCATION AN EFFECTIVE PROGRAM?
PROPOSED PROGRAM EVALUATION OF OTTAWA ONTARIO

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ABSTRACT

The goal of the Pathways to Education program is to break the vicious cycle of low education and poverty that exists in Canada, through providing low-income youth with academic, social, counseling, and financial supports to encourage and facilitate their graduation from high school and enrolment into post-secondary education (PSE). The evaluation of Pathways to Education is critical from both an equity and economic perspective. From an equity perspective Pathways aims to uphold democratic ideals of equality of opportunity. From an economic perspective, one of Canada's key concerns is being able to be a competitive player in the global marketplace.

For Canada to keep up economically in the innovation, information and technology age, Canada needs more individuals to graduate from PSE institutions. An excellent solution to the problem of how to encourage Canadians to graduate from PSE is to look to youth from underrepresented groups to fill these PSE 'graduate gaps' (HRSDC, 2001). If the government of Canada found that Pathways to Education is efficient at increasing PSE enrollment rates of individuals from underrepresented groups, national implementation could have tremendous positive results for Canada both socially and economically (HRSDC, 2001, Olaniyan et al. 2008).

Due to positive reviews and widespread support, the Pathways to Education program has received the positive attention and funding necessary to expand across Canada. It is therefore necessary to determine whether resources should be invested in the program.

This paper proposes an evaluation tool that can accurately measure the direct impact of Pathways to Education to determine whether it is being effective in Ottawa. By using this tool to identify whether the program is effective in Ottawa, it is possible to determine how it is effective and in what context the program is effective.

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1. Introduction

A cycle of low education and poverty exists in Canada (Hankivsky, 2008, BCG, 2007, SRDC, 2007). Recent research shows that youth who tend to be underrepresented in post-secondary education (PSE), come from low-income families, and have parents with low levels of education (Finnie, R., Childs, S., Wismer, A., 2011, Frenette, 2007, SRDC, 2007). Without intervention, low-income youth are less likely to complete their high-school education, receive higher education, and are therefore more likely to remain impoverished (BCG, 2007, Hawkins, D., Catalano, R. F., Kosterman, R., Abbott, R., Hill, K., 1999). This is because individuals who are less educated, are less equipped to participate in the Canadian economy (Pathways, 2010).

Increasing access to PSE is critical for Canada from an economic and equity perspective. One of Canada's main concerns is being a competitive player in the global marketplace. In order for Canada to compete economically in the innovation, information, and technology age, it is vital that Canada focuses on generating and maintaining a highly-skilled labour force.

Essential to this strategy is to increase the number of individuals who graduate from PSE institutions (Finnie et al., 2011). Looking to youth from underrepresented groups to fill PSE 'graduate gaps' can facilitate this increase. It is therefore necessary to identify why these groups are underrepresented and how they can be encouraged to enroll into PSE (HRSDC, 2001). If the government could find a program that was efficient at increasing PSE enrollment rates amongst underrepresented groups, and operated this program successfully at the national level, it could have tremendous positive results for Canada both socially and economically (HRSDC 2001).

A program of this nature would provide social benefits by promoting equality of access. A system that affords equal opportunities for all members in a society, upholds the ethical, inherent equality of its members. This should increase the overall standard of living in Canada to make for a happier society overall (HRSDC, 2001).

Increasing access to PSE would also produce economic benefits. The increase in obtained human capital would provide an increase in opportunities for individual economic gains. Economic benefits at the societal level would derive from the increase in skilled workers that would give Canada a competitive economic advantage by promoting economic growth and innovation (Olaniyan et al., 2008). In addition, by looking to members of these underrepresented groups to increase the number of graduates from PSE, members of these underrepresented groups have the opportunity for upward social mobility. Increasing the upward social mobility of low-income groups in Canada should translate into greater Federal revenue from income taxes collected on earnings, and from more revenue available from decreased spending on social assistance programs (BCG, 2007).

The first Pathways to Education site was established in Regent Park, Toronto, Ontario, at the Regent Park Community Health Center in 2001. The Pathways to Education program offers academic, social, and financial supports, and provides opportunities to low-income youth to make them into future leaders in their communities, and in their own lives. To achieve this goal, the specific objectives of the program are to increase both the retention in high school, and the academic success of students from low-income communities. Pathways to Education provides low-income youth with increased opportunities that promote the development of life skills to support and

encourage the youth to pursue PSE, develop their careers, and to be part of the knowledge-based economy (Pathways, 2010).

Studies that assess and recommend interventions have focused mainly on how early childhood interventions have lasting positive effects for the cognitive and social abilities of individuals from low socio-economic households (Hawkins et al., 1999, Ferguson, B., Tilleczek, K., Boydell, K., & Rummens, A.J., 2005). By intervening at the critical transition period of high school, Pathways to Education is attempting to impact the choices that teens make surrounding the value of education (Ferguson et al, 2005).

A study by Frempong and Willms (2002) found that schools differ in their socio-economic gradients, and that schools with higher socio-economic gradients achieve higher scores, and more equitable student outcomes. The goal of implementing a program that levels the playing field for youth is to ensure that students are not divided by socioeconomic status. The best way of achieving this is to offer all students the same opportunities to succeed.

In 2001, the pilot site of Pathways to Education was established in Regent Park at the Community Health Center. Due to its positive results and widespread support, Pathways to Education is pursuing a national strategy to help level the playing field for youth from low-income neighbourhoods across Canada. In 2007, Pathways opened a site in Ottawa Ontario at the Pinecrest-Community Health Centre (Pathways, 2010).

The Pathways to Education program funding is linked to evaluation. As such, it is important to question the methodologies for, and results of, these evaluations when determining how effective Pathways is. The existing findings have helped Pathways

receive the positive attention required to attract funding. The studies conducted by the Boston Consulting Group (BCG) in 2007 and 2010 are the only formal evaluations of Pathways that have been conducted outside of Pathways itself. Furthermore, the BCG is a paid consulting group. It must be recognized that biased research goals may have impacted the findings of the BCG (2007, 2010) evaluation and the Pathways (2010, 2011) assessments of the program. This is why it is imperative to question the existing evaluations.

It is important to determine whether Pathways to Education is effective, and in what ways, so that scarce resources in society can be used most efficiently. Pathways to Education's goal is long-term, social progressive change. This makes the full measure of Pathways' success intangible in the short-run. To improve the socio-economic status of a community it is necessary to instill certain attitudes, values, and norms that continuously benefit the community. The measurement of social change in attitudes, norms, and values in the short-term is problematic because such change is a long-term process. Ultimately there is an inherent conflict between, investors' requirement for tangible results on the one hand, and the long-term, and intangible nature of the program's goals on the other.

According to the existing program evaluations conducted by the BCG in 2007 and 2011, and Pathways to Education in 2010 and 2011, the Pathways to Education program appears to be contributing to positive high-school retention rates and post-secondary enrollment rates of individuals from underrepresented and disadvantaged groups. To evaluate whether Pathways to Education is being an effective program in Ottawa, and if it would be effective across Canada, it is necessary to create an evaluation tool that can help determine what sets Pathways apart from other programs, and what makes it effective.

In addition, if Pathways is established nationally, it will be necessary to adapt the program to meet the specific needs of different environments. It is therefore critical to create an evaluation tool that can identify the central causal aspects of the program that should be adapted and modified in different parts of Canada.

The contribution of this paper is to work towards the development of an evaluation tool that can measure whether the Pathways to Education program is being effective in Ottawa. The first section of this paper will provide a review of the literature and set the context for the Pathways to Education program. The second section will describe the program. The third part of this paper will critique the results and methodologies of the existing assessments of the program as conducted by the BCG in 2007 and 2011, and Pathways to Education in 2010 and 2011; this will include discussion of the limitations to social program evaluation. From here, this paper will present an evaluation method for Pathways to Education in Ottawa to determine whether it is being effective in Ottawa. The final section of this paper will provide concluding statements about program evaluation and interesting lines of future research.

2. Context and Literature Review

Recent research shows that youth from families with low-incomes, and to an even greater degree, those with low-levels of parental education, are much less likely to attend PSE than other youth (Currie, S, Leonard, D, Robson, J, Hunter, H., 2009, Finnie et al., 2011 Hankivsky, 2008, BCG, 2007, SRDC, 2007). Increasing access to PSE for members of underrepresented groups will provide social and economic benefits for Canada (CMSF, 2008, Ferguson, 2007).

In Canada, the groups that continue to be underrepresented in PSE are youth from lower-income families, youth who are the first-generation in their family to attend PSE, and Aboriginal youth. Research suggests that participation in college is comparable between high and low-income youth, but that the gap in university participation is as high as 300% (Currie, 2009). Currie (2009) states that the parental level of education is more influential in determining PSE enrolment than income. Rounce (2004) finds that parental education is strongly correlated with parental income, and parents' educational aspirations for their children. Gandara and Bial's (2001) findings are that in low-income schools, teachers' low aspirations for their students are correlated to low PSE enrolment rates. This research points to a strong correlation between expectations of youth and their performance, and the presence of self-fulfilling prophecy.

These findings are supported by studies that use Statistic Canada's Youth in Transition Survey (YITS¹) dataset. The YITS dataset offers empirical insight on these

¹ Statistic Canada's Youth in Transition Survey (YITS) dataset offers empirical insight on these dynamics and is a great contribution in this field of research. The YITS is "designed to examine the patterns of, and influences on, major transitions in young people's lives, particularly with respect to education, training and work. Human Resources and Skills Development Canada and Statistics Canada have been developing the YITS in consultation with provincial and territorial ministries and departments of labour and education. Content includes measurement of major transitions in young people's lives including virtually all formal educational experiences and most labour market experiences, achievement, aspirations and expectations, and employment experiences. The implementation plan encompasses a longitudinal survey of 15 year olds (as of December 1999) to be surveyed every two years. These data longitudinally track youth from their mid-teens through late twenties. During these years, youth make decisions about PSE, may or may not progress through PSE, and then enter the labour market. The YITS data came to maturity in 2006, meaning that researchers had been able to follow the groups of 15, 18, and 20 year olds for a period of 6 years. The YITS data includes information from specific underrepresented groups. The data about these groups are then further separable by gender, socio-economic status, ethnicity...[immigrant] ...status in Canada, single-parent household, and official language spoken". For more information please see

dynamics and is a great contribution in this field of research. The YITS dataset has information on behaviour and performance in high school. These are high school grades, the PISA (OECD Program for International Student Assessment) reading score, and measures of high school engagement, self-perception, and parental behaviour (Finnie et al., 2008). The YITS is a source of data that majorly contributes to the empirical basis of the public policy debate on PSE access, and persistence, in Canada.

Using the YITS dataset for multi-variant regression analyses, Finnie et al. (2011) found that the least likely groups to pursue PSE are first-generation PSE students, Aboriginal Canadians, students with a disability, rural students, and those whose mother tongue is French. Other groups that were considered for analysis were low-income students, students from single-parent (or non-traditional) households, and first and second-generation immigrants.

Surprisingly Finnie et al. (2011) found that although low-income students are less likely to enroll in PSE, this has less statistical significance when controlling for any other factor². This leads to the conclusion that in Canada, the major factors determining PSE are “cultural” rather than “economic”. Additionally, being from a single-parent (non-traditional) household had no effect on PSE enrollment when parental education and family income were considered in the analysis.

http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=4435&Item_Id=85022&lang=en

² Other factors that were controlled for are immigrant status in Canada, gender, parental education, family type, Aboriginal status, rural/urban, French minority outside Quebec, disability status, high school grades, overall engagement, self-esteem, self-efficacy, self-mastery, social support, monitoring behaviour, nurturance behaviour, inconsistent discipline, and reading ability (Finnie et al., 2011: 31).

Using the YITS data, Finnie and Mueller (2010) found that being a first and second-generation immigrant is strongly related to PSE enrollment. In the YITS dataset, a first-generation immigrant is identified as having come to Canada with their parents before age 15, and second-generation immigrants are born in Canada. Finnie and Mueller (2010) find that overall, immigrant youth are more likely to participate in PSE than non-immigrant youth, but that this differs substantially by source region^{3,4}. The study finds that Chinese immigrants have by far the highest university attendance rates of any group, followed by those from Asia and Africa. Those from the Americas, (excluding the U.S.), have university rates that are lower than all other groups including those of non-immigrant youth. Immigrant youth from more “traditional source countries”, such as Europe and English-speaking countries, have university attendance rates that are only slightly higher than those of non-immigrants (Finnie, Mueller, 2010).

These findings are useful for the creation of programs targeted towards specific ethnic communities. The findings indicate that different types of interventions are necessary for youth from different cultural backgrounds. For example, findings (Finnie, Mueller, 2010) indicate that further research focused on increasing access to PSE for youth from the Americas and non-immigrant youth is needed.

In their report, *Paving the Way to Postsecondary Education: K-12 Intervention Programs for Underrepresented Youth*, Gandara and Bial (2001), find that across the U.S., certain groups are largely underrepresented in PSE institutions due to a set of

³ See Appendix A for tables that present findings in *They Came, They Saw, They Enrolled: Access to Post-Secondary Education by the Children of Canadian Immigrants*, Finnie and Mueller (2010).

⁴ For division of source regions see *They Came, They Saw, They Enrolled: Access to Post-Secondary Education by the Children of Canadian Immigrants*, Finnie and Mueller (2010: Appendix 1).

impediments to the “opportunity to learn” that act as obstacles to higher education for low-income and underrepresented youth. The report finds that each impediment contributes to the relatively low PSE rates of low-income black, Hispanic, and Native American students. Gandara and Bial (2001) argue that reduction in the salience of each of these impediments would increase the PSE rates for these populations. Furthermore, they recommend that to make significant inroads on the problem of inequality of access, all of the impediments should be addressed using a comprehensive approach. These findings provide insight to why the Pathways to Education program, which uses a holistic model to address academic, social, counseling, and financial barriers, could be effective to address issues of inequality to PSE access in Canada.

In their report, Gandara and Bial (2001) evaluate interventions that are designed to increase access to PSE, and then apply their findings to make recommendations about how to best tackle the issue of access in the U.S. Although there are structural, political, cultural, and economic differences between Canada and the U.S., the report by Gandara and Bial (2001), illustrates the impediments to PSE access in Canada. To some degree all of the obstacles found by Gandara and Bial (2001) in the U.S. may contribute to inequalities of access in Canada. The following are highlighted in literature specific to Canada: inequalities of familial and social capital, inequality of resources in neighbourhoods and communities, lack of peer support for academic achievement, inequalities across K-12 schools, segregation of underrepresented groups, low-expectations and aspirations (self-fulfilling prophecy), and high dropout rates.

Gandara and Bial (2001) find that inequalities of familial cultural and social capital⁵ are major contributors to inequality to access. This is because members of these underrepresented groups are much less likely to have sufficient familiarity with the social and educational systems and access to important information and resource networks, both of which are necessary to adequately represent their children's interests. Additionally, inequality of resources in neighborhoods and communities negatively impacts access. Lower-income communities have fewer local resources, such as libraries, parks, and museums, and fewer adult role models to support the academic aspirations of underrepresented youth.

The inequality of resources across K-12 schools, including unequal distribution of well-qualified teachers and academic counselors, further segregates these underrepresented groups into particular communities and schools to facilitate an environment where there is a lack of support for academic achievement; Poor children tend to go to poor schools that are attended largely by other poor children. These schools tend to be located in crowded urban-centers, enjoy fewer resources, have higher disciplinary problems, and higher turnover of students and staff. They also tend to offer less rigorous coursework and generally have lower aspirations for their students.

Low aspiration by teachers who harbor doubts about their students' abilities could facilitate a self-fulfilling prophecy of underachievement. In their report, Gandara and Bial (2001) state

⁵ Cultural capital refers to assets such as competencies, skills, qualifications, etc., that enable holders to mobilize cultural authority.

Social capital is comprised of concepts such as "trust", "community" and "networks" which are difficult to quantify. The challenge is increased when one considers that the quest is to measure not just the quantity but also the quality of social capital on a variety of scales (<http://web.worldbank.org>).

“these students are also more likely than middle class white and Asian students to have low or unrealistic aspirations for themselves. When aspirations are defined as what a student plans to do, as opposed to what he or she would like to do, researchers find that underrepresented students are less likely than others to plan for higher education. This is critically important because true aspirations are powerful predictors of educational outcomes” (Gandara, Bial, 2001:10).

Gandara and Bial (2001) identify students who attend these schools as less likely to be prepared for PSE and less competitive for admission to selective PSE institutions. Furthermore, these schools provide fewer opportunities for the development of personal and social networks that can increase cultural capital and promote social mobility.

In addition, Gandara and Bial (2001) reported that underrepresented students are more likely to drop out of school than other students. They argue, however, that some portion of the dropout problem can also be attributed to school practices that act to remove “difficult” students from school. Ultimately, dropping out of school eliminates PSE opportunities for most.

Gandara and Bial (2001) found that the most effective interventions had the following elements in common:

- Provide a person who monitors and guides the student over a long period of time—a mentor, program director, faculty member, or guidance counselor. Studies are not clear on which of these is most effective.
- Provide high-quality instruction through special coursework that supports and augments the regular curricular offerings (tutoring and specially designed classes), or

revamp the curriculum to better address learning needs of the students.

- Make long-term investments in students rather than short-term interventions. It was clear that the longer students were in a program, the more they were reported to benefit from it.
- Pay attention to the cultural background of students. Many programs reported having greater success with one group of students than another. The background and expertise of the staff and directors likely helped them make cultural connections with students.
- Provide a peer group that supports students' academic aspirations and that meets for academic as well as social and emotional support.
- Provide financial assistance and incentives. Financial assistance is the difference between pursuing PSE or not for many low-income students.

The Pathways to Education model shares the above program elements and appears to be successful in increasing access to PSE in Canada.

Although the report by Gandara and Bial was published in 2001, this study remains useful in making observations about inequality of access because since its publication, not much has changed. From their findings, the authors conclude that to increase access to PSE for underrepresented students, a comprehensive approach should be taken. Of the programs that were reviewed by Gandara and Bial (2001), the most effective in terms of increasing access to PSE used a holistic approach. This recommended approach to tackling the issue of access provides insight into why the Pathways to Education program could be effective in Canada. Pathways to Education uses a holistic model where

academic, social, counseling, and financial support, are the four pillars of the program and are provided cross-communicatively, the Pathways to Education will be discussed further in section 3 of this paper.

Another program that shares features described by Gandara and Bial (2001) is the BC (British Columbia) AVID (Advanced Via Individual Determination) program. The BC AVID program is based off of the AVID program in the U.S. and was established in British Columbia 2004. The program focuses on helping “middle-achieving” students to succeed in school and enroll into PSE by reaching their academic potential in high school. Students who are enrolled in the program are expected to enroll in university-track courses as well as an AVID elective course where they are taught the academic and organizational skills required to succeed in PSE (SRDC, 2010).

The BC AVID program offers supports to students to facilitate the successful completion of rigorous coursework and to prepare them for PSE. The four supports offered are focused on academic upgrading, “untracking” students (to the extent that “tracking” is the practice of assigning students to different courses based on an assessment of academic ability), mentoring (career counseling), and the peer group program (where social bonds are formed between AVID teachers and peers) (SRDC, 2010).

The BC AVID program is administered by randomly assigning program participants and a control group across 14 high schools in B.C. The use of random assignment allows for BC AVID program evaluators to directly measure the impact of the intervention. The benefits to random assignment will be discussed in section 5.1 of this paper. Findings show that students who receive the intervention are more likely to choose more rigorous

courses, achieve good grades, and to pass their courses. These findings are consistent with those of Gandara and Bial's (2001). Data has not yet been released on the impact of the program on PSE enrolment or for the impact of the peer group program (SRDC, 2010).

The findings by Gandara and Bial (2001) are supported by recent Canadian research. The *Communities Matter* report, published in August 2012, by the Canadian Council on Social Development, finds that “continued exposure to positive experiences, settings and people as well as opportunities to gain and refine life skills, support young people in the acquisition and development of positive assets. Community programs that expand opportunities for youth to acquire personal and social assets can play a vital role in promoting healthy development” (Scott et al., 2012: 55). Additionally Scott et al. (2012), highlight the aspects of successful programs. They argue that a holistic approach is necessary to create “strong links between families, schools, and broader community resources” (Scott et al., 2012:55). The programs they describe provide the same supports as those described and recommended by Gandara and Bial (2001) and are delivered through the Pathways to Education program.

3. Pathways to Education

Pathways to Education Canada, is a charitable program designed to work with, and provide comprehensive support to disadvantaged communities. This program seeks to reduce poverty by decreasing high school dropout rates, and increasing access to PSE for disadvantaged youth in Canada. First implemented in 2001 by the Regent Park Community and Health Centre in Toronto, existing evaluations by the BCG (2007, 2011) and Pathways to Education (2010, 2012) have found this program to be an effective

model and enjoy tangible results. Due to these findings, Pathways has received the support required to expand and opened 11 additional locations in Canada (Pathways, 2010).

Pathways' mission is to provide comprehensive support to low-income communities with high dropout rates. The program provides supports to ensure that every young person has a chance to graduate from high school, and enroll in PSE. The Pathways program operates with the understanding that assisting students to succeed in school is more than helping them to absorb, understand, and remember the class material; students also need to develop the skills and the work ethic that will help to shape their life-choices (Pathways (c), 2010). Pathways takes a holistic approach in ensuring that the four pillars of the program are delivered cross-communicatively, and in collaboration with schools (Pathways, 2010). The four pillars are *academic, social, counseling, and financial*, these will be further discussed in subsection 3.2.

3.1 Eligibility to participate in the program

Youth residing within the assigned parameters of the target community, and who are enrolled in high school (part-time or full-time) are eligible to participate in the Pathways to Education program. Depending on the community, parameters are assigned according to postal code or neighbourhood. Criteria to be selected to have the program established in a community will be discussed in subsection 3.3. Students enrolled in Pathways to Education must commit to fulfilling their social, academic, and counseling commitments to the program (Pathways, 2010). Commitments to the program are determined on an individual basis and based on the needs and availability of the student (Bisback, 2011).

3.2 Program Design: The Pillars

The objective of Pathways is to improve the lives of disadvantaged youth and their communities through promoting education. The program takes a targeted, multi-pronged approach, using four key supports: *Academic*; *Social*; *Counseling*; and *Financial*. Upon enrolment, students and parents sign a contract agreeing to comply with the program requirements related to school attendance and program participation. In exchange, participants receive Pathways supports for the duration of the student's secondary school enrolment⁶. Volunteers, who are recruited and trained, deliver academic after-school tutoring and extra-curricular mentoring activities (Pathways (b), 2010).

Academic support includes tutoring four nights per week (Monday to Thursday) in all core subjects: mathematics, English, French, humanities, and the sciences. Program tutors are volunteers who assist program participants with their studies. Tutors are assigned students according to their area(s) of expertise⁷. A schedule is made weekly to ensure that during tutoring sessions there are tutors available for all of the core academic subjects. Depending on each individual student's needs, an agreement is made with the student about their commitment to attend tutoring sessions. Each student must sign in and out of each tutoring session to record whether they have been fulfilling their commitment to program participation (Bisback, 2011).

Social support is offered through group mentoring for youth in grades nine and ten. Pathways offers career and specialty mentoring for students in grades eleven and

⁶ See Appendix B for Pathways to Education registration package and contract.

⁷ All volunteers must undergo a police record check and an interview process before they are approved to volunteer with Pathways to Education (Bisback, 2011).

twelve. Each student is expected to partake in mentoring on a weekly or bi-weekly basis as stated in his or her individual contract. Group mentoring is a minimal commitment of 30 hours per school year, and career and specialty mentoring is a minimum of 45 hours.

The goal of group mentoring is community building through reducing isolation, promoting the development of social skills and personal identity, providing adult role models, and engaging youth in activities. Students select from a variety of activities and are then assigned to groups and mentors with similar interests. These activities may include attending theatre or sports events, participating in creative arts, cooking, community recycling projects, or physical activities such as martial arts. Mentoring groups consist of approximately 15 students and three volunteer mentors (Pathways (b), 2010).

Career and specialty mentoring involves inviting professionals to come and speak with the program participants about their experience in the workforce and employment opportunities, taking students to job fairs, and going on outings to different locations to learn about employment opportunities and how various industries operate. For example, “students were taken to a water treatment plant to learn about how a treatment plant operates, and potential employment opportunities” (Merill 2011). This support includes workshops on how to make a resume, how to interview well, and how to network. Pathways also organizes events and creates partnerships, (with businesses and universities for example), to create networking opportunities for students. Additionally, students receive assistance in completing PSE applications.

To offer counseling support, Pathways to Education employs Student-Parent

Support Workers (SPSWs) to work with students on every aspect of the program. Each student is assigned to a counselor. The counselor's role is to monitor the student's attendance and grades. SPSW's also hold individual bi-weekly meetings to discuss the student's academic progress.

The SPSW is a coach, referee, and mentor, and they have a number of responsibilities: monitor academic placement; track school attendance; monitor and encourage participation in tutoring and mentoring activities; work with other staff (at school and at Pathways) to provide and coordinate appropriate supports; gather information from the school; collaborate with teachers and school committees to facilitate student success; support a process of student reflection; inform students and parents when expectations are not met; monitor challenges encountered by students; and provide feedback to program management. By assigning SPSWs to students, Pathways is able to determine how best to support each individual student in achieving goals and credits (Merill, 2011, Pathways (c), 2010).

The final support offered through Pathways is financial support. Students receive assistance to address financial barriers to school participation - such as for transportation to school, or school lunches. Students also have financial incentives in the form of a bursary for each year of program participation to offset the costs of post-secondary education or training. Financial support includes scholarships of up to \$4,000 (\$1,000 per year that the student is enrolled in the program) per student in the program (Pathways, 2008). To receive the scholarship a student must have participated in the program for a minimum of two years (Merrill, 2013).

Financial support is also offered for special opportunities. Pathways develops partnerships so that the program can offer students special opportunities (Merrill, 2013). At the Pathways to Education site in Ottawa there are a number of special opportunities offered to program participants. For example, ‘The Sky is the Limit’ is a program aimed at making technology more available to students. For this program to succeed, Pathways develops partnerships with companies who will refurbish computers for the program for free. From there, students in need apply for computers and Pathways distributes them based on student need and the availability of computers. Other special opportunities at the Ottawa site include tickets to special events, sports games, activities, and lessons (for example, climbing school) (Merrill, 2013).

3.3 Funding

Pathways to Education is a non-governmental organization that receives funding from both governmental, and charitable organizations and individuals. In November 2007, Pathways to Education formed two major funding partnerships with the United Way of Greater Toronto and The Government of Ontario. In 2007, the Government of Ontario committed \$19 million over a four-year period in order to expand the program throughout the province (Pathways, 2008), and on March 4, 2010, the federal government announced a \$20 million commitment to fund Pathways as part of its budget (Pathways, 2010). In addition, Pathways to Education is financed by contributions from private corporations, charitable foundations, and individual donors⁸ (Pathways, 2011). On

⁸ For a list of all donors see the Pathways to Education Canada website at: <http://www.pathwaystoeducation.ca/about-us/our-donors>.

January 17, 2013, the Government of Ontario pledged to make its funding to Pathways permanent. Ontario will pledge \$9.5 million to Pathways annually (Ministry of Training, Colleges and Universities, 2013).

To evaluate the Pathways to Education program in Toronto and Ottawa, it is necessary to consider the program's budget and resource allocation both on a program-wide basis and by looking at the Toronto and Ottawa programs specifically. This is imperative to determine what resources are required to operate the program, and if resources used are being used most efficiently by Pathways to Education. Resources to take into consideration include, but are not necessarily limited to, monetary resources, supplies, volunteers, staff, and space for the program to operate. Presently, this information is not available for individual site analysis.

3.4 Program Eligibility Requirements; Pathways Sites

To be eligible for a replicate Pathways program, the community must demonstrate both the need and the capacity to effectively run the program (Merrill, 2011).

Neighbourhoods that are selected have: low high school graduation and PSE enrollment rates, low numbers of highly educated individuals, a high number of immigrants, and are low-income (Bisback, 2010). It is interesting to speculate here on the fact that selected communities have a high number of immigrants because studies indicate that immigrant youth are more likely to enroll in PSE than non-immigrant youth (Finnie et al., 2010). Pathways to Education does not provide further information about community selection, or what determines whether the community has the 'capacity' required to receive the

Pathways program. The Pathways site selection and refusal process is vague which makes it difficult to determine why some sites are selected for a replicate program while others are refused.

To date, the Pathways to Education program has been replicated in 11 communities across Canada. Programs are established in Toronto, ON, Hamilton, ON, Kitchener, ON, Ottawa, ON, Kingston, ON, Halifax, NS, Montreal, QC, and Winnipeg, MB. The question arises as to what is specific to the communities that are selected for Pathways sites. Further information would be useful to identify what types of communities the program is successful and unsuccessful in.

Description of Regent Park Community

Regent Park is a neighborhood located in downtown Toronto, Ontario⁹(Toronto Community and Neighborhood Services, 2003). The residential dwellings are entirely social housing. Regent Park is the oldest and largest public housing project in Canada (Pathways, 2010). Regent Park was developed in the latter part of the 1950's as part of a federal, provincial, municipal housing agreement that was financed primarily with federal housing funds under the National Housing Act (Toronto Community and Neighbourhood Services, 2003). Approximately 7,500 residents live in Regent Park, in 2,087 units.

Since the 1970's, most residents of this community have been immigrants. According to the 2001 census, 79.4 % of residents are visible minorities and 74.6 %

⁹ See map of Regent Park community Appendix C.

are immigrants (Toronto Community and Neighbourhood Services, 2003). Pathways to Education (2010) reports: over 80% of residents are visible minorities, and for many English is a second language; few families are earning more than \$18,000 per year (less than one-third the national average); the region has twice the number of single-parent families as the rest of Toronto; there is an average of 850 high school age youth, and no secondary schools in the community; 56% of youth (twice the Toronto average) were dropping out of high school until Pathways arrived in 2001.

The majority of families in Regent Park are classified as low-income, with 68% of the population living below the LICO (Canada's Low-Income Cut-Off Rate) (United Way of Toronto, 2010). According to the 2001 census, 46.8% of residents in this neighbourhood are younger than 19 years old. Overall, this community faces many challenges including poverty, and high school dropout rates. Regent Park is one of the most economically disadvantaged communities in Canada. Even though it is “home to a tight-knit community of new immigrants and other low-income residents ... it has also suffered from a number of problems like violence, drugs, and prostitution” (Pathways, 2010).

Description of Ottawa Community

In Ottawa, the Pathways to Education community is defined by area codes¹⁰. This is because there are pockets of middle-income neighbourhoods scattered throughout the low-income areas that the program is targeting. This method of high-risk student targeting is imperfect because some students in the area who should receive assistance from the program will be left out. Additionally, because information about the program is

¹⁰ See map of Catchment area Appendix D.

distributed in the elementary schools in the target neighbourhoods, some youth who are not 'technically' eligible for the program may choose to enroll. Non-eligible students may enroll in the program by using a friend's address that falls within the targeted area, and this may positively skew enrollment rates (Merrill, 2011).

In the Pinecrest-Queensway Community Health Centre catchment area, located in the west end of Ottawa, there are six social housing neighbourhoods. According to the 2006 Census, these communities include 7,279 individuals. Pathways to Education (2010) and the 2006 Census report the following.

The neighbourhoods captured in the Pathways catchment area in Ottawa ON have larger than average child and youth populations; about two-thirds of residents are children and youth. For youth aged 15-19 years, 4.9% are males, and 4.1% are females. This is considerably higher than the Ottawa population at 3.4% (males) and 3.6% (females). 47.5% of the youth live in single-parent households, in comparison to 16% in Ottawa. Moreover, 73.5% of these single-parent households (with dependents under the age of 18) are low-income, versus 35% in Ottawa.

In the Ottawa catchment area, 3.3% of residents are Aboriginal while in Ottawa the Aboriginal population is only 1.5%. Close to 30% of residents are newcomers to Canada, particularly from Somalia, and Arabic-speaking countries. 5.0% of new immigrants arrived within the past five years, vs. 3.7% for Ottawa. 1.4% do not speak any English or French.

The Census (2006) and Pathways (2010) report that 19% of residents who are over the age of 20 have not completed high school, whereas in Ottawa this is 16%. For

individuals aged 25-64, 23.4% do not have any degree, versus 8% for Ottawa. Individuals who have a trade certificate or diploma is 8.4% versus 5.9% for Ottawa, and those possessing a university degree or higher is at 14%, in comparison to 40% for Ottawa. Almost all of the residents in the community are living below the average income level and many are living below the LICO. 44.1% of the households have an income of less than \$30,000 annually in comparison to 8.2% in Ottawa. The unemployment rate for individuals aged 15 and over is 11.6%, in Ottawa this is 5.9%.

4. Program Evaluation

Before proposing the evaluation for Pathways to Education in Ottawa, findings from the existing evaluations are presented. This section will discuss findings from, and critique, the existing evaluations of Pathways to Education. This evaluation must ask the following questions: 1) Is Pathways to Education an effective program in Toronto and Ottawa? 2) Will the program be successful elsewhere in Canada? 3) What can point to whether the program is effective?

Pathways Assessment: 2009/2010 (2010)

For 2009/2010 and 2010/2011, Pathways to Education conducted internal assessments of its program to determine its effectiveness. For evaluation purposes, Pathways closely monitors the tangible outcomes and goals of the program. These are graduation from high school and enrollment in post-secondary. Pathways also tracks student credit accumulation, attendance rates, and dropout rates, as these are indicators of student success in high school, and helps to determine whether students are academically “at risk” or “on track to graduate”.

In their evaluations, Pathways uses the following terminology:

- **Outcomes:** Measures to determine success. These are dropout rate, high school graduation rate, and PSE enrollment rate.
- **Indicators:** Measures to determine success. These are absenteeism rate, attendance, annual credit accumulation, and program enrolment rate.
- **At risk:** Students who have high rates of absenteeism (15% + missed classes), and low credit accumulation.
- **On-track to graduate:** students that meet the credit accumulation expected for their grade.
- **Generation:** The year that a Pathways site was founded - generation one (2001), generation two (2007), generation three (2009), generation four (2010).
- **Cohort:** The year that a group of students begin grade nine versus when the site opened. For example, at a generation 2 site, students who started grade nine in 2008 would be in cohort 2.
- **Enrolment rate:** This shows the percentage of eligible grade nine students who participate in the program (student eligibility is determined by each site's catchment area).
- **Excellent attendance:** Students who miss less than 5% of classes.

Pathways Assessment 2009/2010 (2010)

The Pathways to Education program assessment (2010) found that at the Regent Park site, an impressive 78.4% of all Pathways students graduated from high school and continued on to PSE. Reports across sites found that after the establishment of Pathways, high school dropout rates declined and have remained low, and program participation

rates are high; In Regent Park, participation rates in the program average 93%, and 84% in Ottawa. Results show an increasing proportion of students, in each grade, with all or most of their credits – in Regent Park this number increased from 58% to 85%, and in Ottawa the increase was from 64% to 83%. Post-Pathways site absenteeism rates declined from 24.4% to 6.8% in Regent Park, and from 10% to 8.6% in Ottawa. Additionally, findings report a reduction in the proportion of students most at-risk of dropping out (Pathways, 2010).

This report included qualitative analysis by incorporating testimonials of past graduates to demonstrate how well the program helped in building skills in high school, and in making the transition from high school to post-secondary education. At this time there was not a graduating cohort from the Pathways site in Ottawa (Pathways, 2010).

Pathways Assessments 2010/2011 (2011)

The Pathways assessment (2011), reports that the program continues to show its effectiveness by reducing the number of high school dropouts and academically at-risk students, and increasing the number of high school graduates and PSE enrolment rates. Cumulative data for cohorts 2007-2010 show a decrease of at-risk grade nine students from 27.2% (pre-Pathways), to 11.9%. In 2010/2011, across Ontario sites, more than 1000 students graduated from the Pathways program. 73% of them have continued on to PSE and training.

As of March 31, 2012, Pathways had an overall enrolment rate of 89% across all sites. Data from 2010/2011 show that grade nine students are increasingly on track to graduate from every site. Data for Ontario show, that the percentage of grade nines who are on

track to graduate has risen from between 58% and 78% (pre-Pathways), to between 84% and 93%.

Preliminary Data for 2013, Ottawa

Additional data for 2013 were acquired from Sue Merrill, a Pathways researcher at the Ottawa site. Her most recent (incomplete) report found that 96% of eligible students in grade nine are registered in Pathways to Education Ottawa to date this year. Based on evidence from student credit accumulation, 71% of at-risk students are no longer considered at-risk after completing one year in Pathways (Merrill, 2013).

Pre-Pathways, only 51% of youth in the Ottawa catchment area completed high school, whereas post-Pathways, 78% of the students in the first two cohorts (graduating classes of 2011 and 2012) have graduated. Researchers at the Ottawa Pathways site are confident that the graduation rate will meet or exceed the Ontario average (80%) by 2014 (Merrill, 2013).

Of the Pathways graduates in 2011 and 2012, 90% applied for PSE, with 82.5% enrolling into a PSE institution within three months of high school completion. This is significantly higher than the national average of 49% (Merrill, 2013).

BCG Assessment 2007

In 2007, The BCG conducted an evaluation of Pathways to Education Canada. At this time, data was only collected from the Regent Park site because until 2007 it was the single Pathways location. The BCG (2007) found that Pathways provides tremendous economic returns to society. This analysis was focused on quantifiable and identifiable benefits; primarily higher taxes paid (on higher incomes earned), and reduced government transfer payments. Conclusions from the study include a 1:25 dollar return

on dollars invested, a net present value of \$50,000 for every student enrolled, and the cumulative lifetime benefit to society of \$400,000 for each Pathways graduate.

The BCG (2007) reported that Pathways continued to enroll and re-enroll over 90% of eligible students. The program in Regent Park expanded to include more than 850 students attending over 60 different high schools. Results from the Regent Park program show that over the course of 5 cohorts and 850 youth: the dropout rate declined from 56% to 12%; there was a drastic increase in PSE enrollment from 20% to 80%; absentee rates for Pathways students declined by 46%; and findings showed a reduction of 64% in the number of students identified as at-risk.

As a point of comparison, the BCG (2007) incorporated findings from a longitudinal study in Seattle Washington, U.S. where a similar program to Pathways was administered to a controlled group of elementary schoolchildren that resided in low-income, high-crime neighbourhoods. The goal of this program was to reduce violent behaviour, heavy drinking, and sexual intercourse by age 18 in multiethnic urban children. To achieve this, the program sought to positively influence the children so that they developed strong bonds to school. This was in hopes that strong bonds to school would serve as a protective factor against delinquent influences and behaviours.

In their study "*Preventing Adolescent Health-Risk Behaviors by Strengthening Protection During Childhood*", Hawkins et al. (1999) found that this package of interventions with teachers, parents, and children provided throughout the elementary grades could have enduring effects. The study found that students who had received the

intervention reported less engagement in delinquent behaviour and had better academic achievement than the control group.

By incorporating this study into their report, the BCG (2007) shows that a similar program did have positive results. However, there are, some key differences between the program studied by Hawkins et al. (1999), and Pathways to Education. 1) The program was delivered in Seattle Washington in the U.S. where the education system is administered and funded differently, and there is more inequality in the system. 2) The program was administered throughout the elementary grades. 3) Neither control group, nor the youth receiving the intervention, was aware of the intervention. 4) The program was similar to Pathways to Education but it is not the same program. A full intervention provided in grades one through six included: five days of in-service training for teachers each intervention year, developmentally appropriate parenting classes offered to parents when children were in grades one through three and five through six, and developmentally adjusted social competence training for children in grades one and six. 5) Outcomes were measured through self-reported surveys and the youth's records. Youth self-reported their violent and non-violent crimes, substance abuse, sexual activity, pregnancy, bonding to school, school achievement, grade repetition and school dropout, suspension and expulsion, and school misbehaviour. Additional information was taken from delinquency charges from court records, grade point average, California Achievement Test Scores, and disciplinary action reports from school records (Hawkins et al., 1999: 226).

The BCG (2007) uses this study's findings to support their argument that youth who received the intervention were better adjusted, less delinquent, and had better

academic achievement than the control group. Most importantly, because the program was administered using random assignment (where there is a control group), the researchers were able to measure the impact of the intervention directly. As such, the results were not subject to Hawthorne effect, contamination effects, or selection bias. This will be discussed in section 4.1.

BCG Assessment 2011

The BCG (2011) reports an increase in student success, PSE enrolment, and graduation rates from generations two (2007), three (2009), and four (2010) Pathways sites. Due to positive findings across sites, the BCG claims that the Pathways program is portable across Canada. From there, the BCG screened the Canada-wide census data to focus on urban centers, found all communities where residents not holding a degree, diploma or certificate by age 24 was 25% above the Canadian average, and there was twice the Canadian average of households living below the LICO to determine “educationally at risk” communities that would benefit from a Pathways site. They found that there are over 70,000 students living in 125 “educationally at-risk” communities across Canada.

The BCG 2010/2011 findings are consistent with their findings in 2007. They found that Pathways consistently reduces the dropout rate by 70%, improves post-secondary enrolment by three times, and delivers a 1:24 payback on every dollar invested (1:25 in 2007), and \$600,000 cumulative lifetime benefit to society for each Pathways student (this was \$400,000 in 2007). The BCG (2011) found that 62% of Pathways graduates are enrolling in PSE, thereby exceeding the Ontario average of 60%. The BCG (2011) also

found that Pathways students are more likely to choose university than college/trades, and 10% more likely to choose university than their non-Pathways counterparts.

In 2011, the BCG found that the net per value of societal impact of a student in Pathways to Education is over \$45,000 per student enrolled. To obtain this value, the BCG considers the cost of the Pathways program, the costs of schooling (National Office Scholarship Site costs), reduced transfer payments, Federal income tax, Provincial income tax, Sales tax, Justice system costs, Health system costs, and second generation impact (meaning that the children of Pathways students will benefit from having higher educated parents). It is unclear whether the BCG has replicated its former methodology to obtain this comparison statistic to its 2007 findings. This will be further discussed later in section 4.1.

4.1 Critique of Existing Evaluations

The existing assessments of Pathways to Education use easy to track and relevant indicators to measure the tangible success of the program. These are the program's goals of reduced dropout rate, increased student graduation rate, and increased enrolment in PSE. The BCG (2011) measures the success rates across Pathways sites to determine that the program will be effective in neighbourhoods where income and education levels are low, and recommends that the program be expanded and delivered to new sites across Canada.

Although the indicators of success should represent program effectiveness, it is unclear how results are found and therefore whether they are meaningful. It is difficult to draw conclusions from the existing program assessments for several reasons. First, the BCG (2007, 2010) only has executive summaries of its reports available; second, there is

no description of methodology; third, across all reports, there are graphs, charts, and tables that are difficult to understand. For example, some show percentage values while others display an overall number of students. This inconsistency is problematic because there is not data available about sample size that makes it difficult to draw conclusions. Furthermore, there is inconsistency across reports regarding what data is displayed for what sites. Data and results are shown either for all Pathways sites, certain provinces, generations, or individual sites. There is no description of why data is presented differently or any discussion about methodology. This makes it difficult to identify or even speculate about what aspects of the program work best (or are not working), why, and where.

Fourthly, the BCG (2007, 2011) provide results about the societal return of investment, or net per value of students enrolled in Pathways at \$50,000 (2007), and >\$45,000 (2011) but does not cite all data used or methodology. It is not possible to identify whether the same things are measured for this indicator of program success between the 2007 and 2011 reports.

The ideal program evaluation is objective, replicable, reliable (the measurement procedure repeatedly yields consistent results), valid (the degree to which a measure actually measures what it is supposed to), determine causality (that a change in the independent variable produces a change in the dependent variable), and generalizable (when research findings apply beyond the specific case examined) (Neuman et al. 2007, Brym et al. 2003).

The BCG (2007,2011) and Pathways to Education (2010, 2011) reports are applied evaluation research and determine program funding, popularity, and job opportunities; they are not objective. The reports are not replicable because there is no methodology available. Cited statistics come from multiple sources that do no record information the same way and this negatively impact the studies' validity. For example, Statistics Canada has a consistent method in data collection and interpretation, but individual schools may not. In Ottawa, the program serves youth from four different school boards and 30 high schools (Merrill, 2011).

Without controlling for, other things that may be going on in the community such as additional programs, initiatives, and demographic changes, and for selection bias and Hawthorne effect, it is impossible to determine causality between the program and the indicators. Finally, without methodologies available, consistency and clarity across existing reports, or the use of a control group to measure the direct effects of the program, it is not possible to make generalizations.

Objectivity

The existing assessments of Pathways to Education are applied, evaluation research studies. Evaluation research study is applied research designed to find out whether a program, a new way of doing something, a marketing campaign, a policy, and so forth, is effective. There is the possibility of issues concerning objectivity to arise for several reasons: research is part of a job and is judged by sponsors who may be outside the disciplines of social science; research problems are narrowly constrained to the demands of employers or sponsors; the rigour and standards of scholarship depend on the uses of the results; the primary concern is with the ability to generalize findings to areas of

interest to sponsors; the driving goal is to have practical payoffs or uses for results; and success comes when results are used by sponsors in decision-making (Neuman et al., 2007: 12-13).

The evaluation research reports by the BCG (2007, 2011), and Pathways to Education (2010, 2011), are applied evaluation research studies for the purpose of attracting positive attention and program funding. These reports present Pathways as a highly effective program with a high return on investment. Ethical and political conflicts often arise in evaluation research. The findings of research can affect who gets or keeps a job, build political popularity, or promote a program. When evaluating Pathways to Education, all of these factors come into play.

There are several further limitations to evaluation research that apply to the existing Pathways to Education reports. 1) The reports or research rarely go through a peer review process. Pathways research to date is only carried out internally by Pathways itself and by the BCG which is a paid consulting group. 2) Raw data are rarely available to the public. From the BCG (2007, 2011) the only available information was in the form of an executive summary, and the request for a copy of the full report and the methodology were refused. Moreover, Pathways to Education declined access to raw data about individual students. 3) The focus of the study is narrowed to select inputs and outputs more than the full process by which a program affects people's lives. Existing evaluations only report on monetary inputs. The program outputs measured are dropout rates, graduation rates, and PSE enrolment. 4) Decision makers may selectively use or ignore evaluation findings. Because raw data is not available for analysis, conclusions cannot be drawn as to whether or not findings are accurately presented.

Reliability, Validity, Causality, Generalizability Statistics

In the program assessments conducted by Pathways to Education (2010, 2011) and the BCG (2007, 2010), all students who enroll in Pathways to Education are counted as an enrollment statistic. However, in the event that a student leaves the program midway through the year, they remain an enrolment statistic but are dropped from absenteeism and low credit accumulation statistics. This results in high enrollment rates and the elimination of the (potentially) highest risk students from negatively affecting program results.

It is important to emphasize that in their calculations, pre-Pathways cohorts take into account all students in the targeted community, whereas post-Pathways statistics are only representative of students who are enrolled in the program. By ignoring students who are not enrolled in Pathways, measurements to capture the impact of the program are incomplete because the comparison group is being ignored.

Access to information and data interpretation

Access to information is another barrier to conducting a valuable program evaluation. In the case of Pathways to Education in Ottawa, program evaluators must obtain information about students in their targeted community from four different school boards and 30 different schools. This is problematic for two reasons 1) privacy issues associated with releasing information about students is inconsistent across school boards, and 2) different school board records student information differently. For example, school attendance is not recorded the same way across school boards. In some schools they may record a student absent if they arrive to a class late, while in others in the same

situation, the school may appoint a half point for late attendees or simply mark the student as present. Such discrepancies in data about absenteeism make it difficult for Pathways to Education evaluators to determine whether the program has an impact on school attendance (Sue Merrill, 2011).

Data interpretation for absenteeism is challenging in the existing evaluations (Merrill, 2013). This is problematic for results because absenteeism is tracked to measure the program's success. Absenteeism helps indicate academic engagement, high school grades, and whether a student is at-risk or on-track to graduate.

Pathways to Education (2010, 2011) considers a student absent when they have missed two classes consecutively. This method may only capture the highest risk students and may not account for many students who are absent from classes. This measurement also makes it difficult to determine why students are missing classes, and may result in data that represents chance rather than whether the student is at high risk of low credit accumulation. For example, in some classes credit accumulation may not be dependent on regular class attendance (i.e. gym), or a student may be absent from classes often but is rarely absent from classes consecutively.

Hawthorne effect

The presence of the Hawthorn effect may also impact program results. The Hawthorne effect is when the subjects under review alter their behaviour because they are being studied. That is, subjects will try to do what is expected of them in order not to appear poorly adjusted (Brym et al., 2003: 44). It is important to note the possible positive effects that the media attention on Pathways to Education, and the widespread high expectations of the program, may have on the students enrolled in the program.

Random Assignment

For evaluation purposes, it would be ideal if students in the program were randomly assigned and there was a control group (of youth who were not receiving the program) in the same community. The major limitation in evaluating Pathways to Education is that there will not be random assignment or experimental design for ethical reasons. This is because Pathways strives to level the playing field for all youth in the targeted community, and as such is offered to all high school students in the catchment area.

Because program participants are not randomly assigned, program results may be exogenous to other things going on in the community. At the same time, results may be endogenous because there may be something inherent to the individuals who participate in the program that positively augment statistics in favour of program results. The presence of exogeneity, or contamination effects, and endogeneity, or selection bias, negatively impacts the internal validity of the assessments.

Selection Bias

Although all eligible students are encouraged to participate in Pathways to Education, not all students will choose to participate, and some students who do enroll are already academically inclined and would enroll in PSE without the program. Because only students who choose to participate in the program are included in the analysis, the effects of selection bias may positively impact program results. By not including students who choose not to enroll, it is not possible to isolate the effects of the program on those receiving it.

Community Selection

The BCG (2011) finds that the Pathways to Education program would benefit 125 communities across Canada. This recommendation is based on community need as determined by low-income and low levels of education in the communities. As discussed, the selection and refusal process for Pathways to Education sites is vague and existing evaluations do not touch on what is specific to the success of Pathways across communities.

It is important to incorporate information about community selection into the analysis to evaluate whether neighbourhoods that are deemed eligible for the program already have something about them to allow for a great success rate of the program. Considerations about what determines a neighbourhood's eligibility raise questions about thresholds and the implications that this can have for communities at the margins. For example, in the instance that a neighbourhood did not meet the capacity requirements for the program, the people may become motivated to increase 'capacity' and this will become instilled in the community to later affect program results.

The populations targeted by Pathways to Education at the Pinecrest-Queensway Community Health Centre and Regent Park Community Health Center are ideal for program success. Students in the catchment areas are primarily settled first and second-generation African immigrants and they are ready to succeed (Finnie, Mueller, 2010, Merrill, 2013). Sue Merrill (2013), a program researcher at the Pinecrest-Queensway Community Health Centre, explained that in Kitchener ON, where there are large numbers of Karen refugees, graduation rates are not as high. She stated that this could be because these youth come from an agrarian culture, do not speak either official language, and that refugees from Karen are a new wave of refugee so there is no social network

already established in Canada for them. This emphasizes that in order for the program to succeed it is necessary to deliver the program to a group that is equipped to succeed through Pathways to Education (Merrill, 2013). “For the program to succeed, it’s a big deal that parents and students buy into the importance of education” (Merrill, 2013).

A program evaluation researcher at the Pinecrest-Queensway Community Health Center in Ottawa, noted that a nearby neighbourhood, Carlingwood, applied for the Pathways to Education program but was not approved. Information about why Carlingwood was refused is not available, however, the community demonstrates need for the program and has a community centre that is equipped to run the program. The stark difference between the communities is demographic. The population in Carlingwood is non-immigrants, and suffers from multi-generational poverty, whereas the Pinecrest-Queensway population is primarily first and second-generation immigrants.

It is worth speculation whether the decision to refuse Carlingwood the Pathways program is a matter of maintaining the program’s performance results, or if it is recognition of program ‘capacity’ in certain communities.

Contamination effect

Contamination effects pose a great challenge to the impact assessments of Pathways to Education. This is because other things that are going on in the community may contaminate results and make it difficult to determine whether Pathways is an effective intervention. In Regent Park and the catchment area in Ottawa there are multiple initiatives underway that are improving the community.

The Regent Park community is undergoing gentrification on a large scale. Pockets of the low-income neighbourhood are being, fixed up, turned into condos, and moved into by the middle class. Similarly, in the Ottawa catchment area, housing – market rent is imposed. This is where approximately 50% of housing has rent geared to low-income families and the other is rented at higher prices. This prevents the development of “pockets” of low-income housing areas or ‘projects’.

At the Regent Park Community Centre and the Pinecrest-Queensway Community Health Centre, in addition to Pathways to Education, the following initiatives to improve community health are taking place: multiple physical and mental health programs and services that are offered by health professionals; walk-in clinics; laundry and shower facilities; sex workers women’s programs; men’s groups; street outreach programs; women’s program; immigrant/refugee settlement programs; cultural interpretation services; E.S.L. classes; nutrition and health information seminars for immigrants/refugees; early years social work; pre-natal and post-natal classes; school readiness programs; child and parent programs; pre-school speech and language; child development clinic; child and family advocate; assisting youth and adults to find employment; as well as offering many volunteer opportunities (Regent Park CHC, 2013 & PQCHC, 2013). Additional programs at the community centre in Ottawa (2013) are the toy lending library, blind/low vision therapy, tax clinics; housing loss prevention, and the violence against women program.

5. Proposed Evaluation for Pathways to Education in Ottawa

To evaluate whether Pathways to Education is successful in Ottawa, there are a number of questions that must be addressed: Is this program making a difference for

youth? Can resources be better spent elsewhere? Are there internal or external obstacles affecting program goals? How can youth, staff and school board, and the community be better engaged to achieve program goals? By considering these questions, the evaluation is focused on, to what extent Pathways to Education is achieving its mission and goals (Scott et al., 2012: 56).

It is necessary to develop a tool that includes quantitative data (hard data) that is based on input and outcome measurements to show tangible results. But it is equally important to incorporate qualitative data (soft data) into the analysis to capture the intangible social qualities of the program. Quantitative data is information in the form of numbers. It is collected through experiments, surveys, content analyses, and existing statistics. Qualitative data is in the form of words, pictures, sounds, visual images, or objects. It is collected in interviews, focus groups, field research, and historical-comparative research (Neuman and Robson, 2007: Chapter 1).

Quantitative analysis to measure tangible program outcomes is essential; these are measured through program inputs and outcomes. To appeal for funding and support, Pathways must provide tangible outcomes for stakeholders - the government, investors, the community centre, the community, the public, program staff, volunteers and participants. To measure program success, Pathways closely monitors the following tangibles to determine program impact: participants' high school/program dropout rates, graduation rates, PSE enrolment rates, program enrolment rates, and high school grades, credit accumulation, attendance, and absenteeism.

Qualitative analysis is useful in interpreting quantitative data. For example, without an explanation of why absenteeism is reduced for students that are enrolled in Pathways to Education, it is difficult to evaluate how the program is impacting the measure of absenteeism.

Using qualitative research methods to measure program outcomes is necessary because not all outcomes are quantifiable. By including qualitative analysis, it is possible to capture not only measurable results using hard data, but also the social value of the program. The social value of Pathways is imperative to defining its success. Qualitative analysis can help identify whether Pathways to education is effective and in what context, which aspects of the program have the greatest impact, how the program can be improved, and how it can be adapted to match specific community needs.

5.1 Evaluation Design

To evaluate the Pathways to Education Program in Ottawa, it is necessary to use an evaluation method that accurately captures the impact of the program. This proposed evaluation design incorporates a review of existing literature, uses random assignment or experimental design, and quantitative and qualitative research methods.

To assess the impact of Pathways to Education, it is critical to include information about all eligible youth into the analysis. In doing so, a representative picture of the youth in the community is available and it will be possible to compare the pre and post-Pathways to Education cohorts in a meaningful way. This is necessary in order to evaluate whether Pathways to Education is having an impact on students' success, or if results are exogenous to something else that is going on in the community.

Consistency

Data collection from four different school boards in the Ottawa community poses data interpretation challenges. To address these challenges it is necessary to create common measures across school boards. Consistency in data collection is imperative to accurate evaluation. It is necessary to develop a new way to calculate absenteeism that accounts for different methods of recording absenteeism across teachers and institutions. For the purpose of analysis of the impact of Pathways on absenteeism, this method must report absenteeism per class missed, and for what class. Perhaps discussions with teachers could lead to an agreement about how to record and interpret this information in a consistent manner. Alternatively, Pathways could devise a way to record all absenteeism so that the data are interpreted in a consistent way.

Literature Review and Environmental Scan

What does existing literature say to suggest whether Pathways to Education will be successful in Ottawa? What other programs similar to Pathways are out there? What are the similarities and differences between these programs? What is working, what is not, and why? A review of existing literature and an environmental scan would provide insight into why, how, and if, the four pillars of the program (*academic, social, counseling, financial*) reduce dropout rates, and increase high school graduation and PSE enrolment rates. This would help all stakeholders to better understand program effectiveness and implementation. This is especially useful for program delivery according to best practices.

Random Assignment

The ideal evaluation of Pathways to Education in Ottawa would randomly assign eligible students to participate in the program. If it were possible to use random

assignment to create a control group in the Ottawa Pathways community, where half of the youth in the community were selected to participate in Pathways, and half were not, it would be possible to directly determine the impact of the intervention. This is because, by randomly assigning participants, program results would not be affected by contamination effects, Hawthorne effect, and selection bias.

Such a social experiment would heavily contribute to improve policy-making because it would allow funders and policy-makers to measure, in full scale implementation, the size and scope of expected program outcomes and to identify any undesirable or unintended effects. Engaging in experimentation is useful because it puts ideas to the test, and this allows evaluators to identify barriers, estimate take-up rates, measure intended/unintended outcomes, measure impacts, and use this information to conduct a cost-benefit analysis to assess returns on investment in the program.

Experimental design also encourages program innovation needed to address emerging complex problems; experimentation plays an important role in the innovation process and it can serve as a means to disseminate new practices. Implementation research is useful to explore delivery lessons and best practices (SRDC, 2011, Neuman et al., 2007).

As mentioned, for ethical reasons Pathways to Education does not practice random assignment. The next best thing would be to conduct experimental evaluation using two separate, yet identical (as is possible) communities.

To find two comparable Pathways neighbourhoods it is necessary for Pathways to provide more information about the Pathways site approval and refusal process. Such

information could be used to create a control group, wherein two communities that are deemed eligible for the program, and have very similar demographic, political, economic, social, and geographic situations, where one community is provided with Pathways to Education and the other is not. Once two such comparable neighbourhoods were found, Pathways would provide only one of the communities with the program, and monitor the identified program measures of success closely in both communities. If the program were found to be effective, one could determine that Pathways to Education is effective in communities with these specific characteristics.

Another reason to take neighbourhood eligibility into account is to test whether results are generalizable across communities. One could use this information to make the generalization that Pathways to Education is an efficient social intervention within certain types of communities.

Experimental design is critical to the validity and reliability of the Pathways evaluation in Ottawa. For this reason, the remainder of the proposed evaluation method operates under the assumption that the evaluation is being conducted using experimental design, and analyzing students who are program recipients, as well as those who are not recipients in both the Pathways community and the control community.

Quantitative data

This tool will use quantitative data to provide stakeholders with tangible results to analyze the impact of Pathways to Education. Quantitative data that will be considered in this evaluation design will be collected for the Ottawa community as a whole, all youth who are eligible for the program in Ottawa, the control community as a whole, and as a comparison statistic, all youth who would be eligible for the program in the control

community. By collecting data for all of these groups, it is possible to evaluate the impact of the program while decreasing the chances of contamination effects, selection bias, and Hawthorne effect, from interfering with the results.

This evaluation tool will use quantitative data as it pertains to the relationship between the community and participants to Pathways to Education. Demographic analysis will be used to create a community profile so that the community as a whole can be analyzed. This is because Pathways to Education does not operate in a vacuum and so it is imperative to include information about interactions between the community as a whole, and the youth who participate, and who do not participate in the program.

The demographic data necessary to create a community profile are age, level of education, income, proportion of visible minorities, proportion of minorities, ethnicity, immigrant status in Canada, people per home, number of rented versus owned properties, first-language, single-parent households, teen pregnancy rate, and crime rate. These data tell evaluators about the health and well being of the community as a whole.

The YITS (Statistics Canada, 2006) presents the ideal model to measure Pathways to Education's impact in Ottawa. By following program participants and non-participants from this Pathways community, from ages 12-25, and interviewing them biannually, it would be possible to collect data that speaks directly to Pathways' impact. Furthermore, by following youth from age 12, evaluators will have information about program participants and non-participants before they are eligible for the Pathways to Education program. This is interesting because youth will be followed during the time when they make decisions about enrolling into Pathways to Education, and (later) enrolling into

PSE. By interviewing youth at age 12, evaluators are able to question them about their academic aspirations and attempt to determine whether Pathways to Education influences their decisions about PSE.

This evaluation would collect information about individuals, and communities, in addition to the program outcomes that are already tracked. Individual student data would include dropout rate, absenteeism rate, average number of hours spent on schoolwork outside of school, Pathways to Education enrollment and attrition rate, PSE rate, PSE application rate, grade point average (GPA), credit accumulation, duration of high school completion, PSE attrition rate, and PSE GPA. For students enrolled in the program it would also be interesting to consider how many hours per week they participated in Pathways to Education and whether this has an impact on academic performance and life choices.

This methodology, would paint an overall picture of the youth in the community that would allow for conclusions about the program's impact to be drawn. Like the YITS, this evaluation would follow youth in the Ottawa community, and the control community, until they reach 25 years. Post-program analysis is important to evaluate whether Pathways to Education has a lasting impact on participants.

This evaluation tool would also include data for gender, and culture and ethnicity, to identify whether they play a role in Pathways to Education's impact. Additional data about immigrant status in Canada, and ethnicity, is available for individual Pathways participants, although comparable data is not easily available for non-participants, or for

the control community. On the Pathways to Education Registration Form¹¹, participants are asked to identify whether they were born in Canada, when they arrived in Canada, and what cultural group they most identify with. Cultural backgrounds that are listed are Congolese, French Canadian, English Canadian, Latin American, Somali, Sudanese, Middle Eastern, East African, Haitian, Jamaican, other Caribbean, and other. The existing evaluations do not include these data in their analysis. This evaluation would use data for immigrant status and ethnicity to analyze whether cultural differences played a role on the impact of Pathways to Education.

Qualitative research

To interpret hard data about program outcomes, qualitative research would be used to complement quantifiable data. Information can be collected through surveys, observations, focus groups, site visits, key informant interviews, and case studies. This is because participants' perceptions of the program are critical to analysis: Is Pathways to Education contributing to their life choices? Is the program useful? What do they like/dislike about the program? Which of the four pillars (*academic, social, counseling, financial*) do they think is the most helpful and why? Do participants feel better equipped for graduation and the 'real' world?

Currently, Pathways does incorporate some qualitative data into their reports by including some individual case studies and statements by staff, volunteers, teachers, counselors, and participants. However, this information is not collected in the consistent, uniform, method that is required for analysis.

¹¹ See Appendix B for Pathways to Education registration package and contract.

In the YITS, researchers collect qualitative data by interviewing youth biannually. This evaluation tool would create a survey for all eligible youth in the Ottawa community, and for the control group, to follow each individual throughout their academic careers, and, later, their workforce participation, so that data could be compared to draw conclusions about program impact. The purpose of these interviews would be to offer insight into hard data collected and to capture the social value behind the data.

Questions to include in this survey should inform the evaluator about engagement in school, commitment to Pathways to Education, interest in pursuing PSE, future life plans, why students in the community leave school or are absent from classes, and whether they intend to remain in, or return to the community. Finally, youth in the area who dropped from the program must be interviewed to attempt to understand why students leave Pathways to Education.

6. Conclusion

Due to its positive results, Pathways to education is attracting funding from governmental, private, and charitable contributors. The existing evaluations of Pathways to Education are conducted internally, and by the BCG, which is a paid consulting group. These reports are not objective, reliable, valid, replicable, or generalizable and so it is imperative to question the existing evaluations. This is important to determine whether scarce resources are best allocated to Pathways to Education.

This paper questions the existing evaluations and then proposes an evaluation to measure whether Pathways to Education is being effective in Ottawa. This proposed evaluation is focused on the program's impact. To accurately evaluate Pathways to Education the methodology that is proposed includes a review of the literature on access

to PSE in Canada, an environmental scan of existing interventions, and quantitative research that is complemented by qualitative analysis. Most importantly, this evaluation tool involves using experimental design. This is because experimental design allows evaluators to directly measure the impact of the program while being able to control for contamination effect, selection bias, and Hawthorne effect.

Additionally, in lieu of recent research that finds that PSE enrolment rates are influenced by immigration status and ethnicity (Finnie, Mueller, 2010), this tool will incorporate data about ethnicity and culture into analysis to identify whether the program works better for some groups than others.

This proposed evaluation tool informs not only as to whether Pathways to Education is Effective in Ottawa, but also why it is effective and in what contexts. Such information can be used to improve the program and implement it according to best practices. This information can also inform future lines of research as to how to increase PSE access to communities where a Pathways to Education site will not be effective.

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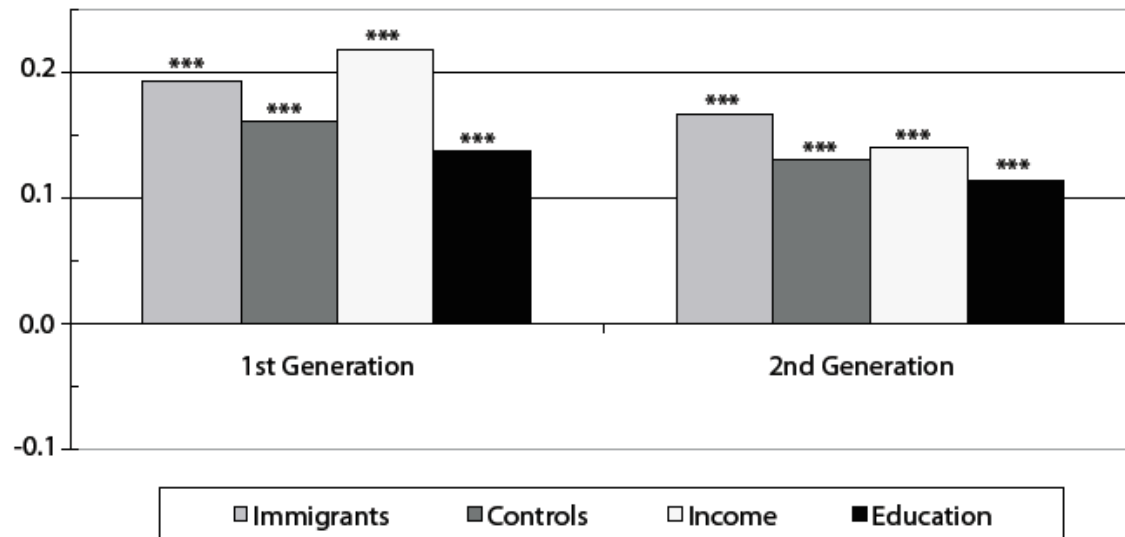
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Appendix A

Findings from *They Came, They Saw, They Enrolled: Access to Postsecondary Education by the Children of Canadian Immigrants*
(Finnie, Mueller, 2010)

Figure 1

The Baseline Models, First and Second Generation Immigrants (Aggregated)

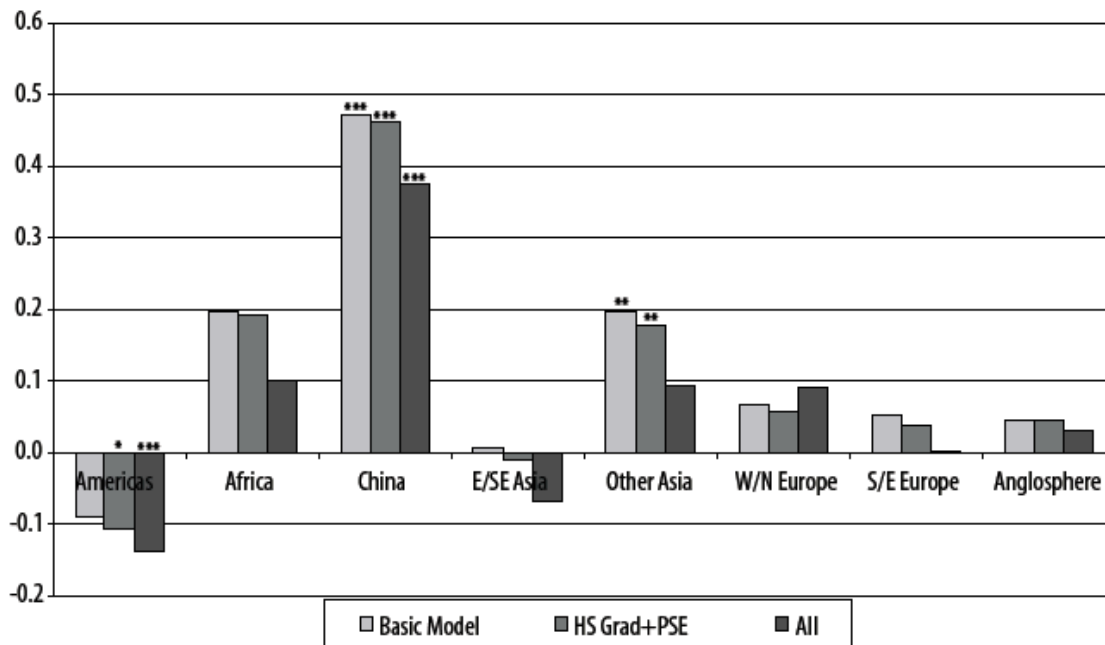


Notes: ***, **, and * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively. The baseline (comparator) group is non-immigrants and those for whom immigration status is unknown.

(Finnie, Mueller, 2010: 199)

Figure 2

Adding Parental Aspirations, First Generation Immigrants by Region of Origin

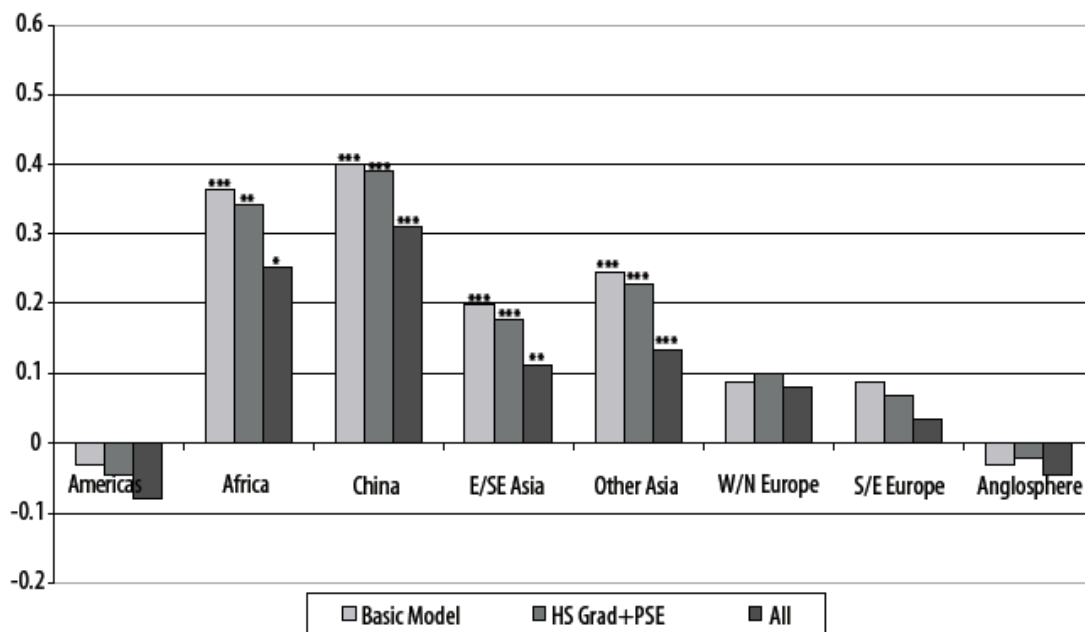


Notes: See notes to Figure 1.

(Finnie, Mueller, 2010: 208)

Figure 3

Adding Parental Aspirations, Second Generation Immigrants by Region of Origin



Notes: See notes to Figure 1.

(Finnie, Mueller, 2010: 209)

Appendix B

Pathways to Education Ottawa Registration Package 2012-2013

Preferred Incentive Option: Bus Transportation Lunch Vouchers

Post-secondary Information

As part of a major initiative by the Ontario Ministry of Training, Colleges, and Universities to provide additional support for post-secondary students who are the first in their family to attend college or university, we require the following information that will help us work with colleges and universities to better support students to be successful.

Did your mother or father complete college or university? No Yes

If yes, where did they complete college or university? In Canada Elsewhere

**If you are a NEW STUDENT, please fill out the back of this page,
New Registration Form (including students 18 and over)
2012 - 2013**

Additional Information:

Birth Date: _____

(dd-mm-yyyy)

Were you born in Canada? Yes No

If no, where were you born? _____ When did you arrive in Canada?
_____ (mm/yyyy)

What is your cultural background? Please check which cultural group you mainly identify with.

- | | | | |
|---|--|--|-----------------------------------|
| <input type="checkbox"/> Congolese | <input type="checkbox"/> French Canadian | <input type="checkbox"/> Latin American | <input type="checkbox"/> Somali |
| <input type="checkbox"/> East African | <input type="checkbox"/> Haitian | <input type="checkbox"/> Middle Eastern | <input type="checkbox"/> Sudanese |
| <input type="checkbox"/> English Canadian | <input type="checkbox"/> Jamaican | <input type="checkbox"/> Other Caribbean | |
| <input type="checkbox"/> Other _____ | | | |

Do you identify as (please check all that apply):

- Aboriginal Francophone Disabled

What Grade 8 school did you graduate from?

Do you have a computer at home? Yes No

Do you have Internet access? Yes No

Do you have any siblings currently registered in Pathways? If yes, please list their names below:

What is your citizenship status?

- | | | |
|---|--|--|
| <input type="checkbox"/> Canadian citizen | <input type="checkbox"/> Conventional refugee/protected person | <input type="checkbox"/> None of the above |
| <input type="checkbox"/> Permanent resident | <input type="checkbox"/> Refugee claimant (waiting for status) | |

Primary Caregiver Information

What is your relationship to the child (please check all that apply):

- Parent (includes birth parent, step-parent, and adoptive parent)
 Legal guardian
 Family member, please specify (e.g. Grandmother, Aunt, etc)

Name: _____, _____ Male Female

First Name

Last Name

Address (if different from above): _____ Apt.

#: _____

Postal Code: _____ Phone Number: _____ Cell Phone

#: _____

Email

Address*: _____

—

*We may use your email address to communicate with you about upcoming Pathways events and opportunities.

We may contact you by email if we are unable to reach you by telephone. The Pinecrest-Queensway Privacy and Confidentiality Policy prohibits the communication of personal information by email, as it is not considered secure. We will not use your email address to communicate personal information about you. ***It is equally important that you do not communicate personal information with us by email.***

Country of birth: _____

What is the main language spoken at home? _____

Do you require translation/interpretation in our contacts with you? Yes, written Yes, verbal
 No

Is there another primary caregiver? No Yes

Name: _____, _____ Male Female

First Name

Last Name

Address (if different from above): _____ Apt.

#: _____

Postal Code: _____ Phone Number: _____ Cell Phone

#: _____

Email

Address: _____

—

Relationship to student: _____

**The Pathways to Education™ Program – Ottawa (Pinecrest-Queensway)
Expectations of Involvement
2012-2013**

The Pathways to Education™ Program – Ottawa (Pinecrest-Queensway) was planned to provide a blend of supports to students to assist them to successfully complete high school, work on their career development and gain admission to college, university, or apprenticeship/vocational training.

Subject to funding, **The Pathways to Education™ Program – Ottawa (Pinecrest-Queensway) will provide tutoring support, mentoring, OC Transpo Bus Passes/Tickets or School Cafeteria Lunch Vouchers, and SPSW support. Each student may be eligible to receive up to \$1000 for each year of high school he/she completes in the Pathways to Education Program™ - Ottawa (Pinecrest-Queensway), to a maximum of \$4000 to be used towards Pathways to Education approved college/university expenses. Minimum participation of two qualifying years in the Pathways to Education Program™ - Ottawa (Pinecrest-Queensway) is required to be eligible to receive this scholarship. A qualifying year is from October to June.**

In order for students to benefit from the program and accomplish their goals in high school, it is important for parents to encourage and support their child to take part fully in the program and its activities. All students benefit from regular mentoring and tutoring supports. Students receiving Special Education, ESL supports or similar accommodations will benefit from regular tutoring support and are strongly encouraged to attend, regardless of their marks.

As a participant in the Pathways to Education Program™ - Ottawa (Pinecrest-Queensway), I agree to:

- | | Student Initials | Parent Initials |
|---|------------------|-----------------|
| <ul style="list-style-type: none"> Keep in contact with my Student/Parent Support Worker (SPSW) by attending scheduled meetings, and calling them if I have any questions about attendance at school, mentoring and tutoring | _____ | _____ |
| <ul style="list-style-type: none"> Call my SPSW if I have any difficulties or questions regarding my success, safety or choices; Call them if I will be absent from school for long period due to travel, illness, suspension, or other reasons so that the staff can assist in developing a continued work plan | _____ | _____ |
| <ul style="list-style-type: none"> Attend tutoring at assigned sites at least twice a week. I understand that attend tutoring regularly I may earn an exemption from tutoring at mid-t if I can demonstrate that I am meeting the expectations of a mark of 70% more in all core subjects*. Requests for alternate tutoring support must be made in writing and approved by a Pathways staff | _____ | _____ |
| <p>* Core subjects include courses in the Social Sciences and Natural Sciences as well as French English and Mathematics.</p> | | |
| <ul style="list-style-type: none"> Attend my Group Mentoring (Gr. 9 & 10s) as scheduled, or Specialty Mentoring and Career Mentoring (Gr. 11 & 12s) or other mentoring support as approved by the Pathways staff. | _____ | _____ |
| <ul style="list-style-type: none"> Register in summer school if applicable to get my course credits; | _____ | _____ |
| <ul style="list-style-type: none"> Make sure that I hand in homework assignments and write all my school Exams | _____ | _____ |
| <ul style="list-style-type: none"> I understand that daily bus transportation or lunch vouchers are based on regular attendance at school, mentoring, tutoring, and SPSW meetings. These incentives may be suspended or modified based on lack of attendance/participation | _____ | _____ |

Agreement to Participate

I have read and understand the above Expectations of Involvement and I agree to participate in the Pathways to Education™ Program – Ottawa (Pinecrest-Queensway).

I understand that failure to abide by the Expectations of Involvement may result in being withdrawn from the program. In the event of withdrawal, I understand that I shall forfeit any entitlement to benefits of the program, including any entitlement to funds held for Pathways approved college/university expenses.

I also understand that Pathways to Education™ Program – Ottawa (Pinecrest-Queensway) is fully dependent on funding to provide the supports to students, and should funding be reduced or cease, some or all program supports may be withdrawn.

I also understand that in the event of insufficient funding, the amount of funds available to me towards Pathways approved college/university expenses, if any, shall be determined by the Board of Directors, Pathways to Education Canada. All monies payable for scholarships shall be paid directly to the college/university.

I have read and agree to the above terms:

Name of Student
(please print): _____

Signature of Student: _____

Date: _____

Name of Parent
(please print): _____

Signature of Parent (*if student is under 18*):

Date: _____

Appendix C

Map of Regent Park Catchment Area



Pathways to Education
Catchment Areas

Regent Park and Moss Park

- Pathways to Education office
- Catchment area defined by Pathways to Education
- Catchment area based on dissemination areas
- Pathways to Education point
- 52540036 Dissemination area

By the numbers

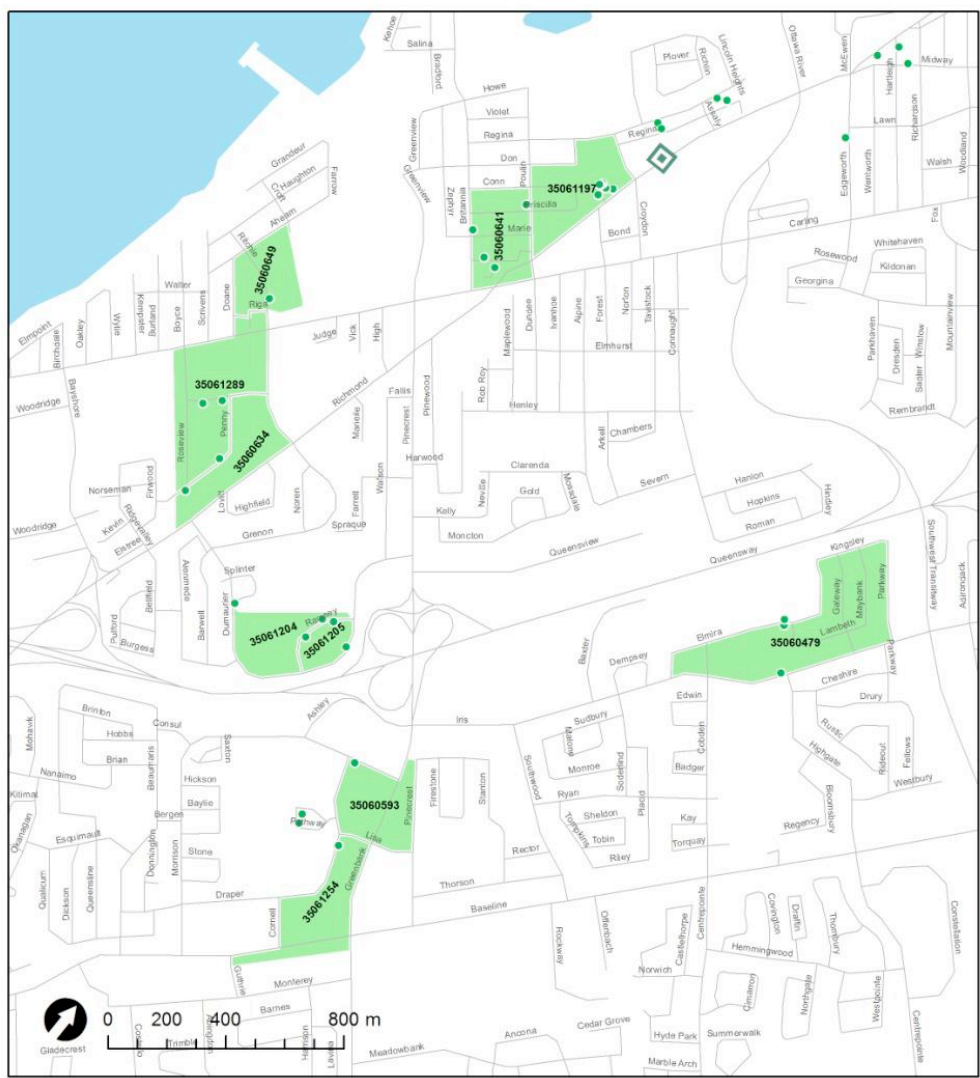
Population
Dissemination areas
P2E postal codes

Author: Acacia Consulting
 Date of publication: June 2012
 Data sources: 2006 Census of Canada and Pathways to Education
 Map projection: North America Lambert Conformal

(Scott et al., 2012: Appendix F, p.2)

Appendix D

Map of Ottawa Catchment Area



Pathways to Education
Catchment Areas

Ottawa

- Pathways to Education office
- Catchment area based on dissemination areas
- Pathways to Education posts
- 52540006 Dissemination area

By the numbers

Population
Dissemination areas
P2E postal codes

Author: Acacia Consulting
 Date of publication: June 2012
 Data sources: 2006 Census of Canada and Pathways to Education
 Map projection: North America Lambert Conformal C

(Scott et al., 2012: Appendix F, p.9)