Overview: Pathways-Boston Consulting Group partnership

Pathways approaching its 10th anniversary of improving high school graduation in 'at-risk' neighborhoods
- Initial cohort began in 2001 at first generation site (Regent Park) with first graduates in '04/'05
- New sites added in 2007, 2009 and 2010 to expand the program's reach, impact

BCG and Pathways To Education have enjoyed a collaborative partnership over last number of years
- Our focus has been assessing and validating the program's impact

Initial pro-bono effort conducted in '06-'07 to evaluate the social return of investment in Pathways
- Confirmed importance of addressing high school drop-out challenge to break the poverty cycle
- Assessed long-term societal value creation: $50K NPV, >9% IRR, 24X aggregate return on Pathways investment
  - Based on early results for first 2 graduating classes

In 2010-11, BCG invited to reprise and broaden the Pathways program value assessment
- Refresh previous social return on investment value assessment
  - Integrate longitudinal information from generation 1 site to integrate subsequent classes
  - Increase confidence in societal impact levers
- Confirm portability of program to 2nd generation sites
  - Define success flight path based on predictive metrics
  - Prove subsequent sites
- Scope magnitude of need for Pathways-like investments throughout Canada
Findings from the previous 2006-07 BCG assessment

Both school and non-school factors contribute to high-school dropout, e.g.,

- Non-school factors: low social class, minority status, school-home link, community support
- School factors: ineffective discipline, lack of counseling/support/outreach, disregard for learning style

Comprehensive, community-based programs needed to support youth education

- Programs must include academic, advocacy, mentoring and financial support
- "Key risk factors are present in the community and, as a consequence... protective factors are created in communities" – Hawkins et al (2000)¹

Early results: Pathways to Education is elevating high school outcomes in Regent Park

- Dramatically decreasing dropout rate, increasing post secondary enrolment for early cohorts
- Decreasing violent and property crimes despite increases in neighbouring divisions
- Tackling integration of new immigrants in community with 80% visible minorities; 60% immigrants

Program expected to deliver substantial economic value to government and society

- ~24.5X payback on each charitable dollar invested in Pathways
- ~$50K return per student when adjusted for time value of money; 9.4% internal rate of return

¹ Preventing Adolescent Health-Risk Behaviors by Strengthening Protection During Childhood, Hawkins et al., 2000
Executive summary
2010-11 findings consistent with previous results

The Pathways program...

... is addressing a substantial need

High-school graduation essential to breaking the cycle of poverty in Canada
  • Drop-outs: 2X unemployment, lower earnings; 3x more likely from low-income families

>70k high school students live in educationally at-risk communities that could justify Pathways-like program based on return economics

... delivers results

Pathways program consistently reduces drop-out rate by ~70%

Additionally, program improves post-secondary enrolment by 3X
  • Program grads enroll in university 10% more than the national average

... creates value

Program delivers 24X payback on every charitable dollar invested
  • $600K cumulative benefit per student enrolled
  • $45-50K NPV / student when adjusted for time value of money; 10% IRR

Program also yields benefits to society aligned to government priorities
  • e.g., Life expectancy and health outcomes better for high school graduates: lower incidence of hypertension, cardiovascular disease, diabetes, smoking-related diseases

... is portable

All generation 2 cohorts are on track to meet or exceed Generation 1 site performance
  • Credit accumulation, attendance best in-process predictors of graduation outcome
Context for action
High-school graduation essential to breaking the cycle of poverty in Canada

Youth from low income families are 3X more likely to dropout

High-school dropout rate by average community income
Dropout Rate (%)

Canadian unemployment rates by educational attainment
Unemployment rate (%)

Expected annual employment earnings by educational attainment
Earnings ($K)

Pathways has delivered consistent drop-out reduction

In Regent Park site, drop-out reduction has driven 2x increase in likelihood of student graduation (based on 700 students)

1. 5 years of data available for cohort 4 at time of analysis; 16% of students still in school
2. Date cohort entered Grade 9  Note: Dropout rate reduction computed from baseline Regent Park dropout rate of 58%

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A note on the definition of high school 'drop-out'

Multiple definitions exist for key educational outcomes

- **Drop-out rates:** Assess if students remain in school, can vary based on timing of analysis
- **Graduation rates:** Measure proportion of students who graduate from high school – not always the complement of drop-out if some students 'still in school' during analysis
- **Attainment rates:** Demographic measure for a jurisdiction; evaluate portion of population achieving an educational accreditation which may or may not include high school

Definitional differences can drive 10-30 pt variance in the reported results

Pathways' view a targeted measure of drop-out / graduation outcomes

- Assembled with student-specific data provided by partner schools and school boards
- Focused on understanding end-state impact of Pathways program
- Definition: Students who have not graduated by end of 6th year following grade 9 enrolment

Measure provides an end-state view of performance

- i.e., no students 'still in school' when metric assessed
- Means that drop-out rate provides a direct complement to graduation
Back-up: Pathways performance vs. common metrics

<table>
<thead>
<tr>
<th>High-school &quot;dropout&quot; definitions</th>
<th>Reported values</th>
<th>Pathways outcome comparables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>End-state dropouts:</strong> Students who have not graduated by end of 6th year following grade 9 enrolment</td>
<td>TDSB: 19-25%</td>
<td>18%</td>
</tr>
<tr>
<td>• End-state metric; a <strong>direct complement</strong> to graduation</td>
<td>Regent Park baseline: 58%</td>
<td>• Exceeding city average</td>
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<tr>
<td>• Assembled from data on specific students provided by school boards to track outcomes</td>
<td></td>
<td>• ~70% improvement over baseline</td>
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<tr>
<td><strong>TDSB</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Dropouts:</strong> students not attending school 5 years after enrolling in grade 9</td>
<td>TDSB: 17-23%</td>
<td>14%</td>
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<tr>
<td>• Metric is not a complement to graduation because portion of students 'still in school'</td>
<td>Ontario: 21-29%</td>
<td>• Better than city average</td>
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<tr>
<td><strong>ON Min. of Education</strong></td>
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</tr>
<tr>
<td><strong>Non-completes:</strong> sum of declared dropouts and active students after 5 years</td>
<td>Ontario: 24-31%</td>
<td>29%:</td>
</tr>
<tr>
<td><strong>Stats Can (Census)</strong></td>
<td></td>
<td>• Meeting provincial and city average ranges</td>
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<tr>
<td><strong>No attainment:</strong> Population in a given age range (i.e., 20-24 yr olds) with no certificate, diploma or degree</td>
<td>Ontario: 8%</td>
<td>N/A</td>
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<tr>
<td>• Accreditations not requiring HS completion leads to under-estimation of dropout rate</td>
<td>Canada: 9%</td>
<td>• Not a relevant comparison</td>
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<td></td>
<td>Regent Park baseline: 23%</td>
<td>• Metric not specific to high school graduation</td>
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Pathways also elevating post-secondary performance
Enrolment results exceeding population averages

Pathways dramatically improves enrolment in PS education
- >3X improvement over pre-Pathways baseline
- Pathways students now attaining provincial averages

Pathways students more likely to choose university over college / trades
- Pathways grads enroll in University 10% more than the national average

1. Queen's University Faculty of Education cohort study 2. Culture, Tourism and the Centre for Education Statistics Canada  3. Data from Regent Park Cohorts 1 through 4

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Outcomes driving several quantifiable benefits
2010 value proof uses similar approach as 2007; includes additional program data, updated sources

Pathways has a full financial payback to society of >10% annually on all costs

High-School Grad Rate Improvement
Post-Secondary Enrolment Improvement

Increased Employment and Average Income
Improved Health Statistics
Decreased Crime
Program Costs

Increased Government Tax Revenue
Decreased Government Spending
Quantifiable Benefits to Society
Non-Quantifiable Benefits to Society
Second Generation Benefits

Total Benefits

$600K in cumulative benefits per student enrolled; $60-90MM per cohort
24X SROI per charitable dollar invested in Pathways
Benefits of educational attainment far exceed program costs

| Increased government tax revenue | Higher expected employment income, disposable income  
|                                | • Higher income taxes collected  
|                                | • Higher sales taxes generated with increased consumer spending  
| Decreased government spending  | Reduced government transfer payments, social assistance due to reduced need  
|                                | Lower propensity to commit crimes  
|                                | • Savings for the justice system and prisons with lower likelihood of incarceration  
| Quantifiable benefits to society | Better health opportunities; greater access to and investment in personal health  
|                                | Increased general health outcomes, increased life expectancy  
|                                | • More preventative health care, less risk taking behaviour  
|                                | • Reduced incidence of smoking, diabetes, hypertension, heart disease  
| Non-quantifiable benefits to society | Higher economic growth rates due to better educated and more productive labour force  
|                                | Increased civic engagement  
|                                | • Increased time spent volunteering; higher likelihood to donate to charity  
|                                | • Better integration of new immigrants; tackling 1st generation education challenges  
| Second generation benefits      | Reduced societal burden from children with better educated parents:  
|                                | • Lower child benefit payments due to less need and fewer children  
|                                | • Children with better educational attainment who produce similar benefits to society  

| Program Costs | **Pathways costs**: $5k per year per student including program supports, infrastructure, scholarship  
|               | **Schooling costs**: Incremental provincial costs associated with keeping students in school longer  

_The Boston Consulting Group_
Societal return on investment significantly NPV positive
Pathways driving >$45K per student enrolled

NPV of societal impact of a student enrolled in Pathways to Education

-40 -20 0 20 40 60

$K per student

Internal rate of return on investment in Pathways Program = 10.1%

Note: 45 year time horizon (up to age 59)
Sources: Pathways Regent Park student performance data, Toronto District School Board, Ontario student assistance program, Statistics Canada income and educational data, Provincial and Federal government publications, BCG Analysis
**Value assessment refresh based on Gen 1 site experience**

Generation 2 sites expected to begin producing graduates in 2011

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<tbody>
<tr>
<td>Gen 4: 3 sites³</td>
<td>Cohort 1 (2010)</td>
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1. Lawrence Heights, Rexdale, Kitchener, Ottawa, Verdun (Montreal), note Verdun on longer time-line to graduation due to Quebec school system
2. Scarborough, Hamilton
3. Halifax, Winnipeg, Kingston

Maturity of program (years)

**Cohorts without HS grads**

**Cohorts with some HS grads**

**Cohorts with end-state graduation rate**
However, early results show Pathways program portable (I)

Regent Park cohorts have followed common trajectory

Two predictive metrics of program outcome success identified

Credit accumulation: Best predictor of graduation
- Credits attained early have greater impact than credits attained later
  - improves likelihood to graduate
  - increases chances of PS enrolment
- All sites outperforming Regent Park trajectory
  - higher yearly avg credit accumulation
  - tighter outcome distribution across all sites

Absenteeism: Correlated to credit accumulation
- Attendance in early years drives credit accumulation
  - poor attendees expected to earn 3 fewer credits per year than strong attendees

Note: Early credit accumulation is most critical

1. Strong attendees represent students with <5% absenteeism. Poor attendees represent students with >15% absenteeism

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Pathways program is portable (II)
All generation 2 cohorts on track to meet, exceed Regent Park performance

Average credit accumulation at generation two sites

Average credit accumulation, year one

Average credit accumulation, year two

- Ottawa
- Lawrence Heights
- Rexdale
- Kitchener

Observed range at Regent Park
Average performance observed at Regent Park
Observed performance range at gen 2 sites

Note: Quebec site excluded from analysis due to different credit structure and timeframe (i.e., initial years in Quebec cover different grades than Ontario-based sites)
Beyond current sites, substantial need remains nationally

**Screened population ...**

Canada-wide census data screened
- Focused on urban centers

**... based on 2 criteria...**

**Education:**
- Census: no degree, diploma or certificate by age 24
- 25% above Canadian avg.¹

**Economic:**
- Low Income Cut-Off
- 2X Canadian avg.²

**...to understand magnitude of challenge**

>70k students living in 'educationally at risk' communities with:
- High unemployment
- Low-income families
- Low educational attainment

Traits of these communities similar to current Pathways sites suggesting investment returns could hold

~70% of the 125 identified 'at risk' communities in current Pathways geographies
- 35 in Montreal
- 27 in Toronto
- 11 in Winnipeg
- 8 in Ottawa
- 4 in Hamilton

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1. StatsCan "dropout" definition: no educational attainment: no diploma, degree or certificate completed (20-24 year olds); 'educationally at risk' threshold = 17% of community with "no attainment"
2. Low Income Cut-Off (LICO): income level requiring individuals to spend 20% more of income on necessities than the average: 'educationally at risk' threshold = 25% of community below LICO