



*The Niagara Catholic District School Board through  
the charisms of faith, social justice, support and leadership,  
nurtures an enriching Catholic learning community for all  
to reach their full potential and become living witnesses of Christ.*

*AGENDA AND MATERIAL*

## **BOARD MEETING**

**TUESDAY, SEPTEMBER 23, 2014  
7:00 P.M.**



*FATHER KENNETH BURNS, C.S.C. BOARD ROOM  
CATHOLIC EDUCATION CENTRE, WELLAND, ONTARIO*

**8:30 p.m. Presentation – Guangzhou, China**

### **A. ROUTINE MATTERS**

1. Opening Prayer – Trustee Charbonneau -
2. Roll Call -
3. Approval of the Agenda -
4. Declaration of Conflict of Interest -
5. Minutes of the Board Meeting
  - 5.1 June 17, 2014 A5.1
  - 5.2 August 27, 2014 A5.2

### **B. DELEGATIONS/PRESENTATIONS**

1. Country Garden School - Guangzhou, China – Live Partnership Agreement Signing B1

### **C. COMMITTEE AND STAFF REPORTS**

1. School Excellence Program St. Mary Catholic Elementary School - Welland C1
2. Unapproved Minutes of the Committee of the Whole Meeting of September 9, 2014 and Consideration of Recommendations C2
  - 2.1 Pathway to Care Program – Renaming -
3. Approved Minutes of the Special Education Advisory Committee (SEAC) Meeting of June 4, 2014 C3
4. Approved Minutes of the Niagara Catholic Parent Involvement Committee (NCPIC) Meeting of May 8, 2014 C4
5. Niagara Catholic Strategic Direction System Priorities 2013-2014 Achievement C5
6. Education Quality and Accountability Office (EQAO) Primary and Junior Assessments of Reading, Writing and Mathematics C6
7. Representation for VOICE for Hearing Impaired Children C7

8.	Niagara Catholic District School Board Mathematics K-12	C8
9.	Extended Overnight Field Trip, Excursion and Exchange	C9
10.	Staff Development – September 2014 – October 9, 2014	C10
11.	Financial Reports	
	11.1 Monthly Banking Transactions for the Months of June, July and August 2014	C11.1
	11.2 Statement of Revenue and Expenditures as at year end August 31, 2014	C11.2

#### **D. TRUSTEE ITEMS, OPEN QUESTION PERIOD & OTHER BUSINESS**

1.	Correspondence	
	1.1 Retirement Celebration –Thank you Letter	D1.1
	1.2 Niagara Catholic Education Award of Distinction – July 15, 2014	D1.2
	1.3 Office of the Mayor – City of Thorold	D1.3
	1.4 Niagara-on-the-Lake – Proposal	D1.4
2.	Report on Trustee Conferences Attended	-
3.	General Discussion to Plan for Future Action	-
4.	Trustee Information	
	4.1 Calendar of Events – September 2014	D4.1
	4.2 Niagara Festival Grape Grande Parade – September 27, 2014	-
	4.3 Director’s Inspiration Award 2014 – October 9, 2014 – St. Kevin Parish	-
5.	Open Question Period	
	<i>(The purpose of the Open Question Period is to allow members of the Catholic school supporting public to ask about items on that night’s public agenda or any previous agendas, and the Board to answer and react.)</i>	

#### **E. NOTICES OF MOTION**

#### **F. BUSINESS IN CAMERA**

#### **G. REPORT ON IN CAMERA SESSION**

#### **H. FUTURE MEETINGS AND EVENTS**

#### **I. MOMENT OF SILENT REFLECTION FOR LIFE**

#### **J. ADJOURNMENT**

**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: MINUTES OF THE BOARD MEETING OF  
JUNE 17, 2014**

---

**RECOMMENDATION**

**THAT** the Niagara Catholic District School Board approve the Minutes of the Board Meeting of June 17, 2014, as presented.





## MINUTES OF THE BOARD MEETING

**TUESDAY, JUNE 17, 2014**

Minutes of the Meeting of the Niagara Catholic District School Board, held on Tuesday, June 17, 2014, in the Father Kenneth Burns C.S.C. Board Room, at the Catholic Education Centre, 427 Rice Road, Welland.

The meeting was called to order at 7:00 p.m. by Chair Burtnik.

### A. ROUTINE MATTERS

1. Opening Prayer

Opening Prayer were led by Trustee O’Leary

2. Roll Call

Chair Burtnik noted that Trustee Charbonneau was present electronically at the Board Meeting of June 17, 2014.

Trustee	Present	Present Electronically	Absent	Excused
Rhianon Burkholder	✓			
Kathy Burtnik	✓			
Maurice Charbonneau		✓		
Frank Fera	✓			
Fr. Paul MacNeil	✓			
Ed Nieuwesteeg	✓			
Ted O’Leary	✓			
Dino Sicoli	✓			
<b>Student Trustees</b>				
Vincent Atallah	✓			
Dallas McMahon	✓			



The following staff were in attendance:

**John Crocco**, Director of Education; **Yolanda Baldasaro**, **Ted Farrell**, **Lee Ann Forsyth-Sells**, **Frank Iannantuono**, **Mark Lefebvre**, Superintendents of Education; **Giancarlo Vetrone**, Superintendent of Business & Financial Services; **Scott Whitwell**, Controller of Facilities Services; **Jennifer Brailey**, Manager of Corporate Services & Communications; **Kristine Murphy**, Recording Secretary/Administrative Assistant, Corporate Services & Communications

**3. Approval of the Agenda**

Trustee MacNeil requested to amend the Agenda and to add a letter he had written to OECTA apposing their involvement to attend the Pride Parade.

Student Trustee Atallah requested a recorded vote to be taken, recognizing that the student trustees vote is non-binding.

**THAT** the Niagara Catholic District School Board approve the request by Trustee MacNeil to add the letter he had written to OECTA to the Agenda of the Board Meeting of June 17, 2014.

**DEFEATED**

Name	YEA	NAY
Rhianon Burkholder		✓
Chair Burtnik		✓
Moe Charbonneau		✓
Frank Fera	✓	
Fr. Paul MacNeil	✓	
Ed Nieuwesteeg		✓
Ted O'Leary		✓
Dino Sicoli	✓	
Student Trustees (Non-Binding)		
Vincent Atallah		✓
Dallas McMahan		✓

Moved by Trustee Nieuwesteeg

Seconded by Trustee O'Leary

**THAT** the Niagara Catholic District School Board approve the Agenda of the Board Meeting of June 17, 2014, as presented.

**CARRIED**

**4. Declaration of Conflict of Interest**

Trustee O'Leary disclosed a direct pecuniary interest with Item C1.3 Report on the 2014-2015 Annual Budget of the Public Agenda. Trustee O'Leary did not take part in the consideration of, or vote on any question with relation to this item.

Trustee Fera disclosed a direct pecuniary interest with Item C1.3 Report on the 2014-2015 Annual Budget of the Public Agenda. Trustee Fera did not take part in the consideration of, or vote on any question with relation to this item.

5. **Approval of Minutes of the Board Meeting of May 27, 2014**

Moved by Trustee MacNeil

Seconded by Trustee Nieuwesteeg

**THAT** the Niagara Catholic District School Board approve the Minutes of the Board Meeting of May 27, 2014, as presented.

**CARRIED**

**B. DELEGATIONS/PRESENTATIONS**

1. **Kids Helping Kids 2013-2014**

Yolanda Baldasaro, Superintendent of Education gave a brief presentation on Niagara Catholic's participation in Kids Helping Kids 2013-2014.

Superintendent Baldasaro introduced Jim Marino from the Niagara Children's Centre, Mr. Marino thanked students, staff and the parent community for their contributions collected throughout Niagara Catholic. He introduced a special guest Drew Jakobsons who was diagnosed with downs syndrome at an early age and had received early intervention from the Children's Centre and has made great progress and is attending Mary Ward Catholic Elementary School.

Chair Burtnik thanked Mr. Marino for his dedication with the Centre and said Niagara Catholic will continue supporting the Niagara Children's Centre.

Chair Burtnik, Vice Chair Burkholder and Director Crocco presented a cheque for \$39,025.56 to Jim Marino for the Niagara Children's Centre.

2. **Canadian Parents for French (Ontario) – Recognition**

Mark Lefebvre, Superintendent of Education presented the Report on Canadian Parents for French Immersion Program. He introduced Jayne Evans, FSL & International Languages /ESL/Arts Consultant.

Jayne Evans introduced Betty Gormley, Executive Director, and Canadian Parents for French (CPF) who presented a brief report on the Canadian Parents for French Immersion Program. Ms. Gormley congratulated Niagara Catholic on implementing the French Immersion program which began in September 2013.

Ms. Gormley presented Ms. Evan's, Chair Burtnik, Director Crocco and Superintendent Lefebvre with a plaque to recognize the implementation of the French Immersion Program at Niagara Catholic.

Chair Burtnik thanked Ms. Gormley for her continued support.



**3. Ontario Federation of Schools Athletic Association (OFSAA) – Medalists**

Superintendent Lefebvre presented the report on the Ontario Federation of Schools Athletic Association. He introduced Mike Sheahan, Program Department Consultant.

Mr. Sheahan introduced Jim Whittard, Principal from Saint Michael Catholic High School.

Mr. Whittard and Ryan Dudley Coach introduced the students who competed and won Gold and Bronze in Track and Field.

Mr. Dudley introduced Amber Benoit and Cristina Formica Coaches from Saint Michael Catholic High School. Ms. Benoit and Ms. Formica introduced the Girls Senior Soccer Silver Medalists.

Mr. Sheahan introduced Glenn Gifford, Principal Lakeshore Catholic High School. He introduced Coach Jim Jones who introduced the Students who won Bronze for Track & Field.

Mr. Sheahan introduced Jeff Smith, Principal from Saint Paul Catholic High School. Mr. Smith introduced Coaches Pat Mete and Kelly Majka who introduced the students who won Gold in the Ontario Special Olympics Bocce Champion.

Mr. Sheahan introduced Danny DeLorenzo, Principal Denis Morris Catholic High School. Mr. Gifford introduced Coach who introduced the students that won Silver at the Track & Field Senior Boys Triple Jump.

Mr. Sheahan introduced Brad Johnstone, Vice-Principal Blessed Trinity Catholic Secondary School. Mr. Johnstone introduced their Coach Kathleen Romatowski who introduced the students who won Gold at the CSSRA Rowing Championships Senior Women 59kg 4+.

Mr. Sheahan introduced Denice Robertson, Principal Holy Cross Catholic Secondary School. Mrs. Robertson introduced Coach Aaron Thompson who introduced students who won Gold in the CSSRA Rowing Championships.

Chair Burtnik, Director Crocco, Trustee Nieuwesteeg and Trustee Fera presented all the students with Speciality Minted Niagara Catholic Excellence in Athletics Pins.

Chair Burtnik congratulated all the students on their achievements.

**4. Student Trustees – Student Senate Co-Chairs 2013-2014**

Vincent Atallah and Dallas McMahon Student Trustees presented their farewell speeches on completing their roles as Student Trustees with Niagara Catholic.

Mr. Atallah and Mr. McMahon thanked Chair Burtnik, Vice-Chair Burkholder, Director Crocco Senior Administrators and Trustees for their mentoring and guidance during their term.

Chair Burtnik expressed the importance of the Student Trustees to the Board and wished them all the best in their future endeavors.



## C. COMMITTEE AND STAFF REPORTS

### 1. Unapproved Minutes of the Committee of the Whole Meeting of June 10, 2014 and Consideration of Recommendations

Moved by Trustee Fera

Seconded by Trustee Sicoli

**THAT** the Niagara Catholic District School Board receive the unapproved Minutes of the Committee of the Whole Meeting of June 10, 2014, as presented.

**CARRIED**

The following recommendations were presented for the Board's consideration from the Committee of the Whole Meeting of June 10, 2014.

#### 1.1 Approval of Policies

##### 1.1.1 Criminal Background Check-Safe Schools Policy (302.6.7)

Moved by Trustee MacNeil

Seconded by Trustee Sicoli

**THAT** the Niagara Catholic District School Board approve the revised Criminal Background Check-Safe Schools Policy (302.6.7), as presented.

**CARRIED**

##### 1.1.2 Sexual Misconduct Policy (201.13)

Moved by Trustee MacNeil

Seconded by Trustee Sicoli

**THAT** the Niagara Catholic District School Board approve the revised Sexual Misconduct Policy (201.13), as presented.

**CARRIED**

##### 1.1.3 Use of Corporate Logo (New)

Moved by Trustee MacNeil

Seconded by Trustee Sicoli

**THAT** the Niagara Catholic District School Board approve the Use of Corporate Logo (New) Policy, as presented.

**CARRIED**

### 1.2 Award of Construction Contract for Lakeshore Catholic High School Addition/Renovations

Moved by Trustee Sicoli

Seconded by Trustee Fera

**THAT** the Niagara Catholic District School Board approve the Award of Construction Contract for Lakeshore Catholic High School Addition/Renovations to Manorcore Group Inc. with a total project cost of \$5,501,722.

**CARRIED**

**1.3 Report on the 2014-2015 Annual Budget**

Moved by Trustee Nieuwesteeg

Seconded by Trustee Sicoli

**THAT** the Niagara Catholic District School Board approve the Report on the 2014-2015 Annual Budget, as presented.

**CARRIED**

**1.4 Larkin Estate Admission Awards 2014-2015**

Moved by Trustee Charbonneau

Seconded by Trustee Burkholder

**THAT** the Niagara Catholic District School Board approve the payment of \$1,250.00 for Larkin Estate Admission Awards per eligible student, as presented.

**CARRIED**

**2. Approved Minutes of the Special Education Advisory Committee (SEAC) Meeting of May 7, 2014**

Moved by Trustee MacNeil

Seconded by Trustee Charbonneau

**THAT** the Niagara Catholic District School Board receive the Approved Minutes of the Special Education Advisory Committee Meeting of May 7, 2014, as presented for information.

**CARRIED**

**3. Annual Budget 2014-2015**

Director Crocco presented the Annual Budget 2014-2015 Booklet for information. He congratulated Superintendent Vetrone and all staff who contributed to the balanced Annual Budget.

Moved by Trustee Nieuwesteeg

Seconded by Trustee MacNeil

**THAT** the Niagara Catholic District School Board approve the Annual Budget 2014-2015, as presented.

**CARRIED**

**4. Ontario Early Years Centre Audited financial Statements – March 31, 2014**

Superintendent Vetrone presented the Report on the Ontario Early Years Centre Audited Financial Statements – March 31, 2014.

Moved by Trustee Sicoli

Seconded by Trustee Fera

**THAT** the Niagara Catholic District School Board approve the Audited Financial Statements and Ministry schedules for the Ontario Early Years Centre as at March 31, 2014 as presented.

**CARRIED**

5. **Executive Council Power**

Director Crocco presented the report on Executive Council Power.

Moved by Trustee Nieuwesteeg

Seconded by Trustee MacNeil

**THAT** the Niagara Catholic District School Board empower Executive Council to approve any actions, of an emergency nature, recommended by the Director of Education, if a quorum cannot be achieved after a Special Meeting of the Board is called as per Board By-Laws, during the months of July and August 2014.

**CARRIED**

6. **The Provisions of Special Education Programs and Services – Special Education Plan**

Superintendent Baldasaro presented the Report on The Provisions of Special Education Programs and Services – Special Education Plan report for information.

7. **Extended Overnight Field Trip, Excursion and Exchange Committee**

Superintendent Lefebvre presented The Extended Overnight Field Trip, Excursion and Exchange Approval Committee 2013-2014 report for information.

8. **EcoSchools Certification 2014-2015**

Scott Whitwell, Controller of Facilities Services presented The Niagara Catholic EcoSchools Certification 2013 - 2014 report for information.

Controller Whitwell answered questions of Trustees.

9. **Financial Reports**

9.1 **Monthly Banking Transactions of May 2014**

Moved by Trustee Fera

Seconded by Trustee Sicoli

**THAT** the Niagara Catholic District School Board approve the Monthly Banking Transactions for the month of May 2014, as presented for information.

**CARRIED**

9.2 **Statement of Revenue & Expenditures May 31, 2014**

Moved by Trustee Fera

Seconded by Trustee Sicoli

**THAT** the Niagara Catholic District School Board approve the Statement of Revenue and Expenditures as at May 31, 2014, as presented for information.

**CARRIED**



## **D. TRUSTEE ITEMS, OPEN QUESTION PERIOD & OTHER BUSINESS**

### **1. Correspondence**

#### **1.1 CUPE-SCFP- June 2, 2014**

Director Crocco advised the Board that CUPE had submitted its Bargain pursuant to the Labour Relations October, 1995, S.59.

### **2. Report on Trustee Conferences Attended**

Vice-Chair Burkholder reported on the April OCSTA AGM and Conference in Niagara Falls and the CCSTA AGM/Conference in June held in Kingston.

Chair Burtnik expressed her gratitude to all Niagara Catholic staff and students who assisted at the Conferences.

Chair Burtnik spoke about the excellent job Carmela D'Andrea, Principal at Michael J. Brennan Catholic Elementary School did on the closing celebration held at the school on June 11, 2014, and reflected on the 38 years of Catholic education provided to the community.

### **3. General Discussion to Plan for Future Action**

Director Crocco informed the Trustees that the Library Information Centre at St. James was not named before and asked the Trustees to endorse the request by Glenda Hillier, Principal at St. James Elementary School to name their Library '*Michael J. Brennan Library Information Centre.*'

Moved by Trustee Charbonneau

Seconded by Trustee Burkholder

**THAT** the Niagara Catholic District School Board endorse the request by Glenda Hillier, Principal at St. James Catholic Elementary School Library to be named '*Michael J. Brennan Library Information Centre.*'

**CARRIED**

### **4. Trustee Information**

#### **4.1 Spotlight on Niagara Catholic – June 10, 2014**

Director Crocco highlighted the Spotlight on Niagara Catholic – June 10, 2014 issue for Trustees information.

#### **4.2 Calendar of Events – July & August 2014**

Director Crocco presented the Calendar of Events – July & August 2014 for Trustees information

Director Crocco provided the Trustees with a copy of Niagara Catholic's Showcase first addition magazine. Mr. Crocco congratulated Jennifer Brailey, Manager of Corporate Services & Communications and her team on this initiative.

He informed the Board that 24,000 Showcase Magazines will be distributed to Niagara Catholic students, Niagara Catholic staff and will also be distributed to select locations throughout Niagara.

5. Open Question Period

None Submitted

**E. NOTICES OF MOTION**

**F. BUSINESS IN CAMERA**

Moved by Trustee Nieuwesteeg

Seconded by Trustee O'Leary

**THAT** the Niagara Catholic District School Board move into the In Camera Session.

**CARRIED**

The Niagara Catholic District School Board moved into the In Camera Session of the Board Meeting at 8:54 p.m. and reconvened at 10:10 p.m.

**G. REPORT ON THE IN-CAMERA SESSION**

Moved by Trustee Nieuwesteeg

Seconded by Trustee O'Leary

**THAT** the Niagara Catholic District School Board report the motions from the In Camera Session of the Board Meeting of June 17, 2014.

**CARRIED**

**SECTION A: STUDENT TRUSTEES PRESENT**

Moved by Trustee MacNeil

Seconded by Trustee O'Leary

**THAT** the Niagara Catholic District School Board approve the Minutes of the In Camera Session of the Board Meeting - SECTION A: Student Trustees Present of May 27, 2014, as presented.

**CARRIED (Item F1)**

Moved by Trustee MacNeil

Seconded by Trustee O'Leary

**THAT** the Niagara Catholic District School Board receive the unapproved Minutes of the In Camera Session of the Committee of the Whole Meeting - SECTION A: Student Trustees Present of June 10, 2014, as presented.

**CARRIED (Item F2)**

**SECTION B: STUDENT TRUSTEES EXCLUDED**

Moved by Trustee MacNeil

Seconded by Trustee Fera

**THAT** the Niagara Catholic District School Board approve the Minutes of the In Camera Session of the Board Meeting - SECTION B: Student Trustees Excluded of May 27, 2014, as presented.

**CARRIED (Item F4)**

Moved by Trustee MacNeil  
Seconded by Trustee Fera

**THAT** the Niagara Catholic District School Board receive the unapproved Minutes of the In Camera Session of the Committee of the Whole Meeting - SECTION B: Student Trustees Excluded of June 10, 2014, as presented.

**CARRIED (Item F5)**

## **H. FUTURE MEETINGS AND EVENTS**

## **I. MOMENT OF SILENT REFLECTION FOR LIFE**

## **J. ADJOURNMENT**

Moved by Vice-Chair Burkholder  
Seconded by Trustee Charbonneau

**THAT** the June 17, 2014 meeting of the Niagara Catholic District School Board be adjourned.

**CARRIED**

This meeting was adjourned at 10:11 p.m.

---

---

Minutes of the Meeting of the Niagara Catholic District School Board held on **June 17, 2014**.

Approved on **September 23, 2014**.

---

Kathy Burtnik  
Chair of the Board

---

John Crocco  
Director of Education/Secretary -Treasurer



**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: MINUTES OF THE SPECIAL BOARD MEETING OF  
AUGUST 27, 2014**

---

**RECOMMENDATION**

**THAT** the Niagara Catholic District School Board approve the Minutes of the Special Board Meeting of August 27, 2014, as presented.



## MINUTES OF THE SPECIAL BOARD MEETING

**WEDNESDAY, AUGUST 27, 2014**

Minutes of the Special Meeting of the Niagara Catholic District School Board, held on August 27, 2014 in the Father Kenneth Burns CSC Board Room, at the Catholic Education Centre, 427 Rice Road, Welland.

The meeting was called to order at 4:06 p.m. by Vice-Chair Burkholder.

### A. ROUTINE MATTERS

1. Opening Prayer

Opening Prayers were led by Chair Burtnik.

2. Roll Call

Vice Chair Burkholder noted that Trustee Sicoli was excused from attending the Special Board Meeting of August 27, 2014. Chair Burtnik and Trustees Charbonneau, Fera, MacNeil, and Nieuwesteeg were present electronically.

Trustee	Present	Present Electronically	Absent	Excused
Rhianon Burkholder	✓			
Kathy Burtnik		✓		
Maurice Charbonneau		✓		
Frank Fera		✓		
Fr. Paul MacNeil		✓		
Ed Nieuwesteeg		✓		
Ted O'Leary	✓			
Dino Sicoli				✓

The following staff were in attendance:

**John Crocco**, Director of Education; **Yolanda Baldasaro**, **Ted Farrell**, **Lee Ann Forsyth-Sells**, **Frank Iannantuono**, **Mark Lefebvre**, Superintendents of Education; **Scott Whitwell**, Controller of Facilities Services; **Giancarlo Vetrone**, Superintendent of Business & Financial Services; **Jennifer Brailey**, Manager of Corporate Services & Communications; **Kristine Murphy**, Recording Secretary/Administrative Assistant, Corporate Services & Communications

**3. Approval of the Agenda**

Moved by Trustee O'Leary

Seconded by Trustee Charbonneau

**THAT** the Niagara Catholic District School Board approve the Agenda of the Special Board Meeting of August 27, 2014, as presented.

**CARRIED**

**4. Disclosure of Interest**

No Disclosures of Interest were declared with any items on the agenda.

**B. BUSINESS IN CAMERA**

Moved by Trustee Charbonneau

Seconded by Trustee O'Leary

**THAT** the Niagara Catholic District School Board move into the In Camera Session.

**CARRIED**

The Niagara Catholic District School Board moved into the In Camera Session of the Special Board Meeting at 4:10 p.m. and reconvened at 4:45 p.m.

**C. REPORT ON THE IN-CAMERA SESSION**

Moved by Trustee O'Leary

Seconded by Chair Burtnik

**THAT** the Niagara Catholic District School Board report the motions from the In Camera Session of the Special Board Meeting of August 27, 2014.

**CARRIED**

Moved by Trustee Charbonneau

Seconded by Trustee O'Leary

**THAT** the Niagara Catholic District School Board approve the recommendation as outlined in Item F4.1 of the In Camera Agenda.

**CARRIED (Item F4.1)**

**D. MOMENT OF SILENT REFLECTION FOR LIFE**

**E. ADJOURNMENT**

Moved by Trustee O'Leary

Seconded by Trustee MacNeil

**THAT** the August 27, 2014 Special Meeting of the Niagara Catholic District School Board be adjourned.

**CARRIED**



This meeting was adjourned at 4:47 p.m.

---

---

Minutes of the Special Meeting of the Niagara Catholic District School Board held on **August 27, 2014**.

Approved on **September 23, 2014**.

---

Rhianon Burkholder  
Vice-Chair of the Board

---

John Crocco  
Director of Education/Secretary -Treasurer

**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: COUNTRY GARDEN SCHOOL – GUANGZHOU, CHINA –  
LIVE PARTNERSHIP AGREEMENT SIGNING**

---

---

---

---

Prepared by: Frank Iannantuono, Superintendent of Education/Human Resources Services

Presented by: Frank Iannantuono, Superintendent of Education/Human Resources Services

Approved by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014



## PRESENTATION BACKGROUND

**Board Meeting  
September 23, 2014**

### **COUNTRY GARDEN SCHOOL – GUANGZHOU, CHINA – LIVE PARTNERSHIP AGREEMENT SIGNING**

Guangdong Country Garden School in China has recognized the strength and opportunities provided by Niagara Catholic's exceptional staff, programs and services. Through our agreement between Guangdong Country Garden School and the Niagara Catholic District School Board, our teachers will be providing the Ontario Secondary School Diploma credits, teacher training and professional development on the Ontario school system to the administration and staff of the school. The students will receive a dual diploma with programs from Grade 9-11 in China and with the final Ontario Secondary School Diploma being awarded to these students by the Niagara Catholic District School Board following a final successful year attending one of our Catholic secondary schools. Students who are granted the Dual Diploma will be able to apply for North American Universities with their OSSD.

Throughout the summer the Continuing Education staff and our teachers have been busy preparing for the courses they are teaching. Guangdong Country Garden School is covering all costs for any materials deemed necessary for the delivery of the program

The four teachers from Niagara Catholic have arrived at Country Garden School and have been greeted with open arms from the administration and staff of the school. The teachers from Niagara Catholic include;

Michael Goodwin  
Paulina Kociolek  
Krystin Lessard  
Maddalena (Lena) Miele

This presentation will invite a live conversation, via Skype, with Niagara Catholic Staff at Guangdong Country Garden School along with a ceremonial signing of a partnership agreement by Chair Burtnik, Director Crocco, Principal David Li and his Superintendent.

---

Prepared by: Frank Iannantuono, Superintendent of Education/Human Resources Services  
Presented by: Frank Iannantuono, Superintendent of Education/Human Resources Services  
Approved by: John Crocco, Director of Education/Secretary-Treasurer  
Date: September 23, 2014



**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: SCHOOL EXCELLENCE PROGRAM  
ST. MARY CATHOLIC ELEMENTARY SCHOOL-WELLAND**

---

---

The School Excellence Program report is presented for information.

---

---

Prepared by: Lee Ann Forsyth-Sells, Superintendent of Education  
Presented by: Lee Ann Forsyth-Sells, Superintendent of Education  
Approved by: John Crocco, Director of Education/Secretary-Treasurer  
Date: September 23, 2014



NIAGARA CATHOLIC  
DISTRICT SCHOOL BOARD

**SCHOOL EXCELLENCE PROGRAM**  
**ST. MARY CATHOLIC ELEMENTARY SCHOOL**

**Contact Information**

120 Plymouth Road  
Welland, Ontario  
L3B 3C7  
Ph: 905.734.7326  
Fx: 905.734.7115  
[st.mary.w@ncdsb.com](mailto:st.mary.w@ncdsb.com)

**Grades**

ELKP – 8

**Enrolment**

207 as of September 2014

**Principal**

Patsy Rocca  
Scott Root-Acting Principal

**Superintendent of Education**

Lee Ann Forsyth-Sells

**Catholic School Council**

**Chair**

Carrie Vernelli

**Parish**

St. Mary



*Living and learning together in Christ.*  
-School Motto-

St. Mary Catholic School was built in 1956. It was one of the first Roman Catholic Schools to open its doors to the Catholic community in Welland. It has served the downtown Welland for over forty-five years and continues to be a vibrant component of the Welland educational community.

Our school is also home to one of four Cyberquest 21 Studios. Grades 7 and 8 students within the Welland / Pelham and Lakeshore area attend our Cyberquest Studio throughout the year. The Studio introduces students to broad-based technologies including aerospace, engineering design, electronics, desktop publishing, audio-visual and robotics

Prepared by: Lee Ann Forsyth-Sells, Superintendent of Education

Presented by: Lee Ann Forsyth-Sells, Superintendent of Education

Approved by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014

**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: UNAPPROVED MINUTES OF THE COMMITTEE OF THE  
WHOLE MEETING OF SEPTEMBER 9, 2014**

---

---

**RECOMMENDATION**

**THAT** the Niagara Catholic District School Board receive the unapproved Minutes of the Committee of the Whole Minutes of September 9, 2014, as presented.

The following recommendations are being presented for the Board's consideration from the Committee of the Whole Meeting of September 9, 2014:

**2.1 Pathway to care Program- Renaming**

**THAT** the Niagara Catholic District School Board endorse the Director's recommendation to name the, location of the new pathway to care program, the "*Pope Francis Centre*".





## MINUTES OF THE COMMITTEE OF THE WHOLE MEETING TUESDAY, SEPTEMBER 9, 2014

Minutes of the Meeting of the Committee of the Whole of the Niagara Catholic District School Board, held on Tuesday, September 9, 2014 in the Father Kenneth Burns C.S.C. Board Room, at the Catholic Education Centre, 427 Rice Road, Welland.

The meeting was called to order at 7:03 p.m. by Vice-Chair Burkholder.

### A. ROUTINE MATTERS

1. Opening Prayer

Opening Prayer was led by Vice-Chair Burkholder

2. Roll Call

Moved by Trustee Nieuwesteeg

**THAT** the Committee of the Whole excuse Trustee Fera, from attending the Committee of the Whole Meeting September 9, 2014.

**CARRIED**

Trustee Charbonneau attended electronically, all other Trustees and Student Trustees were in attendance for the Committee of the Whole Meeting September 9, 2014.

Trustee	Present	Present Electronically	Absent	Excused
Rhianon Burkholder	✓			
Kathy Burtnik	✓			
Maurice Charbonneau		✓		
Frank Fera				✓
Fr. Paul MacNeil	✓			
Ed Nieuwesteeg	✓			
Ted O'Leary	✓			
Dino Sicoli	✓			
<b>Student Trustees</b>				
Jessica Di Pasquale	✓			
Chloe Demizio	✓			

The following staff were in attendance:

**John Crocco**, Director of Education; **Yolanda Baldasaro**, **Ted Farrell**, **Lee Ann Forsyth-Sells**, **Frank Iannantuono**, **Mark Lefebvre**, Superintendents of Education; **Giancarlo Vetrone**, Superintendent of Business & Financial Services; **Scott Whitwell**, Controller of Facilities Services; **Kristine Murphy**, Recording Secretary/Administrative Assistant, Corporate Services & Communications

3. **Approval of the Agenda**

Moved by Trustee Sicoli

**THAT** the Committee of the Whole approve the Agenda of the Committee of the Whole Meeting of September 9, 2014, as presented.

**CARRIED**

4. **Declaration of Conflict of Interest**

No Disclosures of Interest were declared with any items on the agenda.

5. **Approval of Minutes of the Committee of the Whole Meeting of June 10, 2014**

Moved by Chair Burtnik

**THAT** the Committee of the Whole approve the Minutes of the Committee of the Whole Meeting of June 10, 2014, as presented.

**CARRIED**

**B. PRESENTATIONS**

1. **Nil**

**C. COMMITTEE AND STAFF REPORTS**

1. **Director of Education and Senior Staff Introduction to the 2014-2015 School Year**

John Crocco, Director of Education Secretary/Treasurer and Senior Administrative Council welcomed the Board to the new school year and presented a visual report on the beginning of the new school year with updates on each member of Senior Staff's roll of responsibility for Trustee information.

Director Crocco and Senior Administrative Council answered questions of Trustees.

2. **Parents Reaching Out Grants 2014-2015**

Lee Ann Forsyth-Sells, Superintendent of Education presented the report on the Parents Reaching Out Grants 2014-2015, a list of approved schools and funding amount was provided for information.

Superintendent Forsyth-Sells answered questions of Trustees.

3. **The Provisions of Special Education Programs and Services – Special Education Plan**

Yolanda Baldasaro, Superintendent of Education, presented the report on The Provisions of Special Education Programs and Services - Special Education Plan for information. All Trustees were presented a copy of the Special Education Plan 2014.



#### 4. Monthly Updates

##### 4.1 Capital Projects Update

Scott Whitwell, Controller of Facilities Services, presented the Capital Projects Update.

Controller Whitwell answered questions of Trustees.

##### 4.2 Student Trustees' Update

Chloe Demizio and Jessica Di Pasquale, Student Trustees, presented a brief verbal update on the current activities of the Student Senate.

##### 4.3 Senior Staff Good News Update

Senior Staff highlights included:

###### **Superintendent Lefebvre**

The Board of Directors of Skills Canada, Ontario awarded 7 (seven) \$500 scholarships to high schools students who earned a medal at the 2013 or 2014 Ontario Technological Skills Competition (OTSC). Alex Hoelzli, student from Notre Dame College School, Welland will be furthering his education at Niagara College in the Mechanical Engineering Technology (COOP) Program after winning gold in the Precision Machining Contest at the 2014 OTSC.

###### **Superintendent Farrell**

Matt Vinc, a graduate of Holy Cross Catholic Secondary School and currently a teacher at Denis Morris Catholic High School was a member of the gold medal Canadian Field Lacrosse Team this past summer at the International Field Lacrosse Championships in Colorado. The team defeated the United States in the final. The gold medal that Matt earned is in addition to the several National Lacrosse League championships and MVP awards that he has won as a member of the Rochester Knighthawks.

###### **Superintendent Forsyth-Sells**

On September 8, 2014 Niagara Catholic, students, staff and dignitaries held the ground breaking Ceremony at Lakeshore Catholic High School to officially begin the 5 (five) million dollar renovation and expansion of the school. Construction will take place at Lakeshore Catholic High School throughout the school and upon completion in September 2015 all students will be housed under one roof.

###### **Superintendent Vetrone**

During the last week of August, the Canadian Cycling Federation, governing board for all cyclists, amateur and professional granted Anna Tykoliz, Administrative Assistant, Niagara Catholic along with 9 (nine) other amateur Canadians the opportunity to represent Canada at the United Cyclist International World Cycling Road Race Championship in Ljubljana, Slovenia. Anna competed in the Individual Time Trial Race of 18.6 km. placing 6 (six) in her category with a total of 362 athletes, from 45 (forty-five) countries.



**Director Crocco**

Ryan Nieuwesteeg, a graduate of Saint Paul Catholic High School who is attending University of Guelph and playing for the Guelph Gryphons football team was voted the Ontario University Athletic Association's Special Team Player of the week for having 227 yards in kick returns including a (sixty-two) 62 yard touchdown.

**D. INFORMATION**

**1. Trustee Information**

**1.1 Spotlight on Niagara Catholic – June 17, 2014**

Director Crocco highlighted the Spotlight on Niagara Catholic – June 17, 2014 issue for Trustees information.

**1.2 Calendar of Events – September 2014**

Director Crocco presented the September 2014 Calendar of Events for Trustees information.

**1.3 Director's Letter to Students and Parents – September 2014**

Director Crocco presented a copy of the letter that was sent to Students and Parents for September 2014.

**1.4 Director's Letter to Staff – September 2014**

Director Crocco presented a copy of the letter that was emailed to all Niagara Catholic staff for September 2014.

**1.5 Niagara Foundation for Catholic Education Golf Tournament – September 17, 2014**

Director Crocco presented the Agenda and Registration form for the Niagara Foundation for Catholic Education Golf Tournament – September 17, 2014.

Trustees were asked to confirm their attendance with Kristine Murphy.

**1.6 Niagara Festival Grape Grande Parade – September 27, 2014**

Director Crocco informed the Board that Niagara Catholic will once again participate in the Niagara Wine Festival's Grande Parade on September 27, 2014. Three (3) Niagara Catholic Secondary Schools will participate with floats along with a Niagara Catholic float with student ambassadors representing all of our Catholic Elementary and Secondary Schools.

All Trustees were invited to walk in the annual parade with the Board float and asked to confirm their attendance with Kristine Murphy.

## **E. OTHER BUSINESS**

### **1. General Discussion to Plan for Future Action**

- 1.1** Director Crocco informed the Board of the new location for the Board's Fresh Start/Jump Start and alternative care program.

Director Crocco requested that the Board, endorse the recommendation of staff to name the new location the "*Pope Francis Centre*"

Moved by Trustee Nieuwesteeg

**THAT** the Niagara Catholic District School Board endorse the Director's recommendation to name the, location of the new pathway to care program, the "*Pope Francis Centre*".

**CARRIED**

## **F. BUSINESS IN CAMERA**

Moved by Trustee

**THAT** the Committee of the Whole move into the In Camera Session.

**CARRIED**

The Committee of the Whole moved into the In Camera Session of the Committee of the Whole Meeting at 8:54 p.m. and reconvened at 11:34 p.m.

## **G. REPORT ON THE IN-CAMERA SESSION**

Moved by Trustee O'Leary

**THAT** the Committee of the Whole report the motions from the In Camera Session of the Committee of the Whole Meeting of September 9, 2014.

**CARRIED**

### **SECTION A: STUDENT TRUSTEES INCLUDED**

Moved by Trustee MacNeil

**THAT** the Committee of the Whole approve the Minutes of the Committee of the Whole Meeting - In Camera Session (Section A: Student Trustees Included) held on June 10, 2014, as presented.

**CARRIED (Item F1)**

### **SECTION B: STUDENT TRUSTEES EXCLUDED**

Moved by Trustee MacNeil

**THAT** the Committee of the Whole approve the Minutes of the Committee of the Whole Meeting - In Camera Session (Section B: Student Trustees Excluded) held on June 10, 2014, as presented.

**CARRIED (Item F3)**

Moved by Trustee Nieuwesteeg

**THAT** the Niagara Catholic District School Board deny the recommendation as outlined in Item F4.1 of the In Camera Session (Section B: Student Trustees Excluded)

**CARRIED (Item F4.1)**

Moved by Trustee Sicoli

**THAT** the Niagara Catholic District School Board deny the recommendation as outlined in Item F4.2 of the In Camera Session (Section B: Student Trustees Excluded)

**CARRIED (Item F4.2)**

Moved by Trustee Sicoli

**THAT** the Niagara Catholic District School Board deny the recommendation as outlined in Item F4.3 of the In Camera Session (Section B: Student Trustees Excluded)

**CARRIED (Item F4.3)**

Moved by Trustee O'Leary

**THAT** the Niagara Catholic District School Board deny the recommendation as outlined in Item F4.4 of the In Camera Session (Section B: Student Trustees Excluded)

**CARRIED (Item F4.4)**

Moved by Chair Burtnik

**THAT** the Niagara Catholic District School Board deny the recommendation as outlined in Item F4.5 of the In Camera Session (Section B: Student Trustees Excluded)

**CARRIED (Item F4.5)**

Moved by Trustee Sicoli

**THAT** the Niagara Catholic District School Board deny the recommendation as outlined in Item F4.6 of the In Camera Session (Section B: Student Trustees Excluded)

**CARRIED (Item F4.6)**

Moved by Trustee O'Leary

**THAT** the Niagara Catholic District School Board deny the recommendation as outlined in Item F4.7 of the In Camera Session (Section B: Student Trustees Excluded)

**CARRIED (Item F4.7)**

Moved by Trustee Nieuwesteeg

**THAT** the Niagara Catholic District School Board deny the recommendation as outlined in Item F4.8 of the In Camera Session (Section B: Student Trustees Excluded)

**CARRIED (Item F4.8)**

Moved by Trustee Charbonneau

**THAT** the Niagara Catholic District School Board deny the recommendation as outlined in Item F4.9 of the In Camera Session (Section B: Student Trustees Excluded)

**CARRIED (Item F4.9)**



Moved by Chair Burtnik

**THAT** the Niagara Catholic District School Board deny the recommendation as outlined in Item F4.10 of the In Camera Session (Section B: Student Trustees Excluded)

**CARRIED (Item F4.10)**

Moved by Trustee Nieuwesteeg

**THAT** the Niagara Catholic District School Board deny the recommendation as outlined in Item F4.11 of the In Camera Session (Section B: Student Trustees Excluded)

**CARRIED (Item F4.11)**

## **H. ADJOURNMENT**

Moved by Trustee O'Leary

**THAT** the September 9, 2014 Committee of the Whole Meeting be adjourned.

**CARRIED**

This meeting was adjourned at 11:36 p.m.

---

---

Minutes of the Committee of the Whole Meeting of the Niagara Catholic District School Board held on **September 9, 2014.**

Approved on **October 14, 2014.**

---

Rhianon Burkholder  
Vice-Chair of the Board

---

John Crocco  
Director of Education/Secretary -Treasurer

**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: APPROVED MINUTES OF THE SPECIAL EDUCATION  
ADVISORY COMMITTEE (SEAC) MEETING OF  
JUNE 4, 2014**

---

**RECOMMENDATION**

**THAT** the Niagara Catholic District School Board receive the Approved Minutes of the Special Education Advisory Committee Meeting of June 4, 2014 as presented for information.



NIAGARA CATHOLIC  
DISTRICT SCHOOL BOARD

## MINUTES OF THE SPECIAL EDUCATION ADVISORY COMMITTEE MEETING WEDNESDAY, JUNE 4, 2014

Minutes of the Meeting of the Special Education Advisory Committee, held on Wednesday, June 4, 2014, at 7:00 p.m. in the Father Kenneth Burns csc Board Room, at the Catholic Education Centre, 427 Rice Road, Welland.

The meeting was called to order at 7:00 p.m. by Chair Racine.

### A. ROUTINE MATTERS

1. Opening Prayer

Opening Prayers were led by Chair Racine.

2. Roll Call

Members	Affiliations	Present	Excused	Absent
Anna Racine	The Tourette Syndrome Association of Ontario	✓		
Rob Lavorato	Down Syndrome Caring Parents (Niagara)	✓		
Connie Parry	Association for Bright Children	✓		
Kerry Thomas	Community Living-Welland/Pelham	✓		
Cyndi Gryp	Community Living-Grimsby, Lincoln & West Lincoln	✓		
Kim Rosati	VOICE for Hearing Impaired Children	✓		
Colleen Sword	Autism Ontario – Niagara Region Chapter	✓		
Jay Gemmell	John Howard Society of Niagara		✓	
Katie Muirhead	Ontario Brain Injury Association	✓		
Sarah Farrell	Learning Disabilities Association – Niagara	✓		
Bill Helmeczi	Pathstone Mental Health		✓	
<b>Trustees</b>				
Father Paul MacNeil			✓	
Maurice Charbonneau			✓	
Rhianon Burkholder		✓		
<b>Student Senate Representative</b>				
Leah Zahorchak				✓



The following staff were in attendance:

**John Crocco**, Director of Education; **Yolanda Baldasaro**, Superintendent of Education;  
**Danny DiLorenzo**, Principal, Secondary; **Tina DiFrancesco**, Recording Secretary

3. **Approval of the Agenda**

Moved by Katie Muirhead

Seconded by Connie Parry

**THAT** the Special Education Advisory Committee approve the Agenda of the Special Education Advisory Committee Meeting of June 4, 2014.

**CARRIED**

4. **Disclosure of Interest**

No Disclosures of Interest were declared with any items on the agenda.

5. **Approval of Minutes of the Special Education Advisory Committee Meeting of May 7, 2014**

Moved by Rob Lavorato

Seconded by Katie Muirhead

**THAT** the Special Education Advisory Committee approve the Minutes of the Special Education Advisory Committee Meeting of May 7, 2014 as presented.

**CARRIED**

## **B. PRESENTATIONS**

1. **Budget Presentation – Superintendent Vetrone**

Superintendent Vetrone presented information regarding Funding for Special Education. Data was provided relating to the 2014-2015 Grant Allocation, 2014-2015 Special Education Grant Allocation, Special Education Per Pupil Amount (SEPPA), High Needs Amount (HNA), Special Education Statistical Prediction Model (SESPM), Measure of Variability (MOV), Special Equipment Amount (SEA), Special Incidence Portion (SIP), Facilities Amount (FA), Behaviour Expertise Amount (BEA), 2014-2015 Allocation for Niagara Catholic District School Board and staff supported through Special Education. Questions were asked and answered during the presentation.

## **C. VISIONING**

1. **Goals and Vision for 2013/2014**

1.1 **Review and Approval of Completed Goals for Board Website**

The completed goals 2012-2013 were approved by the members and will be posted on the Board website.

## **D. BUSINESS ARISING FROM THE MINUTES OF THE MEETING OF MAY 7, 2014**

1. *Learner Advocacy*
2. *Parent Outreach*
3. *Program and Service Recommendations*
4. *Special Education Budget*
5. *Annual Review, Special Education Plan*
6. *Other Related Items*
  - 6.1 **Update on Niagara Catholic District School Board Protocol for Students Not Writing Exams**

Deferred to September meeting
7. *Policy Review*
  - 7.1 **Review Policies**

The *Reimbursement of Travel Expenses Policy* was presented. The deadline to respond is July 20, 2014. Chair Racine encouraged members to review the policy. Any comments can either be made individually or can be sent to the Chair and she will respond on behalf of the SEAC. The *Bullying Prevention and Intervention Policy* was presented. The deadline to respond is September 11, 2014.

## **E. SEAC REPORT**

### **1. Review and Approval of SEAC Insert for Catholic School Council Agenda**

Chair Racine handed out and reviewed the June SEAC insert which was sent to Principals to include in their Catholic School Council agenda.

A discussion was held about being more specific with the content of the report, as well as the possibility of providing follow up links to presentations so that parents can access further information.

### **2. Review and Approval of SEAC Insert for School Newsletters**

Chair Racine handed out and reviewed the SEAC insert which was sent to Principals to include in their June school newsletter.

## **F. AGENCY REPORTS**

### **1. VOICE for Hearing Impaired Children – Kim Rosati**

- Kim Rosati announced her resignation as a member of the SEAC and stated that it was her last meeting. Carol Baldinelli will replace Kim as the primary representative for September. A letter from VOICE for Hearing Impaired Children is forthcoming noting the change.

### **2. Down Syndrome Caring Parents (Niagara) – Rob Lavorato**

- DSCP Trivia Night will be held during Down Syndrome awareness week, the first week of November.
- DSCP AGM was held on May 30<sup>th</sup>.
- DSCP Picnic will be held in August; currently looking for venues.
- September 20<sup>th</sup> is the Down Syndrome Buddy Walk.
- The DSCP Christmas Party will be held the first week of December.

### **3. Community Living – Welland/Pelham – Kerry Thomas**

- The Special Education Class Teacher at Blessed Trinity and two Niagara Catholic students who attended the *RE: Action4Inclusion* conference have been selected as the recipients for the Inclusion Award. The Award Ceremony will be held at the Annual General Meeting on June 23<sup>rd</sup>.
- The Community Living Golf tournament will be held this Saturday.

### **4. Association for Bright Children – Connie Parry**

- There is a new chapter of ABC in Niagara.

### **5. Community Living – Grimsby, Lincoln and West Lincoln – Cyndi Gryp**

- Community Living's Annual General Meeting will be held in June.
- June 7<sup>th</sup> – *Walk for Inclusion* is being held at Charles Daley Park.
- Summer camps will be happening soon.

### **6. Autism Ontario – Colleen Sword**

- Evan's Ride was held on May 24<sup>th</sup> at J.W. Sheldrick Transport @ 2942 Thompson Avenue, Smithville.
- Friday, May 30<sup>th</sup> was the Annual Golf Tournament @ Rolling Meadows Golf Club and another Golf Tournament is being held on June 25 @ Rolling Meadows.
- Cycle for Autism is being held on Saturday June 21<sup>st</sup>, at Merritt Island, Welland. 2km, 5km & 10km courses are available.
- Gas for a year tickets are still available through the Autism Ontario Chapter Office.
- Internet safety was held last week.
- Teen Activity Week will be held August 11<sup>th</sup> – 15<sup>th</sup>.



- The 6 week summer camp programs happening in Welland, St. Catharines and Niagara Falls are all full.

7. *The Tourette Syndrome Association of Ontario – Anna Racine*

- Nil Report

8. *John Howard Society of Niagara – Jay Gemmell*

- Nil Report

9. *Ontario Brain Injury Association – Katie Muirhead*

- Members are encouraged to complete the PAAC on SEAC survey by June 13<sup>th</sup>. Data will be presented once the report is completed.
- June is Brain Injury Awareness month and events are happening.
- Wednesday, June 10<sup>th</sup> is the OBIA Mix and Mingle.
- June 21<sup>st</sup> - OBIA AGM will be held in Toronto.

10. *Learning Disabilities Association (Niagara) – Sarah Farrell*

- Spots are filling up very fast for our full-day summer SLAM program during the months of July and August this summer. At SLAM, children ages 6-12 (with a potential reading difficulty) spend half the day on engaging literacy activities and the other half on recreational activities. Children also spend one-on-one time with a facilitator on their individual literacy needs. The details for the program and application date have been posted on our website and the brochure has been attached to the minutes. St. Catharines is full but there are limited spots available in Niagara Falls and Welland!
- We will be running our 2<sup>nd</sup> Annual Trivia Night on Friday, June 6<sup>th</sup> from 6:30p.m. All proceeds will help support the programs and services offered to individuals with learning disabilities in our community. There will be pizza, prizes, cash bar, 50/50 draw. \$90 for a team of 6-8 and \$15 per person. Tables are full and we are looking forward to a fun night of Trivia.

11. *Pathstone Mental Health – Bill Helmeczi*

- Nil Report

## **G. STAFF REPORTS**

1. *Terry Antoniou –Principal, Elementary-*

- Nil Report

2. **Danny DiLorenzo – Principal, Secondary**

Holy Cross

- The countdown to exams is on! There are two camps in the Holy Cross Special Education class, those who agree to count 'today' and those who feel that since the school day has started it is subtracted from the count. We also are keeping a close eye on the Stanley Cup playoffs with an up to date blackboard tally. Our class was busy keeping track of the penny wars and just when we thought the staff had won a last minute donation put the grade 11's ahead in the tally and the Administration had to be in uniform.
- We have been busy weeding, trimming and planting in the Peace Garden in preparation for the annual eco-audit. Seaway Farms and Greenhouses donated flowers to brighten up the HC greenery and provided us with herbs for our Father's Day container garden sale. Come and check out our green thumbs. Our herb garden sale will take place the June 11th and 12th.

Denis Morris

- Another successful year in the Special Education Department is drawing to a close and many successful initiatives and best practices have taken place to support student achievement and "learning for all". We thank all teachers, Educational Assistants and Administration for ensuring that Individual Education Plans are authentic tools for providing all students with full access to the curriculum, the learning environment and the community. As we look towards next year, the IEP will include the Integrated Transition Planning Protocol which is an integrated transition plan for all students over the age of 14 who have a developmental disability. This transition plan ensures that the student is linked to community agencies and supports and that there is ongoing home-school-community collaboration to support our students as they transition into the community, the world of work and/or post-secondary educational opportunities.
- The Special Education Department continues to host transitions visits to ensure that all students feel safe and included in their new learning environment this Fall 2014. A transition video and virtual tour of the school is just being completed and will be placed on the Denis Morris website so that our future students can tour the school on-line and review their "safe-zones" and "go-to" people so that they feel supported and in control of their environment in September.
- The Special Education Department has also launched a new initiative called *Applied Behavioural Analysis in the Secondary Classroom*. This framework looks at "the communicative function" of our students' social-emotional needs, behavioural needs and cognitive intellectual needs in order for educators to respond with tiered interventions and supports. A presentation took place at the Niagara Catholic Education Centre on May 26, 2014 for Ministry Representatives, who praised the holistic approach to responding to student need.

Blessed Trinity

- As part of our Integrated Transition Planning, we are pleased to share several items:
  - This piece has been built into our Special Class IPRC meetings for students transitioning from Grade 8 to Grade 9;
  - Individuals from the Adult Day Program at Community Living joined us several times to participate in activities at the school – a great opportunity for our students to get to know adults they will spend time with in programs after they leave high school;



- Successful Co-Op placements for students at Community Living – these peers in turn brought information and ideas back to share in the classroom;
- Next year, we will partner with Community Living to provide opportunities to several of our students to take part in Supported Employment opportunities throughout the community;
- Planning is already in the works for September's Grade 9 Curriculum Night where parents with children in the Special Class will gather to share information with each other and the community partners who will be invited to attend.
- IPRC and Transition meetings with the elementary schools are almost complete and we have enjoyed hosting many students for tours of Blessed Trinity. Students who will enter the Special Education Class in September made several visits and feel quite comfortable.
- EQAO Math will take place on June 11<sup>th</sup> and 12<sup>th</sup>. Accommodations will be provided for students with IEP's.
- SEA Equipment has been inventoried and arrangements are being made to transfer the equipment from the elementary schools to Blessed Trinity at the end of August. We encourage students to continue the use of their equipment in order to capitalize on strategies that lead to independence.
- Blessed Trinity hosted the Special Education Spirit Day event on May 9<sup>th</sup> during Catholic Education Week with all eight high schools in attendance. The DRUM CAFÉ was an interactive performance that was once again truly enjoyed by everyone in attendance! Our thanks go out to Teachers, Educational Assistants, Peer Tutors and students from ALL schools for their active participation in the event! Thanks also go out to Blessed Trinity staff, administration and board personnel for all of their assistance and support.
- On Thursday, June 5<sup>th</sup> from 6:30-8:30p.m., the art works created by students in our Special Education Class will be displayed at the Young Artist Gallery at the Catholic Education Centre. They are looking forward to sharing the products they have worked hard on in the Comprehensive Arts Class – a new course to Blessed Trinity this year.

3. **Yolanda Baldasaro – Superintendent of Education**

- Superintendent Baldasaro presented a draft calendar of the proposed SEAC dates for 2014-2015 and made note of the adjustment to the April SEAC meeting which will take place on Wednesday, April 8, 2015 due to Holy Week the first week of April.
- Superintendent Baldasaro advised members that the Special Education Plan checklist will be submitted to the Ministry by July 31<sup>st</sup>. The Plan will be posted on the Board website at that time. The Special Education Plan Executive Summary 2014 was presented to the SEAC members outlining revisions. Copies of the plan will be provided to the members at the September meeting.
- The *Share our Story* pamphlet was handed out to the SEAC members. Superintendent Baldasaro informed the members that this brochure shows the distinctiveness of Catholic Education in Ontario and will be distributed to all staff, parishioners, Partners in Catholic Education and members of office.

4. **Colleen Atkinson – Coordinator Special Education**

- Nil Report



## **H. TRUSTEE REPORTS**

1. *Father Paul MacNeil – Trustee*

- Nil Report

2. *Maurice Charbonneau – Trustee*

- Nil Report

3. *Rhianon Burkholder – Trustee*

- Trustee Burkholder attended a debate today held at EL Crossley Secondary School. A Grade 12 Philosophy class invited trustees from the Catholic and public school board to debate the topic: ***Should religious education be funded?***
- Budget information was presented at the last meeting and it is anticipated that the annual budget will be approved at the June meeting.

## **I. STUDENT REPORT**

1. *Leah Zahorchak – Student Representative*

- Nil Report

## **J. NCPIC REPORT**

- The Niagara Catholic Parent Involvement Committee helped to sponsor the event, *Partners in Catholic Education* held on May 15<sup>th</sup>. Father Thomas Rosica was the guest speaker.

## **K. NEW BUSINESS**

1. *Learner Advocacy*

2. *Parent Outreach*

3. *Program and Service Recommendations*

4. *Special Education Budget*

5. *Annual Review, Special Education Plan*

## 6. Other Related Items

### 6.1 SEAC Representative on the Niagara Catholic Parent Involvement Committee (NCPIC)

Chair Racine asked if any SEAC member would be interested in the position of Parent Advocate (SEAC Representative) for the Niagara Catholic Parent Involvement Committee (NCPIC). NCPIC meetings are held in September, November, January, March and May, on the second Thursday of the month.

#### Election of Parent Advocate (SEAC Representative)

Moved by Colleen Sword

Seconded by Kerry Thomas

**THAT** Colleen Sword be nominated for the position of Parent Advocate (SEAC Representative) on the Niagara Catholic Parent Involvement Committee (NCPIC).

Colleen Sword accepted the nomination.

There were no further nominations forthcoming.

Colleen Sword was acclaimed as the Parent Advocate (SEAC Representative) on the Niagara Catholic Parent Involvement Committee (NCPIC).

### 6.2 Municipal, Provincial and Federal Election Administrative Procedures 2014

Superintendent Baldasaro handed out the Municipal, Provincial and Federal Election Administrative Procedures 2014 for information regarding expectations of all staff, Catholic School Councils, Niagara Catholic Parent Involvement Committee and the SEAC.

## 7. Policy Review

## L. CORRESPONDENCE

1. Superintendent Baldasaro informed the members that a letter was received from Minister Sandals in response to SEAC's letter to the Ministry pertaining to new teachers completing Special Education Part I as a mandatory qualification course prior to obtaining their Certificate of Qualification and Registration. A copy of this letter will be forwarded to all SEAC members.

## M. QUESTION PERIOD

1. A discussion was held regarding the agenda item, *Question Period*. Trustee Burkholder stated that formalized questions are to be submitted in writing prior to the meeting. Superintendent Baldasaro will clarify the process and bring back information in September.

## **N. NOTICES OF MOTION**

## **O. AGENDA ITEMS – DISCUSSION FOR FUTURE MEETINGS**

1. Possible CCAC Presentation
2. PAAC on SEAC Survey Results – Katie Muirhead

## **P. INFORMATION ITEMS**

1. Superintendent Baldasaro announced that Danny DiLorenzo has completed his term as the Secondary Principal Representative on the SEAC and Jim Whittard, Principal, Saint Michael High School will be his replacement. Superintendent Baldasaro thanked Mr. Di Lorenzo for his service stating that he was a wonderful voice for secondary.
2. Superintendent Baldasaro on behalf of Director Crocco and Trustees recognized and thanked Kim Rosati for her years of service on the SEAC as the VOICE representative, as well as her dedication representing students.
3. Chair Racine thanked Kim Rosati for her friendship and support on the SEAC.
4. Superintendent Baldasaro on behalf of Director Crocco, the Board of Trustees and Senior Administrative staff thanked everyone, expressed appreciation for all their support and wished everyone a restful summer.

## **Q. NEXT MEETING:**

*Wednesday, September 3, 2014 at 7:00p.m. at the Catholic Education Centre*

## **R. ADJOURNMENT**

Moved by Katie Muirhead  
Seconded by Rob Lavorato

**THAT** the June 4, 2014 meeting of the Special Education Advisory Committee be adjourned.  
**CARRIED**

This meeting was adjourned at 8:40p.m.

---

---



**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: APPROVED MINUTES OF THE NIAGARA CATHOLIC  
PARENT INVOLVEMENT COMMITTEE (NCPIC) MEETING  
OF MAY 8, 2014**

---

**RECOMMENDATION**

**THAT** the Niagara Catholic District School Board receive the Approved Minutes of the Niagara Catholic Parent Involvement Committee Meeting of May 8, 2014 as presented for information.



NIAGARA CATHOLIC  
DISTRICT SCHOOL BOARD

**APPROVED MINUTES OF THE  
NIAGARA CATHOLIC PARENT INVOLVEMENT COMMITTEE MEETING**

**THURSDAY, MAY 8, 2014**

Minutes of the Meeting of the Niagara Catholic Parent Involvement Committee, held on Thursday, May 8, 2014, at 7:00 p.m. in the Father Kenneth Burns csc Board Room, at the Catholic Education Centre, 427 Rice Road, Welland, ON.

The meeting was called to order at 7:25 p.m. by Chair Daly as discussion occurred prior to the beginning of the meeting about meeting procedures.

**A. ROUTINE MATTERS**

**1. Opening Prayer**

The opening prayer was led by Terri Pauco.

**2. Roll Call**

Nominees in attendance: Alexandria Attree, Jen Beauregard, Kim Hedden and Rebecca Kamin

<b>Parent Members</b>	<b>Affiliations</b>	<b>Present</b>	<b>Excused</b>	<b>Absent</b>
Antoinette Bortolon	Niagara Falls/Niagara-on-the-Lake	√		
Mary Mannella-Byers	Niagara Falls/Niagara-on-the-Lake		√	
Shawn O'Brien	Niagara Falls/Niagara-on-the-Lake	√		
Marion Battersby	St. Catharines	√		
Rocco Di Matteo	St. Catharines	√		
Lisa Finley	St. Catharines	√	Arrived at 7:50 p.m.	
Sharon Goossen	Welland	√		
Diane O'Donnell	Welland	√		
Heather Pyke	Fort Erie/Port Colborne/Wainfleet	√		
Shonna Daly	Grimsby/Lincoln/West Lincoln/Pelham	√		
<b>Trustees</b>				
Linda Marie O'Hagan	Community Representative	√		
Anna Racine	SEAC Representative		√	
Fr. Peter Rowe	Bishop/Diocesan Representative		√	
Aidan Harold	Student Senate	√		
Kathy Burtnik	Chair of the Board	√		
Rhianon Burkholder	Vice Chair of the Board		√	

The following staff was in attendance:

Superintendent Forsyth-Sells; Theo Dagenais, Elementary Principal Representative; Terri Pauco, Religion and Family Life Consultant and Teacher Representative; Josie Rocca, Support Staff Representative and Yvonne Anderson, Recording Secretary.

Regrets sent: Jeff Smith, Secondary Principal

**3. Approval of the Agenda**

Moved by: Marion Battersby

Seconded by: Heather Pyke

**THAT** the Niagara Catholic Parent Involvement Committee approve the agenda of the Niagara Catholic Parent Involvement Committee Meeting of May 8, 2014 as amended to move the 2013-2014 advertised vacancies to Section A of the agenda.

**CARRIED**

**4. 2013-2014 Advertised Vacancies for Niagara Falls/ NOTL and St. Catharines**

Superintendent, Forsyth-Sells provided the information that four (4) nominations were received for the two (2) advertised vacancies for Niagara Falls/NOTL and for St. Catharines.

Shawn O'Brien interrupted Superintendent Forsyth-Sells and announced Mary-Jo Au as a fifth candidate.

Superintendent, Forsyth-Sells reviewed the nomination process. Shawn O'Brien interjected during the review and at 7:20 p.m. Chair Daly called Shawn O'Brien out of order and asked that he wait until he was acknowledged by the Chair before he addressed the members.

Shawn O'Brien announced again that Mary-Jo Au was a fifth candidate.

Chair Daly reminded the committee that only four (4) nomination forms were received for the advertised vacancies.

Shawn O'Brien responded stating that Mary-Jo should not have to fill out a nomination form and should be considered from the November pool of candidates.

Chair Daly stated that a nomination form had not been received from Mary-Jo Au.

Shawn O'Brien responded that a nomination form should not be required as Mary-Jo should be considered as a past member and began to read an e-mail.

Chair Daly requested that Shawn O'Brien refrain from reading the e-mail that was not addressed to him or written by him as it was private and confidential.



Shawn O'Brien ignored Chair Daly's request to stop reading the e-mail and was called out of order for the second time at 7:26 p.m. Chair Daly also stated that this would be his final warning and he would be asked to leave if there was another out of order comment.

Chair Daly introduced the four (4) nominees:

- Niagara Falls/NOTL: Alexandria Attree, Jen Beauregard and Rebecca Kamin
- St. Catharines: Kimberly Hedden

#### **MOTION**

Moved by: Chair Daly

Seconded by: Antoinette Bartolon

**THAT** the Niagara Catholic Parent Involvement Committee appoint all four (4) nominees to the Niagara Catholic Parent Involvement Committee for the duration of the 2013-2014 NCPIC membership as two (2) parent representatives and two (2) community representatives.

#### **CARRIED**

#### 5. Commissioning of New Parent Members

Terri Pauco performed the Commissioning of the new NCPIC members.

#### 6. Disclosure of Interest

No Disclosures of Interest were declared with any items on the agenda.

#### 7. Approval of Minutes of the Niagara Catholic Parent Involvement Committee Meeting of March 20, 2014

Moved by: Heather Pyke

Seconded by: Marion Battersby

**THAT** the Niagara Catholic Parent Involvement Committee approve the Minutes of the Niagara Catholic Parent Involvement Committee Meeting of March 20, 2014 as presented.

#### **CARRIED**

Due to another interruption at 8:00 p.m. Chair Daly requested that Mr. O'Brien remove himself from the NCPIC meeting of May 8, 2014 for engaging in conduct contrary to the NCPIC Policy and By-Laws Code of Ethics and conduct injurious to the moral tone of the Niagara Catholic Parent Involvement Committee.

Mr. O'Brien exited the meeting at 8:00 p.m.

## **B. SUBCOMMITTEE REPORTS**

### 1. **FAITH FORMATION**-*Josie Rocca*

The "Faith in Family Night" held on March 27, 2014 at Saint Michael Catholic High School was enjoyed by all in attendance and positive feedback was received from parents/guardians and participants.

**2. POLICY- Shonna Daly**

The following Policies and Administrative Guidelines are currently being vetted:

- Criminal Background Check – Safe Schools (302.6.7)
- Use of Corporate Logo Policy (New)

**3. PRO GRANT- Heather Pyke**

- The video-taping section of the PRO Grant has been completed and a few short clips were presented to the committee.
- The Directory to accompany the video will be complete by the May 23, 2014 and will be sent out for vetting.

Heather Pyke presented the proposed 2014-2015 PRO Grant Application titled “Time to Pray, Time to Play” for consideration by the committee.

**MOTION**

Moved by: Heather Pyke

Seconded by: Rocco DiMatteo

THAT the Niagara Catholic Parent Involvement Committee approve the 2014-2015 PRO Grant application.

CARRIED

**C. BUSINESS ARISING FROM THE MINUTES OF THE NCPIC MEETING OF MARCH 20, 2014**

1. **Ministry Invitation: 5<sup>th</sup> Annual PIC Symposium April 25 to 26, 2014 in Toronto**  
Chair Daly and Marion Battersby attended the 5<sup>th</sup> Annual PIC Symposium on April 25-26, 2014 in Toronto.

**D. REPORT FROM THE DIRECTOR’S DESIGNATE SUPERINTENDENT OF EDUCATION**

1. **Ministry of Education Achieving Excellence : A Renewed Vision for Education in Ontario**  
Superintendent Forsyth-Sells reviewed the contents and provided a copy to all NCPIC members.
2. **OCSTA:** Superintendent Forsyth-Sells congratulated Kathy Burtnik on being acclaimed as president of the Ontario Catholic Schools Trustee Association (OCSTA), and that Bob Schreuder, trustee for the Renfrew County Catholic District School Board was elected vice-president.
3. **2014-2015 NCPIC PRO Grant Application Process**  
Applications for Parents Reaching Out (PRO) Grants program for Catholic School Councils and the Parent Involvement Committees are due to the Ministry no later than Friday, May 16, 2014.



**4. Partners in Catholic Education**

Superintendent Forsyth-Sells extended an invitation to all NCPIC members to attend the Partners in Catholic Education Dinner being held at John Michaels Hall in Thorold, ON, on May 15, 2014 at 5:30 p.m. with Fr. Rosica as guest speaker from Salt and Light television.

**5. 2014-2015 NCPIC Membership**

Superintendent Forsyth-Sells presented the 2014-2015 NCPIC Election Package and stated that the Nomination and Self-Nomination Forms will be sent to all elementary and secondary schools and posted on the Board website by September 2014. Superintendent Forsyth-Sells advised that eleven (11) positions will be advertised for the 2014-2015 Niagara Catholic Parent Involvement Committee Membership. Superintendent Forsyth-Sells invited current NCPIC parent members with a one (1) year term to complete a self-nominations form and submit their application no later than 4:00 p.m. EST., on Friday, October 31, 2014.

Niagara Falls/Niagara-on-the-Lake	2 positions	Parent/Guardian Representatives
St. Catharines	2 positions	Parent/Guardian Representatives
Welland	1 positions	Parent/Guardian Representatives
Fort Erie/Port Colborne/Wainfleet	2 positions	Parent/Guardian Representatives
Thorold/Merritton	2 positions	Parent/Guardian Representatives
Grimsby/Lincoln/West Lincoln/Pelham	2 positions	Parent/Guardian Representatives

**6. NCPIC Meeting Dates 2014-2015**

Regular Meeting Dates are held at the Catholic Education Centre at 7:00 p.m.	
Meeting #1	September 11, 2014
Meeting #2	November 13, 2014
Meeting #3	January 8, 2015
Meeting #4	March 26, 2015
Meeting #5	May 7, 2015

**7. Financial Report**

- A financial statement was provided for information.

**MOTION**

Moved by: Rocco DiMatteo

Seconded by: Lisa Finley

THAT the NCPIC meeting of May 9, 2014 be extended to complete items on the agenda.

**CARRIED**

**E. COMMUNITY REPORT-Linda Marie O'Hagan**

- The St. Catharines Diocese Council of Development and Peace has nominated Niagara Catholic for the Development and Peace Member Recognition for their involvement and devotion to the mission of Development and Peace.
- The CWL Annual Convention will take place on May 27 and 28, 2014.
- The Ontario Provincial Convention will be held on July 6 to 9, 2014 in Cobourg, ON.



**F. SEAC REPORT-*Anna Racine***

- Nil Report

**G. OAPCE REPORT-*Heather Pyke***

- The 75<sup>th</sup> Anniversary OAPCE Conference and AGM titled “Parental Influence on Student Well-Being and Catholic Education” will be held at Philip Pocock Catholic Secondary School in Mississauga, ON, Saturday, May 24, 2014.

**MOTION**

Moved by: Heather Pyke

Seconded by: Lisa Finley

**THAT** the NCPIC approve the use of NCPIC funds for the registration fees of a “Buddy” to accompany an OAPCE Representative from Niagara Catholic, Catholic School Councils attending the 75<sup>th</sup> Anniversary OAPCE Conference and AGM Saturday, May 24, 2014.

**CARRIED**

**H. BISHOP/DIOCESAN REPORT-*Fr. Peter Rowe***

- Nil Report

**I. STUDENT SENATE REPORT-*Aiden Harold***

- The Student Senate hosted a Student Leadership Symposium today, May 8, 2014 for all new and returning elementary and secondary student councils in Niagara Catholic.
- Olivia Mete and Michael Solomon were elected as Co-Chairs of the Elementary Student Senate and Chloe Demizio and Jessica DiPasquale were elected as Student Trustees and Co-Chairs of the Secondary Student Senate for the 2014-2015 school year.
- The Senate will be awarding two \$500 scholarships to two (2) graduating students at the graduation celebration on May 15, 2014 at the Scotiabank Centre.

**J. STAFF REPORTS**

An update was provided about the exciting events taking place throughout Niagara Catholic elementary and secondary schools during Catholic Education Week focusing on the celebration of our faith.

**K. TRUSTEE REPORTS**

1. *Kathy Burtnik, Chair of the Board*

- Niagara Catholic is currently focused on the closing of the 2013-2014 school year and the opening of the 2014-2015 school.
- St. Thomas More Catholic Elementary School students will amalgamate into Our Lady of Mount Carmel Catholic Elementary School and Michael J. Brennan Catholic Elementary School students will amalgamate into St. Ann and St. James Catholic Elementary Schools.
- Friday, May 9, 2014, Niagara Catholic will host the Distinguished Alumni Luncheon.
- Provincial Elections will take place on June 12, 2014 and Municipal Elections will occur on October 27, 2014.

- Niagara Catholic graduating students requested a message from the Holy Father. Pope Francis responded with a message entitled “Carry forth the story of Christ”.

2. **Rhianon Burkholder, Vice Chair of the Board**

- Nil Report

**L. PRESENTATIONS AND GOOD NEWS**

Notre Dame College School hosted a presentation for parents/guardians on “Prescription Drugs”.

**M. NEW BUSINESS**

- Terri Pauco presented a Niagara Catholic Symposium-Supporting Student Learning, Equity and Well-Being proposal to the NCPIC.

**MOTION**

Moved by: Heather Pyke

Seconded by: Alexandria Attree

THAT the NCPIC support the proposed Niagara Catholic Symposium-Supporting Student Learning, Equity and Well-Being as presented and that a NCPIC parent representative would sit on the Committee.

**CARRIED**

Alexandria Attree expressed an interest in representing the NCPIC on Niagara Catholic Symposium-Supporting Student Learning, Equity and Well-Being Committee.

**N. AGENDA ITEMS – DISCUSSION FOR FUTURE MEETINGS**

**O. NEXT MEETING:**

Thursday, September 11, 2014 at 7:00 p.m. at the Catholic Education Centre

**P. CLOSING PRAYER**

- Closing Prayer was led by Terri Pauco.

**Q. ADJOURNMENT**

Moved by: Kim Hedden

Seconded by: Marion Battersby

THAT the May 8, 2014 meeting of the Niagara Catholic Parent Involvement Committee be adjourned.

**CARRIED**

This meeting was adjourned at 9:28 p.m.

---

**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: NIAGARA CATHOLIC STRATEGIC DIRECTION PRIORITY  
INDICTORS 2013-2014 ACHIEVEMENT**

---

The Niagara Catholic Strategic Direction Priority Indictors 2013-2014 Achievement report is presented for information.

---

Prepared by: Senior Administrative Council

Presented by: John Crocco, Director of Education/Secretary-Treasurer

Approved by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014





## **REPORT TO THE BOARD MEETING SEPTEMBER 23, 2014**

### **NIAGARA CATHOLIC STRATEGIC DIRECTIONS SYSTEM PRIORITIES 2013-2014 - ACHIEVEMENT REPORT**

---

---

#### **BACKGROUND INFORMATION**

At the May 28, 2013 meeting of the Niagara Catholic District School Board, the following motion was approved;

*THAT the Niagara Catholic District School Board approve the Niagara Catholic Strategic Directions System Priorities 2013-2014, as presented. (Appendix A)*

The Niagara Catholic System Priorities 2013-2014 were designed to provide the annual focus for the system towards achieving the outcomes of the Niagara Catholic Vision 2020 Strategic Plan. Within the two (2) Strategic Directions and the seven (7) Enabling Strategies are the approved system priorities which provide the specific framework to measure the achievement of each direction and strategy within a specific school year.

The Board approved System Priorities 2013-2014 were posted on the Niagara Catholic website and copies were provided to all Principals, Vice-Principals, staff, Bishop Bergie, Special Education Advisory Committee (SEAC), Catholic School Council Chairs and the Niagara Catholic Parent Involvement Committee (NCPIC). In addition, a poster size copy of the Niagara Catholic System Priorities 2013-2014 were placed in public locations in all schools, Board sites and the Catholic Education Centre for review by students, staff, parents and guests to Niagara Catholic.

With the conclusion of the 2013-2014 academic year, members of Senior Administrative Council and Board staff collated, analyzed and reviewed all measurements and data gathered for the 2013-2014 school year and completed its review of the progress in achieving the System Priorities within each Strategic Direction and Enabling Strategy of the Board's Vision 2020 Strategic Plan.

Attached to this report (Appendix B) is a copy of the Niagara Catholic System Priorities 2013-2014 Achievement Report. Within each Strategic Direction and Enabling Strategy is the indicator of success and comments on the measurables to determine the achievement of either "Completed" or "In Progress 2014-2015". A copy of this final report will be provided to all Principals, Vice-Principals, Bishop Bergie, Special Education Advisory Committee (SEAC), Catholic School Council Chairs, Niagara Catholic Parent Involvement Committee (NCPIC) and posted on our Board website.

Senior Administrative Council is proud of the overall achievement of the 2013-2014 System Priorities as approved by the Board. Senior Staff complements Niagara Catholic students and staff for the high level of achievement and continued improvement throughout 2013-2014.

As we begin a new school year, the Niagara Catholic Vision 2020 Strategic Plan, the Board approved Strategic Directions System Priorities and Annual Budget for 2014-2015 along with the Board and School Improvement Plans are aligned to continue our focus on achieving the Vision Statements and Strategic Directions of the Niagara Catholic Vision 2020 Strategic Plan.

Senior Administrative Council will provide a mid-year review of the achievement of the System Priorities for the 2014-2015 academic year at the January 2015 Board Meeting and a final report for the 2014-2015 academic year at the September 2015 Board Meeting.

*Attached*

Appendix A Niagara Catholic Strategic Directions System Priorities 2013-2014

Appendix B Niagara Catholic Strategic Directions System Priorities 2013-2014 Achievement Report

The Niagara Catholic Strategic Direction System Priorities 2013-2014 - Achievement Report  
is presented for information.

---

Prepared by: Senior Administrative Council

Presented by: John Crocco, Director of Education/Secretary-Treasurer

Approved by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014



**NIAGARA CATHOLIC STRATEGIC DIRECTIONS  
SYSTEM PRIORITIES 2013-2014**

***STRATEGIC DIRECTIONS***

***Build Strong Catholic Identity and Community to Nurture the Distinctiveness of Catholic Education***

- To enhance our distinctive Catholic educational system by implementing the second year of the Niagara Catholic Faith Formation program, *Growing in Wisdom to Worship and Witness*.
- To conduct a Niagara Catholic elementary and secondary Student Conference 2014 focusing on the theme of *Growing in Wisdom to Worship*.
- To enhance social justice experiences and global citizenship for elementary and secondary students and staff through local, national and international experiences.

***Advance Student Achievement for All***

- To support all students who are six years of age in the development of literacy skills, particularly in learning to read.
- To consolidate an inquiry based model of teaching and learning in all elementary and secondary schools.
- To enhance language acquisition for elementary and secondary students through the expansion of French Immersion at designated sites and specific international languages to meet the needs of students.
- To implement a Niagara Catholic High Performance Academic Support Program for identified students which supports their training, competition and academic pathway with the excellence of Catholic education.
- To implement a Niagara Catholic Alternative Education Secondary School to provide alternative Catholic education to students through a variety of individualized programming models to achieve student success.
- To support the system implementation of the Ministry of Education “Growing Success Assessment, Evaluation and Reporting in Ontario Schools” and the Niagara Catholic Assessment, Evaluation Reporting and Homework Policy for all schools in the Board.
- To advance student achievement with Ministry of Education, Board and School teaching and learning initiatives on the Provincial EQAO Primary and Junior Assessments, the EQAO Secondary Mathematics Assessment, the Ontario Secondary School Literacy Test (OSSLT) and classroom assessments to close the achievement gap for all students.
- To design specific initiatives to exceed the provincial target of 85% graduation rate of 2013-2014 Grade 12 students.
- To advance student achievement, through the development and implementation of the Board Improvement Plan for Student Achievement (BIPSA), and School Improvement Plans (SIP), for every elementary and secondary school focusing on the pillars of Catholic Faith, Community and Culture, Literacy, Numeracy, and Pathways in all schools.



## ***ENABLING STRATEGIES***

### ***Provide Supports for Success***

- To conduct a review of the Niagara Catholic Special Education Delivery Model to continue to ensure that all students who are most in need receive timely and appropriate supports.
- To implement the Mental Health and Addictions Nurses program in cooperation with the Hamilton Niagara Haldimand Brant Community Care Access Centre to address the need for increased supports for child and youth mental health.
- To facilitate training and certification opportunities for Board and school personnel in the area of suicide awareness and prevention as part of the Niagara Catholic Mental Health and Addictions Plan.
- To promote and design programs and supports for healthy lifestyles of students and staff.

### ***Enhance Technology for Optimal Learning***

- To implement the second year of the digital transformation of the Board approved Niagara Catholic Blueprint for Technology Plan.
- To deploy system coaches to train and mentor staff on new technology and software to improve student achievement.
- To enhance software and hardware technology resources for the delivery of special education programs and services in all schools.
- To research and select a student achievement software program.
- To upgrade the technology infrastructure at the Niagara Catholic Data Centre.
- To design and implement a Technology Training Program for all staff.
- To design and implement a Niagara Catholic Technology Team that will install and repair technology hardware in all schools and Board sites.

### ***Building Partnerships and Schools as Hubs***

- To build capacity with Trustees, the Diocese of St. Catharines, Parishes, administrators, staff, Student Senate, Special Education Advisory Committee, Niagara Catholic Parent Involvement Committee, Catholic School Councils and parents/guardians by providing current information and regular opportunities for continued dialogue on Catholic education for all students in the Niagara Catholic District School Board.
- To develop and implement programs through the engagement of community groups and the community use of schools program to address the needs of children and families including nutrition, physical activity and literacy.
- To expand educational-based research projects in the Board, by sharing current research and by extending research partnerships with outside agencies.

### ***Strengthen Human Resource Practices and Develop Transformational Leadership***

- To develop and implement the third year of the Niagara Catholic Human Resources Certificate Program for all Principals, Vice-Principals and Senior Administrators.
- To develop a web-based application which will provide elementary and secondary student enrolment to be accessed in real time.
- To develop Administrative Guidelines for the hiring and selection process of non-teaching staff in alignment with the Employee Hiring and Selection Policy.

### ***Create Equity and Accessibility of Resources***

- To monitor and address the compliance requirements that support the removal of barriers to individuals with disabilities in Board facilities as identified in the 2012-2017 Niagara Catholic Accessibility Plan and the Integrated Accessibility Standards Regulation.

- To implement the strategies supporting equity, diversity and accessibility as identified under Catholic Faith, Community and Culture within the 2013-2014 Board Improvement Plan for Student Achievement.

#### ***Ensure Responsible Fiscal and Operational Management***

- To comply with Ministry of Education requirements for fiscal financial management by presenting to the Board a balanced budget for 2013-2014.
- To consolidate key risks and mitigate budget factors into a single risk plan in connection with the annual budget for 2013-2014.
- To establish an integrated decision-making structure that supports responsive and responsible allocation of Ministry of Education resources.
- To foster a strong accountability framework that effectively aligns resources to support learning initiatives for all.
- To design a process to provide timely, relevant and reliable financial information that supports effective decision-making at both the school and system level.
- To achieve the goal of 100% certification of all elementary and secondary schools in the Provincial EcoSchool Program.
- To initiate a comprehensive plan for school ground greening initiatives in all elementary and secondary schools as part of our Green Niagara Catholic Program.
- To develop and implement a Niagara Catholic Energy Saving Program to reduce energy consumption as part of our Green Niagara Catholic Program.
- To design a revised Emergency Response Plan for all schools and Board sites.

#### ***Address Changing Demographics***

- To monitor, report and make recommendations through stakeholder consultation, a comprehensive plan which incorporates changing enrolment, school capacity, attendance area boundaries and accommodation data by June 2014.

**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: REPORT ON EDUCATION QUALITY AND  
ACCOUNTABILITY OFFICE (EQAO) PRIMARY AND  
JUNIOR ASSESSMENTS OF READING, WRITING AND  
MATHEMATICS**

---

The Education Quality and Accountability Office (EQAO) Primary and Junior Assessments of Reading, Writing and Mathematics report is presented for information.

---

Prepared by: Lee Ann Forsyth-Sells, Superintendent of Education  
Christine Battagli, Consultant-Research, Assessment, Evaluation and Reporting

Presented by: Lee Ann Forsyth-Sells, Superintendent of Education

Approved by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014





NIAGARA CATHOLIC  
DISTRICT SCHOOL BOARD

## REPORT TO THE BOARD MEETING SEPTEMBER 23, 2014

### REPORT ON EDUCATION QUALITY AND ACCOUNTABILITY OFFICE (EQAO) PRIMARY AND JUNIOR ASSESSMENTS OF READING, WRITING AND MATHEMATICS

---

---

#### BACKGROUND INFORMATION

On September 17, 2014, EQAO released the school and Board level EQAO results of the 2013-2014 Primary and Junior Assessments of Reading, Writing and Mathematics. Niagara Catholic continues to celebrate student success on provincial assessments with improved student achievement in the areas of literacy and numeracy and closing the gaps in student achievement for all students in the Niagara Catholic District School Board.

Senior Administrative Council, Principals, Vice-Principals, teaching and support staff continue to work collaboratively to improve the achievement of each student by ensuring that individual needs are being met in the classroom.

The Board Improvement Plan for Student Achievement (BIPSA) provides the foundation for School Improvement Plans (SIPs) focusing on the improvement of student achievement in the four areas of Catholic Faith, Community and Culture, Literacy, Numeracy and Pathways.

This Board report provides the following information:

- Primary Assessment Results: Reading, Writing and Mathematics
- Junior Assessment Results: Reading, Writing and Mathematics
- Cohort Data: Grade 3 in 2011 and Grade 6 in 2014

Analysis of the results will continue at the Board and school levels for contextual information to support the improvement of student achievement of all students in the Board.

The Individual Student Reports will be distributed to schools to send home to parents/guardians to support the improvement of student achievement.

Elementary schools will post EQAO results on their school websites.

The Education Quality and Accountability Office (EQAO) Primary and Junior Assessments of Reading, Writing and Mathematics report is presented for information.

---

---

Prepared by:	Lee Ann Forsyth-Sells, Superintendent of Education Christine Battagli, Consultant-Research, Assessment, Evaluation and Reporting
Presented by:	Lee Ann Forsyth-Sells, Superintendent of Education
Approved by:	John Crocco, Director of Education/Secretary-Treasurer
Date:	September 23, 2014

***EQAO 2013 – 2014***  
**Primary Division (Grades 1 to 3)**  
***Assessments of Reading, Writing and Mathematics***

**Results for All Students - % of Students at Level 3 or Above**

<b>2013 - 2014</b>	<b>Reading (%)</b>	<b>Writing (%)</b>	<b>Mathematics (%)</b>
Niagara Catholic	74	87	71
Province	70	78	67
% Difference: NCDSB and Province	+4	+9	+4

<b>2012 - 2013</b>	<b>Reading (%)</b>	<b>Writing (%)</b>	<b>Mathematics (%)</b>
Niagara Catholic	72	84	71
Province	68	77	67

**5 Year Trends - % increase/decrease**

<b>5 Year Trend</b>	<b>Reading (%)</b>	<b>Writing (%)</b>	<b>Mathematics (%)</b>
Niagara Catholic	+3	+6	-10
Province	+8	+8	-4

**Results Based on Gender**

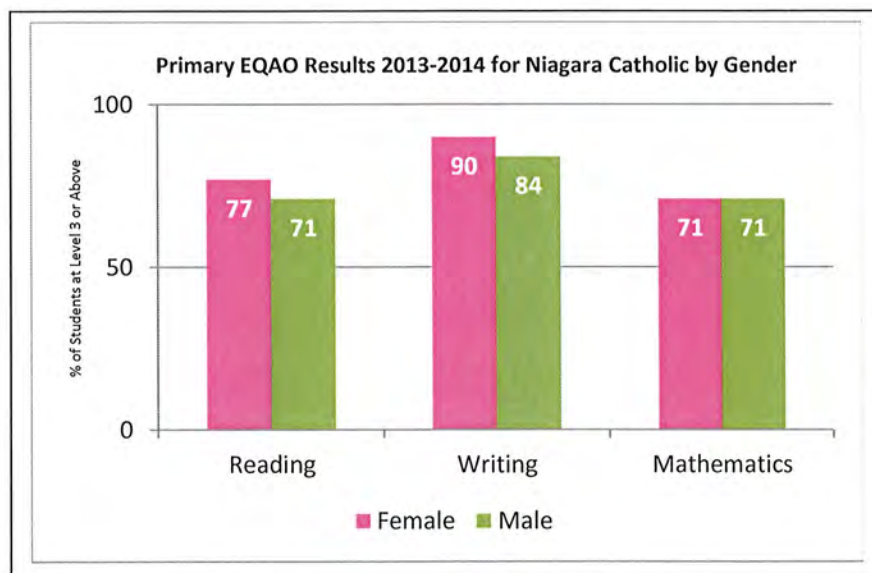
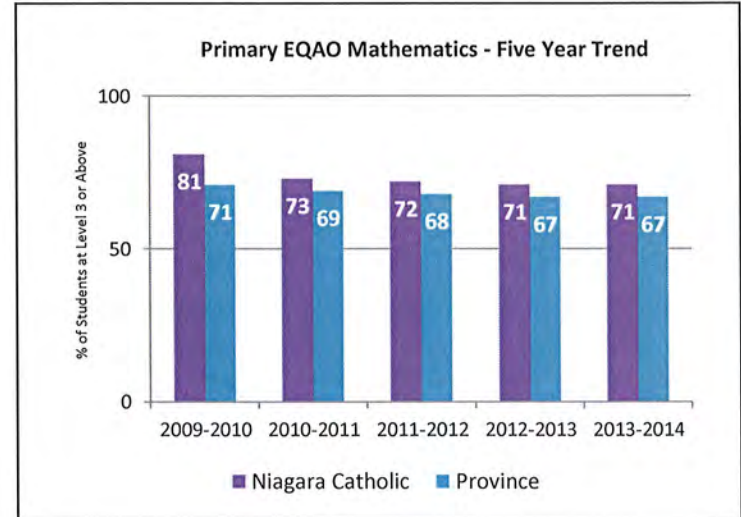
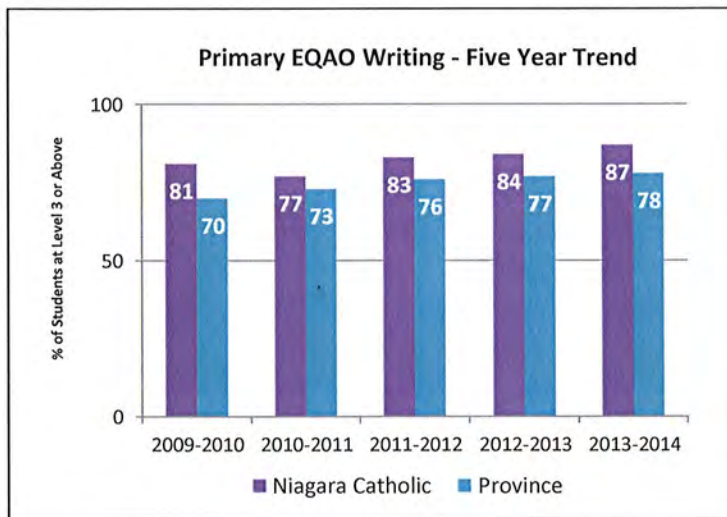
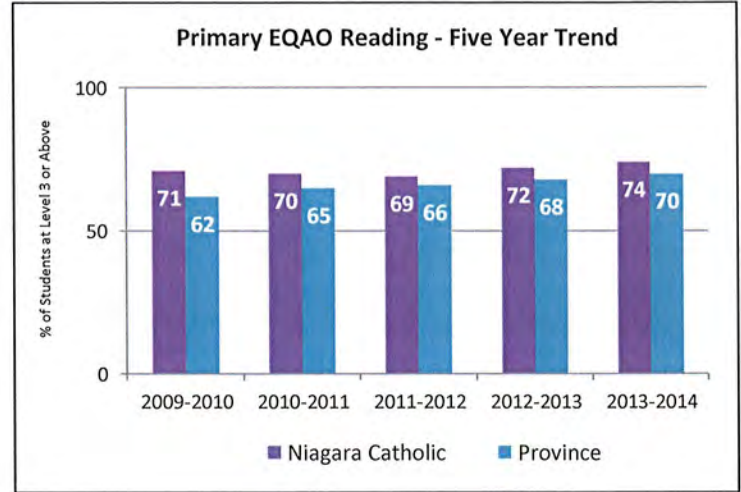
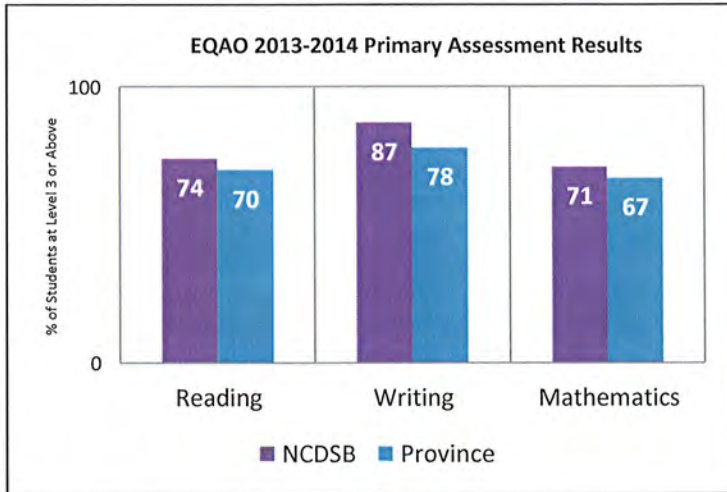
<b>2013 - 2014</b>	<b>Reading (%)</b>	<b>Writing (%)</b>	<b>Mathematics (%)</b>
Male NCDSB	71	84	71
Female NCDSB	77	90	71

**Exemption Rates 2013-2014**

<b>2013-2014</b>	<b>Reading (%)</b>	<b>Writing (%)</b>	<b>Mathematics (%)</b>
Niagara Catholic	1	1	1
Province	2	2	2



# EQAO Primary Assessment Results 2013-2014





***EQAO 2013 – 2014***  
***Junior Division (Grades 4 to 6)***  
***Assessments of Reading, Writing and Mathematics***

**Results for All Students - % of Students at Level 3 or Above**

<b>2013 - 2014</b>	<b>Reading (%)</b>	<b>Writing (%)</b>	<b>Mathematics (%)</b>
Niagara Catholic	82	84	58
Province	79	78	54
% Difference: NCDSB and Province	+3	+6	+4

<b>2012 - 2013</b>	<b>Reading (%)</b>	<b>Writing (%)</b>	<b>Mathematics (%)</b>
Niagara Catholic	83	86	65
Province	77	76	57

**5 Year Trends - % increase/decrease**

<b>5 Year Trend</b>	<b>Reading (%)</b>	<b>Writing (%)</b>	<b>Mathematics (%)</b>
Niagara Catholic	+9	+8	-9
Province	+7	+8	-7

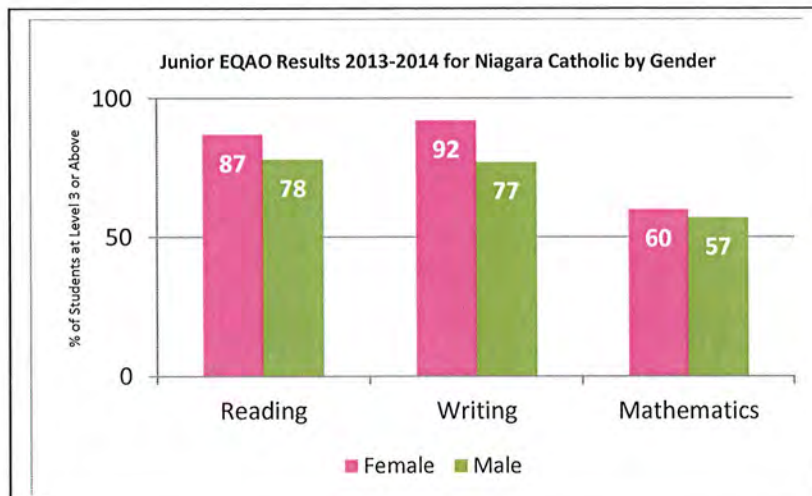
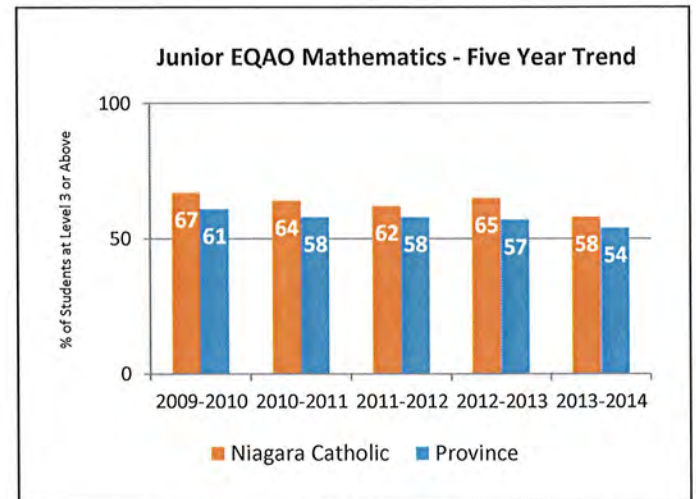
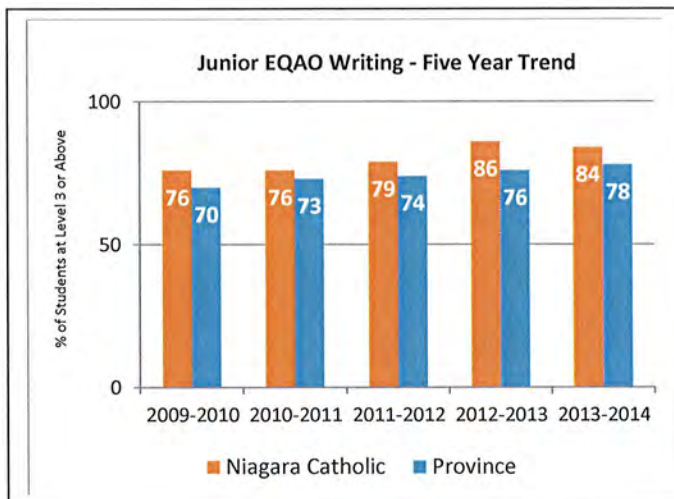
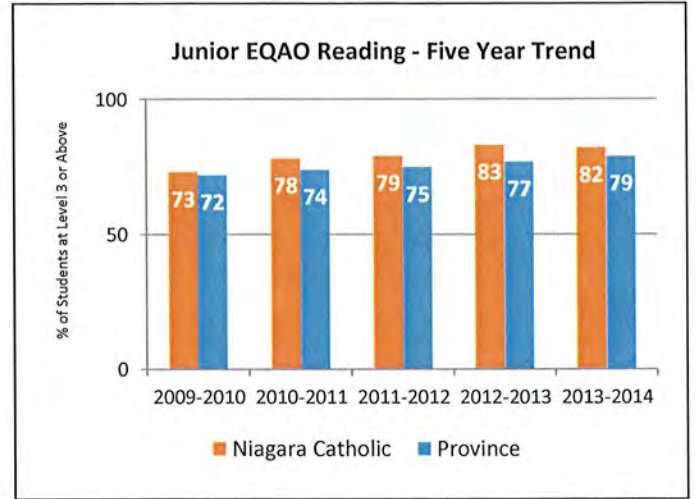
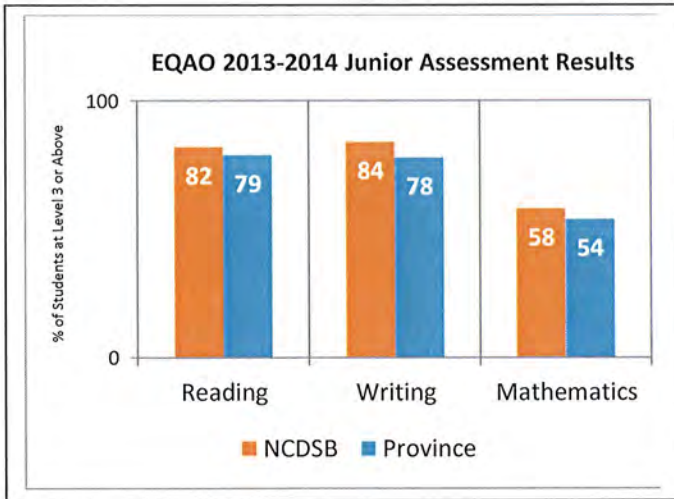
**Results Based on Gender**

<b>2013 - 2014</b>	<b>Reading (%)</b>	<b>Writing (%)</b>	<b>Mathematics (%)</b>
Male NCDSB	78	77	57
Female NCDSB	87	92	60

**Exemption Rates**

<b>2013 - 2014</b>	<b>Reading (%)</b>	<b>Writing (%)</b>	<b>Mathematics (%)</b>
Niagara Catholic	1	1	1
Province	2	2	2

# EQAO Junior Assessment Results 2013-2014





**EQAO 2013 – 2014:**  
Primary (Grades 1 to 3) Assessments of Reading, Writing and Mathematics

**Results for All Grade 3 Students at Level 3 or Above**

Category	Reading (%)			Writing (%)			Mathematics (%)		
	2014	2013	Diff	2014	2013	Diff	2014	2013	Diff
Year	74	72	+2	87	84	+3	71	71	0
NCDSB	74	72	+2	87	84	+3	71	71	0
Province	70	68	+2	78	77	+1	67	67	0
% Difference with Province	+4	+4		+9	+7		+4	+4	

**5 Year Trend for All Grade 3 Students at Level 3 or Above**

Category	Reading (%)					Writing (%)					Mathematics (%)				
	(10)	(11)	(12)	(13)	(14)	(10)	(11)	(12)	(13)	(14)	(10)	(11)	(12)	(13)	(14)
Years:2010-2014															
NCDSB	71	70	69	72	74	81	77	83	84	87	81	73	72	71	71
Province	62	65	66	68	70	70	73	76	77	78	71	69	68	67	67
% Difference w/Province	+9	+5	+3	+4	+4	+11	+4	+7	+7	+9	+10	+4	+4	+4	+4

**Gender Results for Grade 3 Students at Level 3 or Above**

Category	Reading (%)	Writing (%)	Mathematics (%)
Male	71	84	71
Female	77	90	71
% Difference	6	6	0



**EQAO 2013 – 2014:**  
Junior (Grades 4 to 6) Assessments of Reading, Writing and Mathematics

**Results for All Grade 6 Students at Level 3 or Above**

Category	Reading (%)			Writing (%)			Mathematics (%)		
	2014	2013	Diff	2014	2013	Diff	2014	2013	Diff
NCDSB	82	83	-1	84	86	-2	58	65	-7
Province	79	77	+2	78	76	+2	54	57	-3
% Difference with Province	+3	+6		+6	+10		+4	+8	

**5 Year Trend for All Grade 6 Students at Level 3 or Above**

Category	Reading (%)					Writing (%)					Mathematics (%)				
	(10)	(11)	(12)	(13)	(14)	(10)	(11)	(12)	(13)	(14)	(10)	(11)	(12)	(13)	(14)
Years:2010-2014															
NCDSB	73	78	79	83	82	76	76	79	86	84	67	64	62	65	58
Province	72	74	75	77	79	70	73	74	76	78	61	58	58	57	54
% Difference w/Province	+1	+4	+4	+6	+3	+6	+3	+5	+10	+6	+6	+6	+4	+8	+4

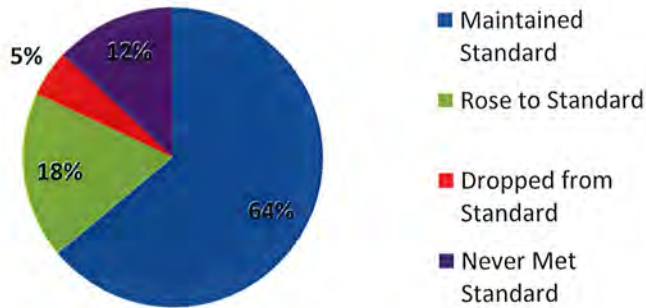
**Gender Results for Grade 6 Students at Level 3 or Above**

Category	Reading (%)	Writing (%)	Mathematics (%)
Male	78	77	57
Female	87	92	60
% Difference	9	15	3

**Tracking a Cohort in Relation to the Provincial Standard:**

## Grade 3 (2010-2011) and Grade 6 (2013-2014)

### Reading

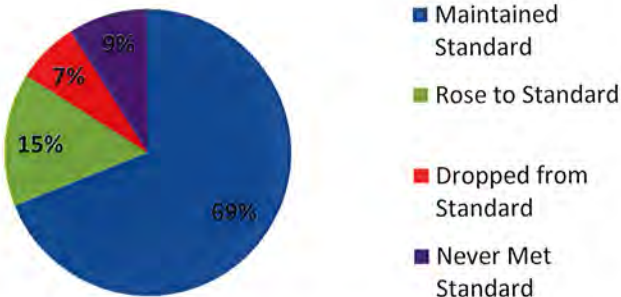


#### Reading

The reading results for the 1441 students in the cohort are as follows:

- ✓ 64% (927) met the provincial standard in Grade 3 and Grade 6;
- ✓ 18% (264) did not meet the standard in Grade 3 but met it in Grade 6;
- ✓ 5% (70) met the standard in Grade 3 but did not meet it in Grade 6; and
- ✓ 12% (180) did not meet the standard in Grade 3 and did not in Grade 6.

### Writing

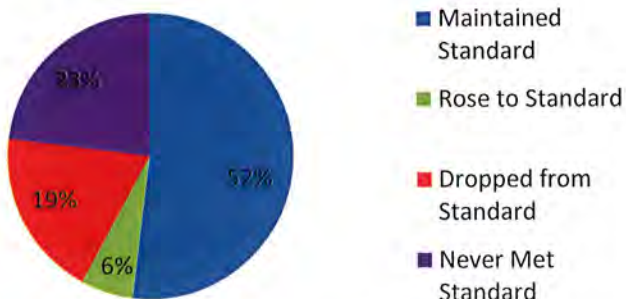


#### Writing

The writing results for the 1441 students in the cohort are as follows:

- ✓ 69% (1001) met the provincial standard in Grade 3 and Grade 6;
- ✓ 15% (215) did not meet the standard in Grade 3 but met it in Grade 6;
- ✓ 7% (97) met the standard in Grade 3 but did not meet it in Grade 6; and
- ✓ 9% (128) did not meet the standard in Grade 3 and did not in Grade 6.

### Mathematics



#### Mathematics

The mathematics results for the 1441 students in the cohort are as follows:

- ✓ 52% (754) met the provincial standard in Grade 3 and Grade 6;
- ✓ 6% (86) did not meet the standard in Grade 3 but met it in Grade 6;
- ✓ 19% (273) met the standard in Grade 3 but did not meet it in Grade 6; and
- ✓ 23% (328) did not meet the standard in Grade 3 and did not in Grade 6.



**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: REPRESENTATION FOR VOICE FOR HEARING IMPAIRED  
CHILDREN**

---

---

**RECOMMENDATION**

**THAT** the Niagara Catholic District School Board approve the change in representation for VOICE for Hearing Impaired Children to the Special Education Advisory Committee;  
Primary Representative: Carol Baldinelli

---

---

Prepared by: Yolanda Baldasaro, Superintendent of Education  
Presented by: Yolanda Baldasaro, Superintendent of Education  
Recommended by: John Crocco, Director of Education/Secretary-Treasurer  
Date: September 23, 2014





**REPORT TO THE BOARD  
SEPTEMBER 23, 2014**

**REPRESENTATION FOR VOICE FOR HEARING IMPAIRED  
CHILDREN**

---

---

A letter was received from VOICE for Hearing Impaired Children nominating Carol Baldinelli as the new primary representative on the Special Education Advisory Committee.

Appendix A

**RECOMMENDATION**

**THAT** the Niagara Catholic District School Board approve the change in representation for VOICE for Hearing Impaired Children to the Special Education Advisory Committee; Primary Representative: Carol Baldinelli

---

Prepared by: Yolanda Baldasaro, Superintendent of Education

Presented by: Yolanda Baldasaro, Superintendent of Education

Recommended by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014



for hearing impaired children

June 5, 2014

Ms. Yolanda Baldasro  
Superintendent of Education  
Niagara Catholic District School Board  
427 Rice Road  
Welland, Ontario  
L3C 7C1

Dear Ms. Baldasro,

VOICE for Hearing Impaired Children is a provincial parent organization that is eligible for SEAC membership, as defined in Section 206 (1) of the Education Act. We represent the interests of deaf and hard of hearing children.

We would like to nominate Ms. Carol Baldinelli as the VOICE Special Education Advisory Committee representative for the Niagara Catholic District School Board. Ms. Baldinelli has held the alternate position until now. In accordance with Ontario Regulation 464/97 Ms. Carol Baldinelli is eligible to vote for members of the Board, is a resident in the jurisdiction of the Board and is not an employee of the Board.

Her contact information is as follows:

Carol Baldinelli  
8144 Mount Carme Blvd  
Niagara, ON L2H 2Y8  
e: abaldinelli@cogeco.ca  
tel: 905-358-3035

Yours truly,

A handwritten signature in black ink that reads "E. Boxall".

Eileen Boxall  
Office Manager

c.c. Carol Baldinelli

**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
MATHEMATICS K-12**

---

---

The Niagara Catholic District School Board Mathematics K-12 report is presented for information.

---

---

Prepared by: Mark Lefebvre, Superintendent of Education  
Beth Hulan, Consultant, K-12 Mathematics

Presented by: Beth Hulan, Consultant, K-12 Mathematics  
Christopher Moscato, Numeracy Facilitator

Approved by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014





## **REPORT TO THE BOARD SEPTEMBER 23, 2014**

### **NIAGARA CATHOLIC DISTRICT SCHOOL BOARD MATHEMATICS K-12**

---

---

#### **BACKGROUND INFORMATION**

The ongoing focus on Mathematics across Ontario, nationally and internationally continues to heighten the discussion and debate at multiple levels on effective mathematical instruction.

It is important to recognize that as educators we are often tempted to seek out quick solutions to remedy what is actually a very complex issue. Ultimately the work that is ahead of us is not made up of band aid solutions. Students need to develop a deep understanding of number and be given time to explore all strands of the math curriculum so that they can make connections between them. The math classroom should be a place where inquiry and accountable talk make student thinking visible, supporting both the teacher's ability to assess for learning and the students' understanding of the content. In order for this to happen, teachers need to know the curriculum, not only that of the grade they are teaching, but the continuum of learning that precedes that curriculum. Resources include Ontario Guide to Effective Instruction and Van de Walle's Teaching Student Centered Mathematics have become essential tools to support teachers in this venture. Most importantly, students and teachers need to believe that with effort and with perseverance through making mistakes all students can learn math.

Since 2011, the Program Department Numeracy Team has been working in partnership with Brock University researchers to provide an outside analysis of the board's work. During the Junior Mathematics Intervention research 2011-2013 growth in students' achievement was evident in all strands of mathematics based on analyses of report card grades (Term 1 and Term 2) for students who received intervention tutoring. However through this project a trend was also identified: students who required intervention in Junior Mathematics exhibited gaps in Mathematics content that originated in the Primary curriculum. These results lead the Numeracy Team to shift the research focus to K-2 classrooms in Fall 2013. In the first year of this research students exhibited significant gains in number sense due to the intense focus on content and pedagogy learning for teachers.

In 2014-15 this research is moving into its second year while at the same time the project is being mimicked in family of schools learning teams across the system.

#### Attachments:

Appendix A - Junior Intervention Project

Appendix B - Final Report for Literacy and Numeracy Secretariat

The Niagara Catholic District School Board Mathematics K-12 report is presented for information.

Prepared by: Mark Lefebvre, Superintendent of Education  
Beth Hulan, Consultant, K-12 Mathematics

Presented by: Beth Hulan, Consultant, K-12 Mathematics  
Christopher Moscato, Numeracy Facilitator

Approved by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014

**Final Report for the Literacy and Numeracy Secretariat:  
Niagara Catholic District School Board's Junior Interventions Project**

**Table of Contents**

<b>EXECUTIVE SUMMARY</b> .....	<b>1</b>
<b>Background</b> .....	<b>3</b>
Mathematics Achievement in Niagara Catholic District School Board (2007-2011) .....	3
Identified Areas of Need .....	4
Strategic Direction for Student Achievement (NCDSB - BIPSA 2011-2012) .....	4
<b>Theoretical and Practical Foundations</b> .....	<b>5</b>
Academic Research .....	5
Ministry of Education and Literacy and Numeracy Secretariat Resources.....	6
Professional Resources used in NCDSB's Junior Interventions Project .....	7
<b>Research Questions</b> .....	<b>8</b>
Teachers` Practices .....	8
Teachers` Beliefs .....	9
Students` Achievement .....	9
<b>Research Design</b> .....	<b>9</b>
Intervention Design .....	9
<b>Methodology</b> .....	<b>12</b>
School Sites, Teachers, and Students .....	12
Data Collection .....	13
Data Analysis .....	15
<b>Findings</b> .....	<b>16</b>
Teachers` Practices .....	16
Teachers` Beliefs and Attitudes .....	26
Students` Achievement .....	30
<b>Limitations</b> .....	<b>34</b>
<b>Next Steps</b> .....	<b>35</b>
Lessons Learned: Implications for Practice .....	35
Implications for Future Research .....	36
Moving Forward: Our Plan of Action for 2012-2013 .....	36
<b>References</b> .....	<b>38</b>
<b>Author`s Note</b> .....	<b>40</b>



# Final Report for the Literacy and Numeracy Secretariat: Niagara Catholic District School Board's Junior Interventions Project

## EXECUTIVE SUMMARY

### Background

Teachers hold distinct beliefs about how the relationship between the teacher, the student and the content affects the instructional core (Elmore, 2009). Educational research points to the need to support junior level teachers' professional learning in mathematics problem-solving teaching methods while attending to their beliefs and attitudes about mathematics instruction as well as honouring their content knowledge and experience. Reflection enables teachers to improve their skills, beliefs and perceptions of mathematics teaching and is an overall facilitator of teacher development (Turner, 2009). It is commonly held that supporting the practice and confidence of teachers to instruct mathematics through problem solving takes time.

The Niagara District School Board (NCSDB) *Junior Interventions Project* focused on developing teachers' effective use of diagnostic assessment to identify student misconceptions and drive their instruction of mathematics. This program of professional learning sought to build on junior level teachers' mathematics content and pedagogical knowledge while bearing in mind their beliefs and attitudes about mathematics instruction and how students learn mathematics.

### Methodology

The NCSDB's intervention design drew on aspects of the "Seven Foundational Principles for Improvement in Mathematics K-12" document. Operationally, the intervention design included three key components: facilitated teacher professional learning sessions, collegial teacher professional learning, and student intervention coaching. The Facilitators led all professional learning sessions and offered ongoing support for the individual needs of teachers throughout the project. There were two, full day plenary sessions that were attended by all teacher participants and were co-facilitated by the Intervention Coach and three Facilitators. There were four, half day sessions that were guided by one of the Facilitators at each of the school sites and included the grade 3-6 teachers and their administrator. Each of the participating teachers was granted eight half days to engage in collegial professional learning with their same-grade/division colleagues. The Intervention Coach was devoted to providing one-on-one mathematics instruction for students targeted by their classroom teachers.

The research was an evaluative case study with the purpose to inquire into an educational program in order to determine its effectiveness. There were five research questions that related to teachers' practices and beliefs, and students' achievement. Quantitative and qualitative data (surveys, interviews, fieldnotes, journals, report card scores) were collected from three sets of participants: teachers, facilitators and students. There were 22 teachers (grades 3 to 6) at five schools that participated in the program and their students indirectly participated as recipients of the teachers' professional learning and intervention coaching. All participants (teacher participants, facilitators, parents/guardians of students) signed informed consent forms.

## Findings

Beliefs and attitudes about mathematics learning and teaching were shared by the teacher participants. Acknowledging and altering such deeply entrenched prior learning experiences as a student is a challenging prospect for any teacher. These beliefs inform teachers' conceptualizations of the relationship between the teacher, the student and the content. The Facilitators of this project honoured and worked with teachers' beliefs systems and teacher shifted toward problem-based methods.

From the beginning of the Junior Interventions Program, the Facilitators recognized that they needed to offer explicit content knowledge support for the teachers and the teachers responded favourably to how this was incorporated into sessions. The Intervention Coach worked with targeted students, and he also recognized the co-dependent nature of supporting teachers' math content knowledge and instructional practice to address students' learning needs.

Teachers talked about the challenges of releasing responsibility for their students' learning back to their students. After a few months, they recognized that the students were not only assuming ownership for their own learning, the students were more motivated to enhance their mathematics skills too. As a result, the teachers were less likely to contend that their role is to transmit and verify mathematical knowledge. The teachers now appreciate the key role that students have in their own learning and that students are capable of much higher levels of mathematical thought.

Many of the teachers expressed how they used the numeracy nets for differentiating instruction to support the learning of students with similar misconceptions in mathematics. The teachers perceived that their students' learning was significantly impacted by the co-planning, numeracy nets, three-part lessons, and co-teaching. Some of the teachers noted that these mathematics instructional methods were especially poignant at contributing to the learning of their struggling students in math. An unexpected outcome was that teachers were surprised by the realization that teaching from a textbook resource is not as effective or efficient as they believed.

Some teachers noted that their students were uncomfortable with the open-ended nature of the mathematics tasks presented to them. The teachers patiently encouraged peer collaboration and consequently witnessed students working through the problems together. Teachers remarked on the need for their students to have the necessary skills to work in such collaborative groups. Grades 3 and 6 teachers also expressed a heightened amount of angst with respect to preparing their students for EQAO testing; they failed to recognize the embedded benefits of the instructional methods in addressing these assessed skills.

Growth in students' achievement was evident in all strands of mathematics based on analyses of report card grades (Term 1 and Term 2). Statistically significant student achievement has been summarized for each school site and interpreted in a series of tables. Influential factors such as gender, grade, teacher, school and tutoring were calculated.

## Implications

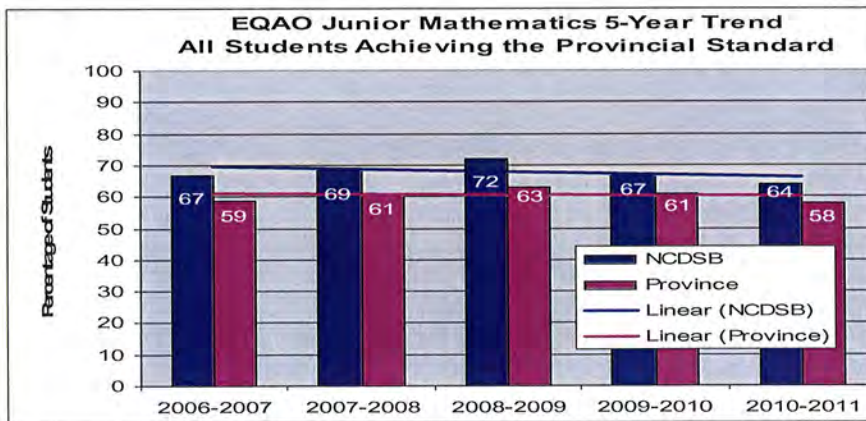
Based on the findings, implications for practice and future research are offered. Teachers are calling for a continuation of the program of professional learning that was facilitated within NCDSB. Refinements might include development of a repository of resources, strategies for student collaborative group work, support for curriculum mapping, release time for co-planning and co-teaching and the support of an intervention coach for students.

# Final Report for the Literacy and Numeracy Secretariat: Niagara Catholic District School Board's Junior Interventions Project

## Background

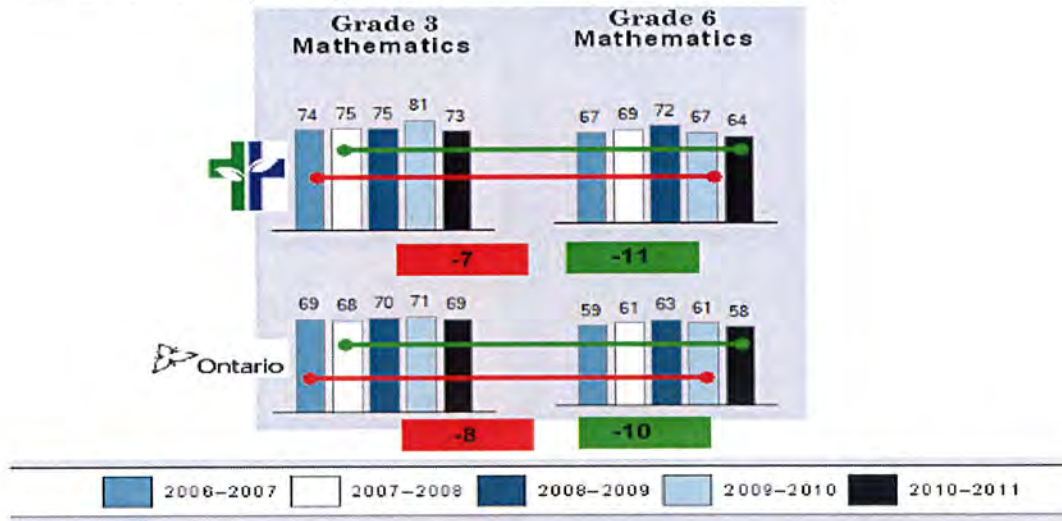
### Mathematics Achievement in Niagara Catholic District School Board (2007-2011)

The mathematics achievement of students in Niagara District School Board (NCDSB) has been solid over the period from 2007-2011. **Figure 1.** shows the five-year data trend for NCDSB Grade 6 students who consistently perform above the provincial standard on EQAO.



**Figure 1.** Grade 6 EQAO Mathematics Achievement – NCDSB and Ontario

The sub-set of schools that comprised the cohort for this project exhibited a consistent 8-10% drop in the number of students performing at levels 3 and 4 from Grade 3 EQAO to Grade 6 EQAO in Mathematics (see **Figure 2.**). This drop is consistent with provincial cohort data.



**Figure 2.** Grade's 3 and 6 EQAO Mathematics Achievement – NCDSB Cohort and Ontario



Over the past four years NCDSB has gradually expanded its focus on mathematics instruction through problem solving (K-10). Our CILM model of co-planning and co-teaching has been the guiding framework in this endeavour.

## **Identified Areas of Need**

### ***Using Assessment to Drive Instruction***

With the release of *Growing Success Assessment, Evaluation & Reporting (2010)*, it has been NCDSB's vision to find ways to integrate effective assessment strategies into collaborative inquiry networks. It has become evident that although teachers may embrace teaching through problem solving strategies, such as the three-part lesson, questions are always raised about: (1) how they can effectively assess student learning, and (2) when they should use problem solving strategies over the course of a unit of study.

NCDSB is currently introducing *Numeracy Nets*, an assessment for learning resource that helps teachers identify student misconceptions about the big ideas in mathematics. A pilot project revealed that teachers changed what and how they taught mathematics as a result of knowing the students' misconceptions. Based on this finding, it was concluded that if teachers know what the specific student needs are in their classroom, they can use three-part lessons to target those needs and guide their instruction.

### ***Building "Math Content for Teaching" Knowledge***

Over the past four years of CILM implementation, NCDSB has noted that a common barrier to teaching through problem solving is a teacher's own confidence in his/her depth of understanding mathematics content and concepts. According to the *Junior Math Interventions Initiative* (Ministry of Education, 2011) one of the consistent components of success with previous intervention projects is teachers' application of mathematics content and pedagogical expertise to support the embedding of understanding of mathematics content for teaching and learning. Although NCDSB has consistently embedded content-knowledge-building pieces into professional learning sessions, there is still a call for the effective facilitation of job-embedded, inquiry-based learning that both informs instructional practice and impacts teacher depth of knowledge in mathematics-for-teaching.

## **Strategic Direction for Student Achievement (NCDSB - BIPSA 2011-2012)**

It is the goal of NCDSB to continue to advance students' achievement with Ministry of Education, Board and School initiatives on Provincial EQAO Primary and Junior assessments, EQAO Secondary Mathematics Assessment, and the Ontario Secondary School Literacy Test (OSSLT) by June 2012.

## Theoretical and Practical Foundations

### Academic Research

The academic research points to the need to support junior level teachers' professional learning in mathematics problem-solving teaching methods while attending to their beliefs and attitudes about mathematics instruction as well as honouring their content knowledge and experience. Since beliefs, attitudes, and content knowledge are all related to teachers' mathematics instructional practice (Wilkins, 2008), a program of professional learning should address all of these components. In particular, attention must be paid to teachers' beliefs as these mediate the effects of content knowledge and instructional practice attitudes (Wilkins, 2008). Specifically, how do these factors interact with respect to inquiry-based mathematics instruction?

Teachers' use of inquiry-based instruction is influenced by their beliefs in its effectiveness. Not surprisingly, teachers with positive attitudes toward mathematics are more likely to believe in the effectiveness of inquiry-based instruction and use it more frequently in their classroom. Interestingly, a recent study by Wilkins (2008) found that early primary teachers (grades K-2) tend to naturally use inquiry-based instructional methods more often than junior teachers (grades 3-5). These findings underscore the need for professional learning in inquiry-based mathematics instruction methods for the junior division teachers.

The design of a professional learning program in mathematics is essential. In particular, when the program of professional learning focuses on how to incorporate and pose effective mathematics problems, teachers' beliefs shift toward recognizing the impact of their mathematics instruction (Barlow & Cates, 2006). A successful program for elementary teachers found that modelling self-questioning during mathematical problem solving combined with systematic reflective support from colleagues contributes to teachers' pedagogical-content knowledge and contributes to their metacognitive knowledge of mathematics (Kramarski, 2009). Reflection is also an important component in teacher professional learning in mathematics. It has been found that teachers' individual reflection facilitates the reflexive relationships within a school's community of practice. Reflection enables teachers to improve their skills, beliefs and perceptions of mathematics teaching and is an overall facilitator of teacher development (Turner, 2009). The *Junior Interventions Project* in NCDSB was conceived with these professional learning design components in mind.

An important appreciation is that for teachers' self-efficacy and attitudes towards change in their mathematics instructional practices. The concerns of experienced teachers toward changes in mathematics curriculum and problem solving pedagogy have been documented (Charalambous & Philippou, 2010). A study conducted five years post-reform, suggested that elementary teachers' self-efficacy about mathematics teaching affects their continued practice throughout the post-professional learning implementation. Teachers continue to reflect back on their pre-reform instructional approaches when they incur challenges to their new practices.

Teachers hold distinct beliefs about how the relationship between the teacher, the student and the content affects the instructional core (Elmore, 2009). In particular, beliefs about their role as the teacher-as-director are salient. Not all teachers embrace the belief that students can self-direct their own mathematics learning. In a study of elementary teachers who focused their professional learning on how to enhance students problem-solving strategies, only about half of the teachers involved the students in inquiry into their peers' strategies (Warfield, Wood & Lehman, 2005). Teachers hold different beliefs about the

autonomy of students to construct mathematics knowledge and their own autonomy to make instructional decisions. It is obvious that supporting the practice and confidence of teachers to instruct mathematics through problem solving takes time. Teachers need opportunities to personally engage and practice problem solving together. This type of collaboration contributes to teachers becoming more comfortable with the mathematics and recognizing the importance of group work while problem solving. For most teachers, this transfers to how they then support their students' collaborative problem solving (Sakshaug & Wohlhuter, 2010). The program of professional learning evaluated here sought to build on junior level teachers' mathematics content and pedagogical knowledge while bearing in mind their beliefs and attitudes about mathematics instruction and how students learn mathematics.

## **Ministry of Education and Literacy and Numeracy Secretariat Resources**

### ***The Junior Math Interventions Initiative (Ministry of Education, 2011)***

The *Junior Math Interventions Initiative* (Ministry of Education, 2011) cites two factors that contribute to successful intervention projects. These two factors were integrated into NCDSB's *Junior Interventions Project*:

1. collaboration and learning that includes **teacher professional development meetings and classroom experiences** for students and teachers;
2. use of mathematics content and pedagogical expertise that can **support the embedding of understanding of mathematics** content for teaching and learning within the ongoing work of teachers.

### ***School Effectiveness Framework (2010)***

Key components of NCDSB's *Junior Interventions Project* are the effective practices of *assessment for, as, and of learning* as well as *School and Classroom Leadership*. The following indicators from the *School Effectiveness Framework (2010)* were instrumental factors within this Project:

#### **Indicator 1.5:**

A variety of valid and reliable assessment data is used by students and teachers to continuously monitor learning, to inform instruction and assessment to determine next steps.

#### **Specifically:**

- Collaborative processes are in place to guide problem-solving and decision making in relation to preventions and interventions that may be required where data indicate students are not demonstrating the intended learning expectations
- Instructional decisions are made and actions are taken to respond to what student demonstrations reveal

#### **Indicator 2.4:**

Job-embedded and inquiry-based professional learning builds capacity, informs instructional practice and contributes to a culture of learning.

#### **Specifically:**

- Evidence of student learning is shared as a catalyst for professional dialogue.



- Knowledge and effective instructional practices are shared (through co-planning, co-teaching, mentoring and coaching)

### ***Growing Success: Assessment, Evaluation & Reporting (2010)***

The *Junior Interventions Project* focused on developing teachers' effective use of diagnostic assessment to drive their instruction of mathematics. According to *Growing Success (2010)*, diagnostic assessment, "occurs before instruction begins so teachers can determine students' readiness to learn new knowledge and skills ..." (p.31). It is NCDSB's intention that as a result of the *Junior Interventions Project*, teachers will use diagnostic assessments, "to determine what students already know and can do," as well as to, "plan instruction and assessment that are differentiated and personalized and work with students to set appropriate learning goals" (p.31).

### ***Paying Attention to Mathematics Education (Ministry of Education, 2011)***

This resource was not yet available at the commencement of the *Junior Interventions Project* in Fall 2011, yet it was utilized at the summation of the project. School teams, led by principals, were asked to focus on "*Principle 4: Support collaborative professional learning in mathematics, and using the Discussion Tool,*" work as a team to evaluate their current breadth, depth and shared practice of the principle, as well as identify next steps to addend to their SIPSA action plan for 2012-2013.

### **Professional Resources used in NCDSB's Junior Interventions Project**

#### ***Instructional Rounds in Education (Elmore, 2009)***

At the heart of the *Junior Interventions Project* is what Richard Elmore (2009) describes as Cohen and Ball's instructional core: *the relationship between the teacher, the student and the content*. Based on this instructional core, Elmore's first principle challenges facilitators to:

- 1) *increase the level of knowledge and skill that the teacher brings to the instructional process;*
- 2) *increase the level of complexity of the content the students are asked to learn;*
- 3) *change the role of the student in the instructional process.*

In addition to these challenges, Elmore also outlines his considerations for effective professional development, noting its quality depends on:

- 1) what teachers are being asked to learn;
- 2) how they are learning it;
- 3) whether they can make the practices they are being asked to try, work in their classrooms.

Throughout the planning process, the *Junior Interventions Project* Facilitators frequently cross-referenced these six guidelines with the goals that were set for the professional learning sessions to ensure the cohesiveness of the project.

### **Ontario Numeracy Nets: Grades 3-6 (Keith, 2009)**

A core resource for the *Junior Interventions Project* was *Ontario Numeracy Nets: Grades 3-6* that provides classroom teachers with a diagnostic tool that is rooted in research. *Ontario Numeracy Nets: Grades 3-6* espouses the belief that "all students can learn mathematics and that struggles with mathematics are not due to some inherent deficit, but to undetected misconceptions that hinder or even halt student progress" (p.2). It was the intention of the *Project* that through the use of Numeracy Nets, teachers will begin to utilize powerful diagnostic questions and ultimately enhance their instruction as a whole. The moderated marking of diagnostic tasks was a key component of facilitated sessions and the co-planning process within the project.

### **Big Ideas from Dr. Small (Small, 2009)**

A supporting resource for teachers' content-knowledge-building was Marian Small's, *Big Ideas from Dr. Small*. The strength of this resource is its structure, based on central "big" ideas, that effectively map out how, "new ideas connect to what we already know." Ultimately, like Marian Small, it was a goal of the project that NCDSB teachers will grow to appreciate, "the power in being comfortable with the math we teach." (p. xi). All teacher participants were provided with personal copies of this professional resource.

### **Teaching Student-Centred Mathematics (Lovin & Van de Walle, 2006)**

Lovin and Van de Walle's *Teaching Student-Centred Mathematics* provides NCDSB schools with a source for further content-knowledge-building and ideas for group-learning tasks. The fact that this resource is directly cross-linked to *Numeracy Nets* allows teachers to quickly and efficiently locate relevant information and activities to help plan for targeting student misconceptions. All teacher participants were provided with personal copies of this professional resource.

## **Research Questions**

Research questions were derived based on the *Objectives and Goals* submitted in the *NCDSB Junior Interventions Project Proposal (2011)*. The five research questions that were identified relate to teachers' practices and beliefs, and students' achievement. The following are these research questions and sub-questions that guided the evaluation of this initiative:

### **Teachers' Practices**

1. Are teachers (Grades 3-6) using evidence-based intervention practices in their mathematics instruction?
  - a. Are teachers focusing on the relationship between the teacher, the student and the content?
  - b. Are teachers identifying curriculum connections and using curriculum mapping?
  - c. Are teachers promoting students' understanding of math content?

- d. Are teachers using instructional strategies such as: collaborative inquiry, BANSHO, open-ended problem solving, open questions and parallel tasks and *Numeracy Nets*?
- e. Are teachers using intervention resources for whole class instruction AND for struggling math learners?

### Teachers' Beliefs

2. Do teachers perceive growth in their knowledge of mathematics content and mathematics instructional methods?
3. Has the recent project in professional learning in mathematics instruction increased teachers' self-efficacy in mathematics instruction?
4. Has the recent project in professional learning in mathematics instruction made an impact on teachers' intentions for their future practice?

### Students' Achievement

5. Were there gains in students' (Grades 3-6) mathematics achievement as a function of the evidence-based intervention practices?

## Research Design

### Intervention Design

The overall intention of this initiative was to implement and support successful intervention practices in order to close the gap in students' mathematics achievement in the Junior division (Grades 3-6). In order to address this intention, NCDSB designed their *Junior Interventions Project* with reference to the document, *Paying Attention to Mathematics Education* (Ministry of Education, 2011). Accordingly, the following aspects of NCDSB's intervention design are examples of the "Seven Foundational Principles for Improvement in Mathematics K-12" as stated in the document:

1. Focus on Mathematics
  - chosen schools already designated a math focus
  - curriculum, teaching practices (inquiry)
2. Coordinate and Strengthen Math Leadership
  - using student work to inform practice
  - action based on identified student need
  - co-planning/co-teaching
3. Build Understanding of Effective Math Instruction
  - problem solving/inquiry focus (3-part lesson)
  - setting up a supportive math environment
  - using student thinking to propel discussions



4. Support Collaborative Professional Learning in Math
  - focus on math knowledge for teaching
  - blend of learning inside/outside the classroom
  - alignment of goals/strategies across grades
  
5. Design a Responsive Math Learning Environment
  - establishing classroom norms
  - build student engagement and respect student voice
  - communication skills to promote an inquiry approach
  
6. Provide Assessment and Evaluation in Math that Supports Student Learning
  - not listening for the "correct" answer, but for what can be learned from the student thinking
  - creating lesson problems students connect to
  
7. Facilitate Access to Math Learning Resources
  - Numeracy Nets
  - Big Ideas
  - Teaching Student Centred Mathematics

Operationally, the intervention design included three key components: facilitated teacher professional learning sessions, collegial teacher professional learning, and student intervention coaching. The project focused on providing teachers with professional learning and support in the use of the instructional methods of collaborative inquiry and teaching through problem solving. This was accomplished through professional learning sessions that sought to clarify mathematics content and enhance teachers' pedagogical expertise. It was also the intention of this initiative to increase teachers' efficacy by building their self-confidence in their abilities to develop appropriate interventions to remedy the misconceptions they've uncovered in students' conceptual understanding of mathematics. The intention of providing targeted student intervention coaching in small groups was to assist struggling students in specific mathematics skills and support their learning in the classroom.

### ***Facilitated Teacher Professional Learning Sessions***

The teacher professional learning initiative was facilitated in five NCDSB elementary schools. Teachers in grades 3-6 participated in the project from January 2012 – May 2012. Three Facilitators and an Intervention Coach from NCDSB provided the teacher professional learning sessions which targeted the following goals:

- improve teacher efficacy through development of mathematics content knowledge
- support the use of assessment strategies and target misconceptions identified through Numeracy Nets
- support teaching through problem solving with strategies (e.g. collaborative inquiry, BANSHO)
- close the gap in mathematics achievement through the use of intervention resources and practices
- affect student learning by focusing on the relationship between the teacher, the student and the content

The Facilitators led all professional learning sessions and offered ongoing support for the individual needs of teachers throughout the project. The schedule of facilitated professional learning sessions included one full plenary day, followed by four monthly half days, and then finished with one full plenary day. All participating teachers had release time for these sessions.

The two, full day plenary sessions were attended by all teacher participants and were co-facilitated by the Intervention Coach and three Facilitators. The first session in January, 2012 was an Introductory Session and the agenda included the following:

- overview of the research project
- project vision and goals
- the "Tiers" (whole class intervention then individual/small group intervention)
- progression from diagnostic (numeracy nets) to planning lesson problem to implementing lesson problem in 3 part lesson structure (sample lesson plan provided; video illustration shown)
- readying the classroom for math talk and student participation
- introduction of Numeracy Nets and moderation of individual student work
- aligning mathematics strands between grades

The final session in May, 2012, was a consolidation and debriefing session and the discussion focused on:

- a review of the inquiry focus and the Seven Foundational Principles for Improvement in Mathematics K-12
- same grade teacher discussion groups (lesson problems; classroom environment; misconceptions; teaching through problem solving)
- sharing of grade-specific findings
- school site discussions targeting the Seven Foundational Principles for Improvement in Mathematics K-12
- school site discussions related to SIPSA planning for next year

The four, half day sessions were facilitated by one of the Facilitators at each of the school sites and included the grade 3-6 teachers and their administrator. These four sessions followed an identical agenda at each site which included guided activities for enhancing teachers' mathematics content knowledge and then group discussion. This discussion varied from session to session, however, the focus was typically on some of the following: administration and analysis of *Numeracy Nets* to identify student misconceptions; creating intervention strategies for whole class instruction; collaborative inquiry methods; instructional techniques including open questions and parallel tasks; teaching through problem solving including BANSHO; mathematics curriculum mapping; tracking of marker students. There was time devoted during each of these sessions for teacher participants to share their experiences and successes with their colleagues.

The three Facilitators were also available one day per week/cycle for each school to provide the teachers with on-going support in planning, modelling strategies, and/or providing co-instruction.

### ***Collegial Teacher Professional Learning***

Each of the participating teachers was granted eight half days to engage in collegial professional learning with their same-grade/division colleagues. Teachers booked these half days in advance and were given release time. During these half days the teachers self-determined their activities which included; moderation of student work, class observations, co-

planning, co-teaching, conferencing with students. Detailed descriptions of their tasks were self-reported and verified by the principal and to the Project Facilitators.

### **Student Intervention Coaching**

An Intervention Coach was devoted to providing one-on-one focused mathematics instruction for students targeted by their classroom teachers. These struggling mathematics learners were given skill-specific instruction in small groups through the use of intervention resources. The intervention coach designed intervention activities and tracked progress to meet the individual needs of targeted students. The Intervention Coach was an itinerant teacher who devoted approximately one day per week to each of the five schools.

### **Methodology**

Case study is an exploration or study of a bounded system which may consist of multiple sites within the same study. In particular, this research is an evaluative case study with the purpose of inquiry into an educational program in order to determine its effectiveness as judged by the researcher (Merriam, 2001; Stake, 1995, 2006; Yin, 2004, 2009). This case study has been informed by both qualitative and quantitative data and in this vein employs mixed methods of data collection. Ethical clearance to conduct data collection was granted by both Brock University Research Ethics Board and Niagara Catholic District School Board's research ethics boards. All participants (teacher participants, facilitators, parents/guardians of students) signed informed consent forms.

### **School Sites, Teachers and Students**

Five elementary schools were invited to participate in this program based on their proven inconsistencies in recent numeracy EQAO scores. These schools indicated their desire to participate and cited goals related to improving mathematics achievement in their school improvement plans. The school staffs expressed a willingness to incorporate inquiry-based professional learning to inform their instructional practice, to build capacity, and to contribute to a culture of learning. There were 22 teachers (grades 3 to 6) that participated in the program and their students indirectly participated as recipients of the teachers' professional learning and intervention coaching. In total, there were 509 students in these 22 classrooms; of this total, 378 students consented to participate. In total there were 115 students that were the recipients of intervention and of this total, 87 consented to participate. The following **Table 1** offers a profile of each of these school sites, the teachers, their students and the Facilitators:

School	Teacher	Grade	Total Class Size	Consenting Student Participants	Number of Target Students	Consenting Target Student Part.	Facilitator
2	2A	2/3	20 (11/9)	NA/6	0	0	Jasmine (Junior Division Consultant)
	2B	3	18	16	6	5	
	2C	4	23	18	6	4	
	2D	4/5	21 (12/9)	12/ 8	5	5	



	2E	5	23	21	6	5	
	2F	6	26	19	4	4	
	2G	6/7	23 (15/8)	14	5	3	
3	3H	3	15	14	4	4	Jasmine
	3J	4/5	27 (20/7)	20/7	13	11	
	3K	5	24	24	7	7	
	3L	6/7	30 (15/15)	15	3	3	
4*	4M	4	27	25	6	6	Bettina (K-12 Numeracy Coach)
	4N	4/5	23 (8/15)	7/11	5	5	
	4P	5	26	21	6	5	
	4Q	6	22	22	0	0	
	4R	6	24	22	6	4	
5*	5S	2/3	21 (11/10)	9	4	3	Bettina
	5T	3	22	19	5	5	
6	6U	3	20	12	5	4	Mary (Math Consultant)
	6W	3/4	23 (4/19)	3/10	4	1	
	6X	4/5	22 (4/18)	1/9	10	2	
	6Z	6	29	13	5	1	

**Table 1.** Summary of Sample: Schools, Teachers, Grades, Students and Facilitators

**NOTE:** \* Schools 4 and 5 are twinned as School 4 is junior/intermediate division only and School 5 is primary division only

## Data Collection

Data was collected from three sets of participants: teachers, facilitators and students. Within each participant set, multiple forms of data were collected. This practice contributed to the triangulation of the data and the rigour of the findings.

### Teacher Data

#### 1. Surveys

Teachers were surveyed in January, 2012 at the first, full day plenary session to capture their current practices and beliefs related to mathematics instruction. At the end of the final, full day plenary session in May, 2012, the teachers were again surveyed to capture changes in their practices and beliefs as a function of the professional learning project. The survey consisted of 18 questions on a 5-point Likert scale (Strongly Disagree, Disagree, Undecided, Agree, Strongly Agree). Question items included statements summarizing contemporary approaches to teaching mathematics and commonly espoused teachers' beliefs about mathematics. The surveys were adapted from previously administered instruments (Foong & Perry, 1998; Perry, Howard, & Tracey, 1999; Perry et al., 2002; Perry, Wong, & Howard, 2006; White, Way, Perry & Southwell, 2005). The surveys were coded for each of the teacher participants and the codes were matched for the January and May administration dates.

## **2. Anecdotal Notes during Professional Learning Meetings**

The researcher attended the two, full day plenary sessions and one of each of the four, half day plenary sessions. During these sessions, the researcher was an unobtrusive observer taking fieldnotes of the professional dialogue and collecting artifacts. Both the teacher participants and the Facilitator were observed.

## **3. Interviews**

At each of the schools, at least three teachers were interviewed (n=14) in late May, 2012. These teachers volunteered for this interview and were given release time. The purpose of the interview was to garner an elaboration of the teachers' practices and beliefs with examples and illustrations from the classroom. Teachers were asked 10 questions about instructional strategies and evidence-based intervention practices in mathematics. They were asked about curriculum connections and mapping. They were asked about their perceptions of students' mathematics achievement and improvement in the learning gap. Finally, they were asked about their own professional learning growth and self-efficacy in mathematics instruction. The 30 minute interviews were transcribed by the researcher.

## **4. Learning Logs**

Teachers completed learning logs at the end of the two, full-day plenary sessions, after each of the four, half-day sessions and at the end of their eight collegial professional learning half-day sessions. Time was allocated for completing the logs during the sessions and prompts were provided. The intent of the learning logs was to track teachers' experiences throughout the project.

The first log entry was guided to allow the teacher participants to narrate their mathematics experience both as a former student and as a teacher. Subsequent learning log entries were prompted by questions affixed to the back cover of the log. The prompts were clustered under the following categories: Numeracy Nets Assessment (e.g., "How will this information guide your lesson planning for this upcoming concept?"); Co-planning (e.g., "What is the big idea, goal, concept, skills, intended for this lesson?"); Classroom Observation (e.g., "What aspects of the lesson stood out to you?"); Co-teaching (e.g., "How were you able to target specific learning needs or misconceptions?"); Three-Part Lesson Structure (e.g., "What did you learn about your students' thinking during the Activation or Minds on?"); Moderation of Student Work (e.g., "Some patterns or trends I notice include...").

The final log entry was intended to be a comprehensive reflection on the project and what the teachers believed that they had derived from it. The following questions were asked for this final log entry:

- a. What were the milestones or pivotal moments along your learning journey?
- b. What has changed in your practice as a result?
- c. How has this change impacted student learning?

The confidentially coded learning logs were collected by the researcher at the end of the final session. Facilitators did not have access to view the learning logs at all.

## ***Facilitator/Intervention Coach Data***

### **1. Surveys**

The three Facilitators and the Intervention Coach also completed the same surveys that the teacher participants did in January and May, 2012. The surveys were coded for each of the Facilitator participants and the codes were matched for the January and May administration dates.

### **2. Interviews**

Each of the Facilitators and the Intervention Coach were interviewed in May, 2012. The purpose of their interview was to garner an elaboration on their evaluation of the project and changes in teachers' practices and beliefs.

### **3. Learning Logs**

The Facilitators and the Intervention Coach also completed learning logs after each of the Facilitated Teacher Professional Learning Sessions. The learning logs tracked their experiences throughout the project as leaders.

## ***Student Data***

### **1. Term 1 and Term 2 Report Card Grades**

For confidentiality, the student data were coded by: school/teacher/grade/student code/gender/tutored. Student participants' report card grades (Term 1: January and Term 2: June) for all five of the mathematics strands were converted from alpha grades into numeric grades: A+ = 95; A = 88; A- = 82; B+ = 78; B = 75; B- = 72; C+ = 68; C = 65; C- = 62. Grades for targeted students who received tutoring were identified as a sub-set of the student sample.

### **2. Tutoring Tracking Sheets**

Evidence of intervention provided to the targeted students was tracked by the Intervention Coach. The Intervention Coach documented the number of times that he worked with each student and the skills that were the focus of this intervention. On-going communication between the classroom teachers and the Intervention Coach was archived. These data provided a trace of the skills and concepts that the classroom teachers recommended that the Intervention Coach address, his subsequent instruction and impressions of the students' learning.

## **Data Analysis**

The interviews (teachers, Facilitators and Intervention Coach) were transcribed by the researcher and qualitative data analysis included coding and collapsing data into themes. These subsequent themes were derived in response to the research questions. The learning logs and anecdotal notes were similarly coding using the same themes that evolved from the interview data. Interpretations of the themes were made and illustrative quotes were selected



from all of the participants. These qualitative findings are mapped back to the five research questions in the following section.

The quantitative data (i.e., teachers' surveys and students' report card data) were entered and analyzed using SPSS 19.0 (SPSS Software, 2011). The teacher survey data for January and May, 2012 were compared using Paired Sample t-Tests with Cohen's d effect sizes calculated. The students' report card data for Term 1 and Term 2 were compared for all five strands using Repeated Measures Analysis of Variance (ANOVA). Both within subjects ANOVA and between subjects ANOVA were run, the latter used to ascertain interaction effects that might be attributed to factors such as the students' school, teacher, grade, gender, and/or tutoring.

## Findings

The following section is a presentation of the findings based on the data analyses. These findings respond to the clusters of research questions related to: "Teachers' Practices," "Teachers' Beliefs," and "Students' Achievement." Within these three clusters, the findings will describe how the teachers: focussed on the relationship between the teacher, student and the content; identified curriculum connections; promoted students' understanding of mathematics content, and; used instructional strategies and intervention resources. Teachers' beliefs about growth in their knowledge, self-efficacy and intentions for future practice are summarized. Finally, the results of the analyses of students' achievement are offered.

### Teachers' Practices

#### ***Are Teachers Focusing on the Relationship between the Teacher, the Student and the Content?***

At the beginning of the Junior Interventions Project, teachers reflected on their prior experience as former mathematics students and their recent experiences teaching elementary math.

I was the language kid and I did well in math but loved language. As a teacher, my confidence wasn't as great in math. Some of the tips that Mary has given me are great and I am a better teacher. Because I wasn't too strong in math instruction, now I can see other ways in how kids don't get it. I know how to teach the math better. (Interview, Teacher School 6)

Math always came easy to me. I didn't particularly like the subject but I always got top marks for it. I found comfort in the 'routine' and 'predictability' of math – there was a right answer and I liked that...Since I never had a problem with math, I had a hard time relating to students who can't grasp the concepts. (Journal, Teacher School 3)

They referenced the traditional and rote teaching methods that they were engaged in and in some cases how these methods contributed to their lack of understanding of mathematics concepts and disdain for the subject.

Mathematics was always a struggle throughout elementary and high school. Some concepts I got, most I didn't. The concepts rarely came easy to me but I tried my best to keep at it. Practice. Practice. Practice. Math was not my favourite subject...I stopped taking math after grade 10 realizing it was not a field I was interested in. (Journal, Teacher School 2)

Acknowledging and altering such deeply entrenched prior learning experiences as a student is a challenging prospect for any teacher.

A by-product of teachers' traditional beliefs about teaching math is the persistent notion that they need to be doing teacher-directed instruction and leading student learning. This belief speaks to teachers' conceptualization of the relationship between the teacher, the student and the content.

The teachers buy into the benefits of the students working, talking and sharing ideas as opposed to a more a traditional math lesson with an algorithm. This is a different approach and it is the student telling them what is working and share these ideas with each other. They see value in it. The hesitation right now is that they are feeling like this is on top of what they have to teach from the curriculum. They feel like they have to teach the curriculum too. They have to get to the comfort level where by this is a part of their instruction. They have taught the lesson after they have supported the three-part lesson. They feel that they need to still do some teaching and present an algorithm. They need to be convinced that the concept has been learned. They perceive that they have not had the ownership of the learning... This is not easy for teachers as we are used to being the instructors. We are the ones used to doing the showing. This is challenging the teachers to think deeper as well. (Interview, Mary Facilitator)

Teachers talked about releasing responsibility for their students' learning back to their students. This was in some cases a bit daunting as the teachers were releasing control of the lesson and assuming the role of facilitator.

The importance with the 3 part lesson helped to put onus back on the students so that they are exploring and they are explaining and have to justify now. Before I would present a note at the beginning of the lesson and they would take it down, now they explore it and we get together and explore the concepts. Then we get back together to talk about it...I am more confident in taking a different approach. Before I would not take a risk and I would introduce it and have them gathered around me. Now they figure it out and come to the carpet and they have a discussion about what they just did. They come up with the terms and talk about what they did. I find that they retain it more. They come up with the ideas. (Interview, Teacher School 3)

We are letting the students do all the talking and giving them the time to explain their thinking and hear what they have to say. They bring it up and let the other students challenge it. The teacher is not the only one talking all the time. They have been working hard to promote students to talk and get their explanations across. This part has been difficult for them. The teachers are really stretched and standing back and letting them talk is a huge shift. For many teachers, they believe that they are the knower and the one that delivers the content. This is a huge shift for them to allow it to come out of the students. They have to come to it on their own. I learned this as a consultant too. The learner has to pick up the content, learn how to do it, and you are the guide. (Interview, Jasmine Facilitator)

While the process seems so simple it is filled with many positioned and nuanced movements that needs a 'knowledgeable other' (of a Facilitator) to interpret and redirect. The purpose of today's meeting (with the teachers) was to 'engage in' the process of problem solving from a facilitators' stance. To take the stance of "facilitator" is a very difficult shift for teachers. We are still in the land between "knowing and doing" (Journal, Jasmine Facilitator)

However, the net result was that the teachers recognized that the students were not only assuming ownership for their own learning, the students were more motivated to enhance their mathematics skills too.

Now they are more effective in communicating and independently finding out where they went wrong. On tests they go back and look at what they did wrong. They are interested and they want to see what they did wrong and where they made an error. Before they would say that they made an error because of the steps that I told them to do. They want to understand math and use their math journal to write a quiz and they do. This gives them more confidence too. (Interview, Teacher School 3)

The creativeness of the students during the problem solving comes out. Sometimes, they are not able to repeat just what you [the teacher] have done and this forces me to not over instruct. They feel good about trying to get to an answer. No more fears in solving problems and they don't dread the problem solving. They like it answering the problems . (Interview, Teacher School 6)

Moreover, providing math instruction that is meaningful was also intrinsically motivating for the teachers.

I have been teaching 18 years and I am out of my comfort zone but I won't look back. I am eager to sit down with my teaching partner and take the expectations and use the different resources and manipulatives. There is such a variety of them and I am a kid in a candy store... Now I am more humble. I thought that I was set and knew what I was doing but I made me realized that there is more that I want to do and I feel like a new teacher again. I am confident and I am willing to take on more. I am renewed and excited. This was a short period of time in which so much has been achieved. I can't wait to see where it will go. (Interview, Teacher School 2)

The lack of control over a lesson that teachers initially felt when beginning to facilitate students' collaboration, ironically shifted into an overall sense of command with respect to the meaningfulness of their math program. This has contributed to a sense of self-determination among the teachers involved in the *Junior Interventions Program*.

Yes, I am more confident and feel a sense of where I want to go. I look forward to next year to plan using the three-part lesson. I feel that I am more focused on the direction that I am trying to get to and I feel like I am making more of the decisions about what to do. (Interview, Teacher School 2)

### ***Are Teachers identifying Curriculum Connections and using Curriculum Mapping?***

A few months into the program of professional learning, some teachers began to experience a tension: they were investing more instructional time than they would have typically in the past and they were covering fewer curriculum expectations. By contrast, there were also teachers who recognized the depth and impact of their planning and instruction based on identifying curriculum connections and using curriculum mapping.

Today, we co-planned a unit for fractions to help us understand the continuum of learning and aligned the expectations. We had an opportunity to deconstruct the fractions expectations and focus on ways to effectively scaffold instruction. This will allow us to address gaps in the learning that we noticed from the diagnostic assessments. We were able to discuss ways to effectively use manipulatives, visuals and hands-on experience to support student thinking. (Journal, Teacher School 4)

I no longer plan my math lessons following the math text book. The curriculum expectations guide my choices, and I choose problem solving questions that are directly related to the expectations. (Journal, Teacher School 12)

The experience has initiated more teacher math talk. This even includes the teachers on staff that are not involved in the project. Another positive is that we have further delved into the specifics of the curriculum expectations. (Journal, Teacher School 3)

Teachers acknowledged that they were addressing curricular expectations with greater profundity, however, this amount of comprehensiveness took time.

A few teachers did map curricular expectations. One did this for her split grade class and she used this as a teaching tool with her students. Another teacher commented on her future practice and how she will address instruction to the curricular expectations.



I put together a continuum to see the progression between grades 4 and 5 and to date back to primary grades for students to see where they have come from. I have done this so that I can see what they need as a foundation and what they will need for next year. Then I can let them see where they are going and how it will apply. They will begin to see mathematics as not isolated but that we are teaching them something that is relevant since they started school. The concepts are connected and meaningful for real life. This is how they will use it in real life and how they will use it again. They are savvy and know that there are things that they need to learn in grade 4 or 5 and they need to make the connections to these things. This is critical. (Interview, Teacher School 4)

This is the most eye opening year and the most scary too as I wonder how many kids have left without knowing stuff. It worries me because I know what they need to know. It reinforces that there is too much in the curriculum document. Now I am directed to get to the heart of why they don't know what they need to know. If you really want students to know something, then I might need to spend 3 months on a strand. It is like trying to see a football field with one small bag of grass seed and just throwing here and there and then being surprised when it is patchy. (Interview, Teacher School 3)

Other teachers were not yet at the point where they were seeing the prospect of curriculum mapping as a way to compact learning expectations. The Intervention Coach articulated this as one of his goals as a facilitator.

The teachers tell me, "We don't have enough time for this." But if you understand the curriculum then you can chunk things and the concepts can be pulled together if you get it. Now they have found that they actually have more time to explore the concepts and they are not overwhelmed. They now multi-strand their lessons and group expectations together. Then teachers begin to see that the text book has more than they need to teach and they need to abandon it and beginning to group concepts together and show how they are related... I point out to the teachers that way that the expectations are worded lends itself to getting the students to explore, not to give them formulas and work through questions. (Interview, Intervention Coach)

Finally, there was a heightened amount of angst among the Grade 3 and Grade 6 teachers who in Term 2 were faced with preparing their students for EQAO testing. These teachers were dealing with the tension that they perceived from addressing all mathematics curricular expectations in depth and the urgency of EQAO testing.

I am so far behind because math lessons take so much longer than they did...I have struggled with this as it is so important for EQAO. I have to take a deep breath and work on preparing them for June and getting them to where they should be. I do believe that they will retain it into grade 4. There are just too many strands and it is hard to get through them all. What do they want? Do they want all the strands covered or to teach them math thoroughly at a deep level. (Interview, Teacher School 3)

They are understanding more and this has taken me longer than before. This is a question of retention. The real test will be in EQAO and their performance. Because we have EQAO there is the pressure to cover it all. The timeline is different! (Interview, Teacher School 6)

The grade 3 teachers were overwhelmed with the impending EQAO – and felt like they needed sometime with me to prioritize. The question we were grappling with as facilitators was, "is it better to 'cover' it all, or for the students to 'learn' some of the curriculum". (Journal, Bettina Facilitator)

### ***Are Teachers Promoting Students' Understanding of Math Content?***

Some teachers noted that their students were uncomfortable with the open-ended nature of the mathematics tasks presented to them. These students were searching for explicit,

sequential, teacher-guided instruction. They were uneasy with the prospect of taking risks and thinking independently.

The kids did not like that I offered no assistance – as many do not like to take risks and they automatically think the math is going to be hard before they read the question. (Journal, Teacher School 5)

Many continued to seek assistance from me but I have to continue to push them to do the work on their own. They had this understanding that there is only one way to do it and it is my way. They have learned that they may do things a different way and as long as they can explain to me how they got to that point that is okay. They had to learn to trust me in that I was doing what was best for them. They became angry and frustrated. But they weren't reading the questions and a lot of them were used to having their hands held. They are far more capable of working with the gradual release on their own and with each other. They had to learn to communicate and trust each other... By the end of the program, they were starting to get better at solving things without my assistance. (Interview, Teacher School 5)

I am constantly trying to encourage students to take that risk – taking leads to learning. That being said, when I worked with the consolidation with my students, they responded well to the group discussion. Hopefully, they take something away from this and it will transfer into their independent work. (Journal, Teacher School 4)

Teachers expressed how they persisted with methods to overcome students' uneasiness. The benefits of encouraging students to think divergently and support authentic learning were worth the effort. Another teacher attributed students' independence to an increase in their confidence.

It is important that they represent their thinking in written form and that they communicate with each other and look for strategies. They need to talk to each other, rationalize and confirm or challenge what they are thinking. If they see multiple lines of thinking then they are open to seeing different ways of thinking and challenging each other. They are then willing to probe deep to find another student's mode of thinking. Open ended questions help to get at different ways to solve a problem so that they feel more comfortable solving a problem. (Interview, Teacher School 4)

My students are better understanding the math because it's authentic to them – not because I taught it, but because they have investigated the math on their own. Authentic learning! It's the best way to learn – when you figure out how to solve your own problem rather than someone telling you how to. (Journal, Teacher School 2)

I am stepping back a lot more and having more student driven math lessons. As a result, the students are taking more ownership, showing an increase in pride and confidence. I have also found an increase in understanding of concepts by allowing them to choose the approach that works for them. I have also found that when students are struggling they are more comfortable with coming and asking for help. (Journal, Teacher School 3)

Teachers described the practice of deliberately not being available for their students. Consequently, teachers witnessed students working through the problems together.

I try to let them figure it out on their own rather than me jumping in. I try to hold back and allow them. I walk away and I let them struggle and they get it. I allow them to figure out their answers, I give them some clues and then I walk away. At times I find that if they are able to grasp it better when they work in groups. They have the support of their peers; their peers are beside them. When it was independent they gave up easily. Now they have peer support which allows them to have a better understanding of the content. (Interview, Teacher School 3)



In the class it has been a learning curve as they are not used to being in groups and they are afraid to struggle. This process is now come a long way. They know that it is okay to struggle and make mistakes. It is a comfortable atmosphere. I am there facilitating and I have to get out of the way. We don't really need to be there and just let things evolve... Even though the expectations state what they need to learn, the teachers have gotten in the way. Allowing the students to learn on their own is important; their own confidence is essential. I am there to facilitate and do only that. It has been great. (Interview, Teacher School 2)

The problem solving they did enjoy. They like working with their peers and math teams is interactive with their peers. I have taken a step back and am not telling them what to do. I walk around and try not to tell them what to do. This is a change but not a huge change. Often I try to give them a hint and there are kids that want the hand holding. Having a peer with them helps them when I walk away. I have a girl who likes to say she doesn't get it and yesterday she stuck with it because of her peer. I pair them with a strong student in math. (Interview, Teacher School 6)

Finally, teachers were surprised by the realization that teaching from a textbook resource is not as effective or efficient as they believed. Simply, upon close examination, the textbook includes many topics that are not required by our Ontario mathematics curriculum – consequently, time was being wasted on unnecessary topics.

I love this quote from one of the teachers, "I don't even know where we would be in the text book at this point." I used to say this to parents that the textbook is only one tool that we can pull from. We have to educate parents that the textbook is not important and work through problems. They need to know how this works and why we are doing what we are doing. (Interview, Intervention Coach)

Teachers were beginning to appreciate the depth of teaching through problem solving to promote students' understanding of math content through the three-part lesson, versus the breadth of teaching from the textbook.

### ***Are Teachers Using Instructional Strategies?***

One of the key findings is that the Numeracy Nets are invaluable for uncovering the depth of students' understandings and misconceptions. It is essential to have the most appropriate questions as part of the nets and teachers were in some cases looking for a net to cover each of the mathematics curriculum expectations. Using the Numeracy Nets as a guide for instruction was an essential lesson from the professional learning.

I think the growth for me was using numeracy nets and applying it to what I was teaching them. This gave me a greater understanding of how I can look at things from their perspective. I was able to see why they had answered something wrong. I was making connections between the nets and what they were doing wrong and changing my practice. I had to go back and find the obvious misconceptions. I had to separate myself and my perceptions of math and not look at math through my eyes and look it through their eyes. That was hard. When I was taught math I was told that this is how it was to be done. I learned it so differently and I learned through drill and practice and I had unlearn this. (Interview, Teacher School 5)

The numeracy nets have given me a focus. I now have an indication of where my students are and it is like a trampoline to take my students to the next level. This has been so helpful. (Interview, Teacher School 2)

A few of the teachers expressed how they used the Numeracy Nets for differentiating instruction to support the learning of students with similar misconceptions and students who are gifted in mathematics.



I am using the Numeracy Nets as a diagnostic tool and this helps me to hone in on where do I think that the possible gaps are and where the misconceptions are on the continuum from grade 3 to 4 to 5. This helps me to cluster kids across grades based on their misconceptions. I find that this is particularly helpful for me in a split grade as I can cluster students together based on their misconceptions and regardless of their grade. It is easier now draw from for small group instruction. I can support them better now regardless of the grade and I have the resources to do this. They can identify with their peers who have similar experiences and understanding. They apply what they need to know and what they are learning. They are now able to take a question and work with it together. (Interview, Teacher School 4)

I have them in small groups and recognize the kids that are able to take the problem and decompose it and pull out the key information. This shows me the kids that don't know how to break down a question. This frees up time for me as I am working with smaller groups and chunk the kids together based on their misconception. Then I go back the next day or during consolidation and we talk about it as a group and this allows me to help clear up some things and reteach or provide a little bit of bell work to confirm it... When I think of my struggling learners and how they used to groan at the sight of math on the daily agenda, it is not there anymore. It is less dangerous territory and less uncomfortable. Those that were terrified of math look forward to it. I have a student on an IEP for math; he is very strong. He now doesn't need a separate program but he can take it to another level and make more global connections. This hits on all areas and abilities. My strong math students see that everyone has something to contribute and it is now an even playing field. (Interview, Teacher School 4)

Teachers became aware of the instructional potential for ``minds on`` activities to identify and clear up students` misconceptions. They resolved to pay more attention to these opportunities. They also resolved to vary lesson consolidation from simply being a form of assessment, which is an aspect that the Facilitators acknowledged as needing further professional learning attention.

The three-prong approach has changed my lessons and how I have to understand where students may stumble before I give them the question. I also see the value in the "Minds On" to debunk students` misunderstandings with a question before they work on the question in which I am really focusing on. (Journal, Teacher School 2)

The piece they struggle with is consolidating the lesson. They call it different things like BANSHO or gallery walk and they can't decide how to do it and what to emphasize. They need to move away from the show and tell and the consolidation needs to be better. It needs to do the job of tying together the pieces in a nice package and allow the students to share and hear their voice. It is hard as you want to direct it teacher and still have the students sharing...This has been a challenge for them as teachers. Other schools have me do the consolidation piece as it is new for teachers and principals say that the teachers need to see it in action and have it modelled so that they understand what you mean by tying it together without turning it into show and tell piece. We have to do this next year. (Interview, Mary Facilitator)

A key to teaching through problem solving and the three part lesson was finding the best problem – a problem that generated discussion and multiple solution pathways. Teachers also noted that it was essential that a problem was relevant to junior learners. The teachers came to realize that relevancy adds authenticity and value to the learning activity.

Focusing on the relationship between the teacher, the student and the content comes through the planning aspect and making sure that what you are going to teach is a problem that they can relate to...The information has to be relevant to them and this makes a huge difference. Now I give them more freedom with a problem and I step back as a teacher and let them work through it. It takes more time. If they don't get something then I relate it to the concept to money and they get it then. Geometry can even be related to money ...They are getting better at

communicating in math and how they did it and why they chose to do it a certain way. Having students explain it and then different groups present the information and post their solutions makes it even more meaningful. Their understanding has increased and it is all because when you present them with something that they can relate to then they are more likely to see how it relates to their lives. (Interview, Teacher School 3)

I tell teachers that just because you use a student's name in a question that you found in a textbook, does not necessarily make it relevant to them and make them want to do it. It has to be based on their inquiry. You have to get them to ask why. The questions should get them to think about how it works and when it works. It does have to be relevant... The students have to want to discover the answer and you have to set the stage up through a story to make the case relevant to them in context. This is the key to understand mathematics. (Interview, Intervention Coach)

Teachers remarked on the need for their students to have the necessary skills to work in collaborative groups. Social and communication skills and how to assume roles in discussion groups needed to be explicitly taught in some classrooms.

They loved the math team concept and they caught on to this. I ran it as I was a commissioner and they drafted the teams and they came up with the team names and they came up with the logos and creative names. We did a discussion about the roles and the captain. They wanted to do it every day. We did it a few times a week... Four in a group was not optimal as one would lag behind and the groups of 3 were perfect. We did this in creative ways. Normally, they would hate to work in groups but loved teams. The changing of wording to "teams" made a difference. (Interview, Teacher School 6)

We all found that creating the appropriate climate in the class was key to having students work effectively in groups and that it is not something that can be done without clear guidelines and expectations for the students. It is a process that needs to be closely monitored and guided at the beginning and students require feedback and multiple opportunities to work together effectively. (Journal, Teacher School 2)

My goal next year would be to try to help the students work better in groups. I found that the social climate of my class had a negative effect on the math work being done and if the students become better at working in groups, then hopefully next year when they are trying it again they will be more successful. (Journal, Teacher School 6)

Other affective student outcomes stemmed from the fact that students' learning was validated through collaborative group discussions and sharing their solutions with the class as a whole. This validation contributed to students' dedication, confidence and encouragement of their peers.

Key pieces were taken from all students and this was motivating for them even if it was just one piece. It built their confidence and self-esteem. The ones that always got the textbook answer began to see others' ways of thinking. They began to appreciate others' thinking and see them listening. I feel that the group is tight and I have seen them being encouraging of each other even outside of the math classroom... My role is different it is more a facilitator than the person that knows the answers and tells them to do it. I set the problem and they are teaching each other and then they come up with it in a group. They are discovering, learning and explaining it to others and they realize that they have a role to play as instructor to each other as their communication skills are improving. The content is more about discovering and they are working through the process and getting to the answer. They are more tolerant and patient to do that. They have to communicate to each other and question rather than tell and they have to get others to explain their thinking and this gives them a challenge to explain their own thinking and recognize their own errors. They have to clearly communicate with each other using the right terminology. (Interview, Teacher School 2)

They have also developed (over time) better group work skills which was one of the bigger issues at the beginning of this process. Also, there is more sharing of ideas amongst all group members – not just the stronger students. They feel more confident to share because an environment has been created to allow for that especially when doing our BANSHO. (Journal, Teacher School 3)

Collaboration takes time master but there is value added in students' ability to work together and communicate effectively in other subject areas too.

Student learning has been greatly impacted. Students are letting go of getting the "answer" and embracing the different ways or processes there are to get a solution. Their learning of how to work together was at first arduous, but well worth it. (Journal, Teacher School 6)

With individual student work I am finding there are less conflicts and students are focussed more. I found that there was a benefit of the group work: it was great way of not leaving too many students sitting back not contributing. (Journal, Teacher School 5)

I am guiding them and encouraging them to use math tools independently and they are learning that there is not necessarily one right tool that is perfect for one concept. They are using this to articulate their learning and communicate with me. Earlier in the year when I would ask them a question, they would think that because I am asking them a question that there must be something wrong. Now they understand that when they are challenged, they are not defensive and they are confident in their answer and that it is okay to change their answer. They know that we are going through this together. Through this year they have come so far. Their ability to articulate their understanding has grown in other subject areas such as language and the content areas. They are providing evidence from what they see and their own thinking. They are comfortable and less inhibited in small groups to talk and those that are usually distracted are able to talk in small groups. (Interview, Teacher School 4)

In addition to the process of facilitating conversation, the physical set up of the room was noted as an important implementation consideration to support math talk.

At the beginning of the year I had to set up collaborative dialogue. I had to understand the kids and their personality and which ones had strengths and who could offer the most in the group work. Then I got the math teaching going. Organizing the math classroom was so necessary prior to doing the work. They had to know what was expected of them when I brought out different materials like chart paper and markers. Building the organization of the math class took 3 months as I didn't know the students coming into the building. The groupings took a long time and I had to work with different numbers of group members. When there were fewer groups you can get to them to hear them and ask them questions. It takes time to build their confidence in small groups, and then they can go to smaller groups. You have to work on building confidence. (Interview, Teacher School 4)

The physical set up of the classroom is still a hindrance as they need to talk freely and they cannot be sitting on top of each other you need to have space to talk at full voice and you need to circulate to hear them. They need to move desks and find the space. This is a barrier for genuine conversation and they need space to have their own independent conversations. This might also contribute to behaviours. (Interview, Teacher School 3)

### ***Are Teachers Using Intervention Resources?***

The role of the Intervention Coach built momentum as the project advanced. Initial communication methods between the Intervention Coach and the teachers needed to be delineated in order to establish a rhythm for incorporating the Coach's support into the classroom activities. This role included working individually and in small groups with targeted students in order to uncover skill gaps and remediate for them.



What I did with small group was try to uncover the misconceptions because teachers only offered me general issues. They didn't know where their students went wrong so I spent time with the students asking questions and getting to the root of the problem. (Interview, Intervention Coach).

I was able to drill down to see where the actual misconception was. Once I was comfortable doing this, I would work on this misconception with the student once a week for 40 – 60 minutes. The time was an issue, like in all things, however I was able to move the student farther long then where they were. It will be difficult to see this in report card marks because many of the misconceptions were way below grade level. (Journal, Intervention Coach)

I am thinking of one student and he says he doesn't understand math. Then he started to experience some success with the Intervention Coach. It was like cleaning up his attitude and this was important. He had time with the Coach and he experienced some success and then his attitude changed and he could attempt problems. (Interview, Teacher School 4)

The Intervention Coach being in the class was great for my boys. They loved when he was there and working with a group. This made a big difference and I didn't have the social issues. It was great for him to work with my other kids and I couldn't have done it without him. I noticed the biggest difference in their confidence and they felt that they had the secret. This was a privilege and confidence booster. This was the effect of having someone like an Intervention Coach. (Interview, Teacher School 6)

The Intervention Coach did more than just work with the students, he recognized the co-dependent nature of supporting teachers' math content knowledge and instructional practice to address students' learning needs.

What I did with teachers is run through the 3 part lesson and help them work through this and consolidate. Then the teacher was able to pin point where the misconceptions were. That helped and the teachers were able to take kids off the intervention list because they could take kids off the intervention list because the teacher could now get them to explain their thinking and give them the work that they were doing in the classroom. (Interview, Intervention Coach)

The intervention practices have been implemented in both whole class and when they pulled small guided groups of students. They have been happy to have the Intervention Coach come in and he brings in more ideas for them to try. The key is for them to try these strategies out with their own learners instead of leaving the students work with the Intervention Coach. They have to be carrying it forward. They don't yet have all of the math pedagogical practices and the math content knowledge to target for intervention. Knowing is half the battle of figuring out what a student needs and then it can be brought in anywhere like in small group or one on one intervention. It doesn't have to be with just the small group... We have to deepen the math content knowledge of the teachers so that they can look at a problem and know where it stems from and they need to keep working on this to get to the struggling math learners. (Interview, Jasmine Facilitator)

Issues were raised about how to use the Intervention Coach's time most effectively given the gaps between his visits. Sustaining the support of a mathematics Intervention Coach for more time and in the upcoming academic year were expressed recommendations from the teachers.

The ones that are in the intervention groups are excited to go there and are confident to take some risks now. This in itself has hooked them to learn math, to take risks and to discuss their thinking. I talk to them and they get it but you have to be able to pull it out of them. They need to go with the Intervention Coach and see others' work and see that there are strategies that they can use to access what they need. If we continue with this program then it would be beneficial as

we are seeing this momentum right now and the students are in the routine of getting help from the Intervention Coach. We are just seeing the confidence start. (Interview, Teacher School 4)

## Teachers' Beliefs and Attitudes

### *Is there Growth in Teachers' Knowledge of Mathematics Content and Instruction?*

At the end of the project, eight questions on the teachers' survey, *Beliefs about Mathematics, Mathematics Learning and Mathematics Teaching*, had significantly changed response patterns. This survey of their beliefs was on a Likert-scale (1=Strongly Disagree; 2=Disagree; 3= Undecided; 4=Agree; 5=Strongly Agree) and consequently the means (M) reflect these values. **Table 2.** is a summary of these significant survey questions, statistics, effect sizes and interpretations.

Survey Question	Paired Samples t-Tests	Cohen's d Effect Size	Interpretation of Significant Results
Mathematics is computation.	$t(24)=3.068$ , $p=.005$ (two-tailed), $d=0.74$ , $r=0.34$	medium	T1 M (3.08) is greater than T2 M (2.04), therefore they are now more likely to disagree.
Mathematics problems given to students should be quickly solvable in a few steps.	$t(24)=2.701$ , $p=.012$ (two-tailed), $d=0.66$ , $r=0.32$	medium	T1 M (2.20) is greater than T2 M (1.68), therefore they are now more likely to strongly disagree.
Young students are capable of much higher levels of mathematical thought than has been suggested traditionally.	$t(24)=-3.375$ , $p=.003$ (two-tailed), $d=-0.70$ , $r=-0.33$	medium	T1 M (3.88) is less than T2 M (4.40), therefore they are now more likely to agree.
Being able to memorize facts is critical in mathematics learning.	$t(24)=4.370$ , $p=.000$ (two-tailed), $d=0.97$ , $r=0.44$	extremely large	T1 M (3.20) is greater than T2 M (2.24), therefore they are now more likely to disagree.
Mathematics learning is enhanced by activities which build upon and respect students' experiences.	$t(24)=-3.166$ , $p=.004$ (two-tailed), $d=-0.77$ , $r=-0.36$	medium-large	T1 M (4.24) is greater than T2 M (4.60), therefore they are now more likely to strongly agree.
Mathematics learning is enhanced by challenge within a supportive environment.	$t(24)=-4.000$ , $p=.001$ (two-tailed), $d=-0.97$ , $r=-0.44$	extremely large	T1 M (4.52) is less than T2 M (4.92), therefore they are now more likely to strongly agree.
Teachers or the textbook – not the student – are the authorities for what is right or wrong.	$t(24)=2.681$ , $p=.013$ (two-tailed), $d=0.65$ , $r=0.31$	medium	T1 M (2.12) is greater than T2 M (1.68), therefore they are now more likely to strongly disagree.
The role of the mathematics teacher is to transmit mathematical knowledge and to verify that learners have received this knowledge.	$t(24)=5.477$ , $p=.000$ (two-tailed), $d=1.18$ , $r=0.51$	extremely large	T1 M (3.16) is greater than T2 M (2.16), therefore they are now more likely to disagree.

**Table 2.** Summary of Significant Results of Teachers' Survey



Based on these significant survey question responses, teachers are less likely to hold the belief that mathematics learning is demonstrated through computations and the ability to memorize facts. Consequently, teachers are less likely to contend that their role is to transmit mathematical knowledge and to verify that learners have received this knowledge. The teachers now appreciate the key role that students have in their own learning and that young learners are capable of much higher levels of mathematical thought. The teachers regard a mathematics learning context as one that is enhanced by challenging mathematics problems within a supportive environment, and activities which build upon and respect students' experiences.

The Facilitators commented on their perception of the teachers' growth in knowledge of mathematics content and instructional methods. From the beginning of the Junior Interventions Program, the Facilitators recognized that they needed to offer explicit content knowledge support for the teachers and the teachers responded favourably to how this was incorporated into sessions. The Facilitators began to acknowledge that teachers were seeing the cohesiveness in using the nets to guide activities, interventions and the three-part lesson.

I have seen in our facilitated sessions that when teachers look at the student data based on their diagnostics, they are planning and making progress based on their nets. They are determining how to tackle it as a unit. This is a whole class intervention piece. If it doesn't work for a few students, then they refer the students to the Intervention Coach. It is all about the middle tier intervention and trying to figure out how to do things first as a whole group. The intervention that they work on with me is the three-part lesson and how to find good questions to engage their kids and how to use the questions to get the target students' thinking. The discussions with the teachers are coming. They are on the road but it is varied. They are open and understanding the theory behind what we are doing. (Interview, Bettina Facilitator)

Each of the sessions that we got together with them we talked about the diagnostic nets, moderating them, the needs of the student, the three-part lesson, and then the other piece that I would also bring in was some content p.d. This does two things: it shares with them some cool things about a concept that they have asked me to bring information on and it introduces them to different models, ideas and strategies. They liked it and they have used it with their students. I introduce new things and they see the resources that I pull them from are linked to the misconceptions and what is underlying them. They are explicitly told how to address the needs of the students and follow it up with these resources. Hopefully they see the resources as tools to dig deeper. I encourage them to look at different ways to present the content and the skills. (Interview, Mary Facilitator)

### ***Is there an Increase in Teachers' Self-efficacy in Mathematics Instruction?***

The Facilitators perceived that some of the teachers grew in their confidence to teach mathematics. This enhanced teacher self-efficacy is likely to have a residual influence on boosting students' confidence in math.

Pivotal moments for me were the co-planning and co-teaching sessions. Having the uninterrupted time to make common lessons with same grade partners and to moderate the work together helped build my confidence in knowing what I'm looking for. Having the time to go through individual student work and find those misconceptions was great. I now have a stronger sense of the consolidation piece of the three-part lessons. (Journal, Teacher School 4)

The discussions of the students have shown me more confidence in their math abilities. It is nice to hear the teachers talk about how the students' confidence has improved and their own



confidence has improved. If the students are more confident hopefully then the teachers are too. You hope that there is a relationship there but it hard to predict. I believe that it is working. (Interview, Bettina Facilitator)

The teachers seem excited about the project – but there is a level of anxiety I can see that as we move forward with the project that part of our job as facilitators is going to be to support our teachers through contact, instructional strategies and emotionally. (Journal, Mary Facilitator)

The trajectory of enhanced teacher self-efficacy in mathematics instruction is positive and in the right direction. Realistically, time and continued opportunities to realize success are a key contributors to teachers' confidence in any new instructional approach.

### ***What is the Impact on Teachers' Intentions for their Future Practice?***

Teachers stated that the time that they were allocated to co-plan with their teaching partners was invaluable to share their knowledge and plan to move forward. This was an essential aspect of the project that they would derive benefit from in the future.

This has helped us as a part of JMI as the p.d. has helped us delve into what is going on in grades 3, 4, and 5. We did a lot of work together looking at the cross strand relationships and this helped us as we had the time to figure out how we would do it. The time to do this uninterrupted was enormously beneficial for us. We made up five units and did as much cross strand connections as possible. This was great to transfer knowledge between colleagues. (Interview, Teacher School 4)

Co-planning was a pivotal moment for me. I felt that we (my team) used our P.D. opportunities to the fullest. We learned, talked, and collaborated on the needs of the students and how to make lessons more meaningful. (Journal, Teacher School 4)

As they described this professional dialogue, they also included descriptions of the moderation of student work that they engaged in with their teaching partner. This was seen as an inherent component of co-planning and implicitly communicated their assumption of a seamless connection between assessment and instruction.

In terms of impacting practice for the upcoming year, some of the teachers expressed their intentions to alter how they will complete their long range plans and how they now conceptualize teaching math in an interconnected fashion.

My long range plans were out the window in January and now the students direct how long we stay on a concept and how often I need to revisit a topic. Now I go back and revisit a strand to see what they have retained from before... I am rethinking how I will teach next year and I will be combining the strands. I will try to convey the idea that math is continuous... I know a lot of what they don't know and a lot of ways to connect the math to other strands and I want to have a more connected math curriculum. I won't do my long range planning around strands instead I will do it around the big concepts and then work back to the strand. I want the kids to see math as a cohesive subject and not as strands. (Interview, Teacher School 3)

I need more continued support with problem solving and now I see the validity in the numeracy nets. I will look at the Nets when I am doing my long range plans and now I know that I might need to take a step back. In order to connect it all, I will map the curriculum a bit better with math. The planning for next year will include identifying the misconceptions that I saw this year and I will be ready to deal with them too. (Interview, Teacher School 3)

Teachers will begin the next academic year differently and incorporate their professional learning from this year into their long range planning.

Longitudinal sustainability with any professional learning is an issue. Teachers commented on the need for on-going efforts to continue the dialogue with their peers in an attempt to sustain the students' learning.

It has given me the opportunity to go through different resources and dialogue with other teachers. I am more efficient now in my planning and focus in on what is the most useful resource for my own students right now. I have the confidence to see that I have a wealth of resources that are available for my students and the confidence to evaluate the resources and target what my students need. The collaboration has helped me to see that we are working together as a team and we have relied on each other – now I can see that we are working on the same goals with the students because we as teachers are all on board. When the students see it again next year and we move on, then we aren't re-teaching the routine things like problem solving and appropriate dialogue. We are setting up the students for future years as well. Without the program we would have not had the release time and the uninterrupted time to have rich discussions about our resources and student work. (Interview, Teacher School 4)

Teachers acknowledged that the project is aiming in the right direction, however, it needs to be sustained and inclusive of the support of other educators.

I think that there were measurable differences and a step in the right direction. They [students] needed to know that they were a part of the process and that there were gaps. The project has not been long enough to sustain great gains. We just started and it needs to continue to see changes in the kids and teachers. I want it to continue and having the support in the classroom is helpful. It was most helpful to have the Intervention Coach. This could branch out to the ERT and EA's and if they know the same things than we can have small groups working together (Interview, Teacher School 4)

An unanticipated positive outcome of this project has been the prospect to include exemplary classroom teachers in future professional learning projects. This validates teachers' practices and contributes to a culture of collegial collaboration and respect.

With these projects we have unearthed talent and people who are willing to learn together and we can share with other teachers. The people that are on the road and can talk about their struggles. For one of the teachers I have worked with, he has come a long way in setting up the classroom climate and got the dynamics going. Others need to see what he is doing. He has set up his classroom and students have been well trained to get the learning going in math. He knew his learners. All the pieces were in place: there were two groups going and there were two different problems. He was dancing between the two. He is a resource to tap into. These teachers are the ones helping with the scope and sequence. Almost all of our schools know the mechanics of the 3 part lesson. Most have adopted it. With the success of JMI, we can say, look at how it has happened with junior teachers. Now it might spread across the building and into other school hubs. We need to continue to build these relationships. (Interview, Jasmine Facilitator)

At the final plenary session, teacher participants were asked to confidentially reflect on nine aspects of the project with respect to impact on their teaching practice and impact on their students' learning. Responses were garnered on a 3-point Likert scale (significant impact; moderate impact; no impact). **Tables 3. and 4.** summarize this reflective feedback:

Aspect of Project	Significant Impact	Moderate Impact	No Impact
Numeracy Nets (using diagnostic assessment to target misconceptions)	11	9	0
Establishing Classroom Norms for Collaborative Group Work	8	12	0
Student Collaboration (and math talk)	10	8	3

Co-Planning (lessons and units)	20	1	0
Co-Teaching (lessons)	12	7	2
3 Part Lessons (teaching through problem solving)	11	10	0
Discussion on math content (investigating the math)	7	12	2
Targeting Interventions (with help of intervention coach)	9	11	1
Reflection Journal	2	3	16

**Table 3.** Teachers' reflections of impact on their teaching practice

Aspect of Project	Significant Impact	Moderate Impact	No Impact
Numeracy Nets (using diagnostic assessment to target misconceptions)	10	10	0
Establishing Classroom Norms for Collaborative Group Work	7	14	0
Student Collaboration (and math talk)	7	12	2
Co-Planning (lessons and units)	14	7	0
Co-Teaching (lessons)	9	9	3
3 Part Lessons (teaching through problem solving)	10	11	0
Discussion on math content (investigating the math)	3	17	1
Targeting Interventions (with help of intervention coach)	7	14	0
Reflection Journal	0	2	19

**Table 4.** Teachers' reflections of impact on their students' learning

Based on the data summarized in **Tables 3. and 4.**, the majority of teachers believed that their teaching practice was significantly impacted by the use of the numeracy nets, co-planning, co-teaching, three-part lessons and student collaboration. The teachers perceived that their students' learning was significantly impacted by the co-planning, numeracy nets, three-part lessons, and co-teaching. These findings reveal inherent reciprocity between the key aspects of the project.

### Students' Achievement

Teachers naturally related their instructional practices to their students' performance. They described their perceptions of their students' learning and affective changes and then cited anecdotal evidence of it.

In their communication and reasoning and their thinking that through the three-part lessons, open response and discussion that they have shown me that they really understand mathematics



concepts and they have learned. When I feel most confident about their learning is when I can sit and listen to what they are discussing. (Interview, Teacher School 4)

In the future I know I will continue with collaborative learning. I witnessed for myself, that these students benefit from learning through each other. The learning that they have experiences with their peers they will retain. (Journal, Teacher School 3)

Some key things worth highlighting are an increase in self-esteem when kids are sharing their thinking. It wasn't always the level 4 kids who were solving the problem or getting it, all students had their moments of glory or "ah ha" because they got it. (Journal, Teacher School 2)

There were a few pivotal moments this year along my journey. One happened the other day when a few students came to ask me when we were going to do problem solving question again, I said "why do you like it and they sad yes!!" (Journal, Teacher School 2)

There have been two milestones or pivotal moments for me this year: 1) the leadership of students other than the typical class leaders; 2) students who had challenges socially, became valuable members of their math teams. (Journal, Teacher School 6)

Some of the teachers noted that these mathematics instructional methods were especially poignant at contributing to the learning of their struggling students in math.

I had a student in my class who figured out a formula on her own and I said it was because I was a great teacher. Then she corrected herself and said it was because she was a great student in math. She was previously quite apprehensive in math. She won't ever forget this now. (Interview, Teacher School 2)

A student who formerly failed in math is now walking out with a B. She has opportunities to use her skills. Before she was just memorizing facts. I see it in marks and performance and I see it in pencil and paper tasks and how she applies it. (Interview, Teacher School 2)

Talk about differentiated instruction! When kids are working on a problem using a hands-on approach, the understanding is much more concrete, and allows those struggling learners to experience success. Students who are more successful and fail less are now challenged by math and can extend their. My math program will forever be changed by this, I believe. (Journal, Teacher School 2)

The teachers appreciated that evidence of the students' growth would take time to present and that there was a potential long-term dividend to be realized from engaging in the problem solving methods.

I see a measurable difference, but this was just their first year in this and they are in grade 4. It will become clearer in grades 5 and 6 and in a few years to come in grade 7 and 8. It is like learning to read in grade 1 and seeing how critically they read in grade 8. This year they have spent so much time learning how to use the techniques then in grade 7 and 8 you will see growth in independent learning and thinking. Now it is still guided by the teacher as they are just learning the math talk. (Interview, Teacher School 3)

A lot of the students are strong and the report card data will show this. I have seen growth in those who have actively participated in the teams have grown the most. One of the students who is challenged socially is offering a lot in the group work because he thinks about things differently. Now confidence in math is the case with some students. There are more students that like math now. If you enjoy what you are doing it will have an impact on how well you do. (Interview, Teacher School 6)

The results of the quantitative analyses computed using the students` report card data are displayed in **Tables 5. and 6.** Table 5. provides a summary of significant findings of the Repeated Measures ANOVA (Within Subjects) analyses for each of the five mathematics strands. Results are displayed when scores for all schools are combined together and then when the five schools are analyzed separately. There is an interpretation of the significant results in the final column.

Number Sense and Numeration	Repeated Measures ANOVA (Within Subjects)	Interpretation of Significant Results
School 5	$F(1, 27)=5.121, p =.032$	Scores from June/12 ( $M=78.32$ ) are significantly higher than scores from Jan./12 ( $M=75.61$ )
Measurement	Repeated Measures ANOVA	Interpretation of Significant Results
All Schools Combined	$(F(1,198)=6.947, p =.009$	Scores from June/12 ( $M=75.81$ ) are significantly higher than scores from Jan./12 ( $M=74.90$ )
Geometry and Spatial Sense	Repeated Measures ANOVA	
School 5	$(F(1,26)=5.465, p =.027$	Scores from June/12 ( $M=77.63$ ) are significantly higher than scores from Jan./12 ( $M=74.33$ )
Data Management and Probability	Repeated Measures ANOVA	
-	-	-
Patterning and Algebra	Repeated Measures ANOVA	Interpretation of Significant Results
School 3	$F(1,14)=10.270, p =.006$	Scores from June/12 ( $M=78.53$ ) are significantly higher than scores from Jan./12 ( $M=74.67$ )

**Table 5.** Repeated Measures ANOVA (Within Subjects): Mathematics strands for all schools combined, separate and interpretation of the significant results

Table 5. has summarized four statistically significant changes in students` scores for strands in Number Sense and Numeration, Measurement, Geometry and Spatial Sense, and Patterning and Algebra. Readers are cautioned to the limitations that not all mathematics strands were taught within the duration of the project and some data are missing (i.e., not reported on in all terms).

Table 6. provides a summary of the Repeated Measures ANOVA (Between Subjects) analyses for each of the five mathematics strands. Only the statistically significant results are displayed for the main and interaction effects. There are significant results when scores for all schools are combined together and then when the five schools are analyzed separately. There is an interpretation of the significant results in the final column.

Numeric Sense and Numeration All Schools Combined	
Repeated Measures ANOVA	Significant Results Explained
$F(1, 375)=2.322, p=.006$	Female students were higher in T2( $M=77.59$ ) than T1 ( $M=76.73$ )
$F(1, 375)=39.631, p=.000$	Non-tutored students were higher in T2( $M=78.10$ ) than T1 ( $M=77.38$ )
$F(1, 356)=2.285, p=.001$	Students in Grade 4/5 Teacher`s class in School 6 showed the most growth from T1 ( $M=79.30$ ) to T2 ( $86.60$ )



F(1, 372)=4.241, p=.002	Overall, School 5 showed the most significant growth from T1 (M=75.61) to T2 (78.32)
F(1, 325)=5.451, p=.020	Males in Grade 5 in School 6 had the most growth from T1 to T2
<b>Numeric Sense and Numeration School 2</b>	
<b>Repeated Measures ANOVA</b>	<b>Significant Results Explained</b>
F(1, 111)=31.736, p=.000	Non-tutored students showed significant growth T1 (M=79.52) to T2 (M=79.99)
<b>Numeric Sense and Numeration School 3</b>	
<b>Repeated Measures ANOVA</b>	<b>Significant Results Explained</b>
F(1, 72)=2.800, p=.046	Non-tutored students in Grade 5 Teacher's class showed the most growth from T1 (M=68.71) to T2 (M=81.47)
<b>Numeric Sense and Numeration School 4</b>	
<b>Repeated Measures ANOVA</b>	<b>Significant Results Explained</b>
F(1, 102)=4.061, p=.020	Females in Grade 6 in School 4 showed the most growth from T1 (M=77.20) to T2 (M=78.15)
<b>Measurement All schools combined</b>	
<b>Repeated Measures ANOVA</b>	<b>Significant Results Explained</b>
F(1, 189)=5.158, p=.000	Students in Grade 5 Teacher's class at School 4 showed the most significant increase from T1 (M=76.38) to T2 (77.52)
F(1, 179)=2.081, p=.033	Male students in Grade 4/5 Teacher's class in School 4 showed the most significant growth from T1 (M=79.45) to T2 (M=82.09)
F(1, 180)=3.291, p=.002	Tutored students in Grade 6 class in School 4 had the most significant growth from T1 (M=65.60) to T2 (M=78.20)
<b>Measurement School 2</b>	
<b>Repeated Measures ANOVA</b>	<b>Significant Results Explained</b>
F(1, 28)=5.991, p=.021	Tutored students in Grade 6/7 Class in School 2 were significantly higher at T2 (M=72.67) than T1 (M=70.67)
F(1, 28)=5.991, p=.021	Tutored students in Grade 6 in School 2 were significantly higher at T2 (M=72.67) than T1 (M=70.67)
<b>Measurement School 3</b>	
<b>Repeated Measures ANOVA</b>	<b>Significant Results Explained</b>
F(1, 47)=7.585, p=.008	Tutored students in Grade 4/5 in School 3 were significantly higher at T2 (M=77.10) than T1 (M=75.70)
<b>Measurement School 4</b>	
<b>Repeated Measures ANOVA</b>	<b>Significant Results Explained</b>
F(1, 102)=13.556, p=.000	Students in Grade 5 in School 4 had significantly higher scores than all others in T2 (M=77.52) than T1 (M=76.38)
F(1, 101)=3.111, p=.049	Females in Grade 4 in School 4 showed the most increase from T1 (M=70.82) to T2 (M=71.09)
<b>Geometry and Spatial Sense All Schools Combined</b>	
<b>Repeated Measures ANOVA</b>	<b>Significant Results Explained</b>
F(1, 268)=3.528, p=.000	Students in Grade 3 were more significant at T2 (M=77.41) than T1 (M=76.44)
<b>Geometry and Spatial Sense School 2 Only</b>	
<b>Repeated Measures ANOVA</b>	<b>Significant Results Explained</b>
F(1, 73)=5.618, p=.020	Non-tutored students in School 2 grew significantly from T1 (M=78.94) to T2 (M=80.32)
<b>Geometry and Spatial Sense School 6 Only</b>	
<b>Repeated Measures ANOVA</b>	<b>Significant Results Explained</b>
F(1, 33)=4.931, p=.013	Students in Grade 3/ 4 in School 6 showed the most significant growth from T1(M=76.31) to T2 (M=77.54)



<b>Data Management and Probability School 4 Only</b>	
<b>Repeated Measures ANOVA</b>	<b>Significant Results Explained</b>
F(1, 84)=4.042, p=.048	Tutored students in School 4 had the most significant change from T2 (M=75.38) compared to T1 (M=73.19)
F(1, 84)=3.951, p=.050	Females in Grade 6 in School 4 showed the significant growth from T1 (M=76.50) to T2 (M=76.70)
<b>Patterning and Algebra All schools combined</b>	
<b>Repeated Measures ANOVA</b>	<b>Significant Results Explained</b>
F(1, 96)=24.200, p=.000	Non-tutored students showed the most growth from T1 (M=80.06) to T2 (M=80.42)
F(1, 96)=4.572, p=.035	Grade 6 students showed the most growth from T1 (M=75.14) to T2 (M=77.50)
<b>Patterning and Algebra School 2 Only</b>	
<b>Repeated Measures ANOVA</b>	<b>Significant Results Explained</b>
F(1, 55)=36.343, p=.000	Tutored students showed the most significant change from T1 (M=70.84) to T2 (M=73.53)

**Table 6.** Repeated Measures ANOVA (Between Subjects): Mathematics strands for all schools combined, separate and interpretation of the significant results

Table 6. has summarized statistically significant changes in students' scores for all strands in mathematics. Results varied widely by schools, teachers, genders and those students that were tutored. In Number Sense and Numeration, the performance of female students in Grade 6 (overall and at School 4) and male students in Grade 5 (at School 6) was noteworthy. Overall, students in School 5 showed growth in this strand. In Measurement, there was significant growth in the tutored students in Grades 4/5 (at School 3), Grade 6 (at Schools 2 and 4), and Grade 6/7 (at School 2). At School 4, there were remarkable changes in scores for students in Grades 4/5 and Grade 5 in Measurement. The results for Geometry and Spatial Sense point to overall significant growth in Grade 3 students and in particular Grade 3/4 students at School 6. For Data Management and Probability, again School 4's tutored students had the most significant change and female students in Grade 6. Finally, for Patterning and Algebra, overall, Grade 6 students showed the most growth and tutored students at School 2.

Again, readers are cautioned to the limitations that not all mathematics strands were taught within the duration of the project and some data are missing (i.e., not reported on in all terms).

### Limitations

It is typical with any educational research to declare limitations in the research methodology that might impact the comprehensiveness of the findings and generalizability to other educational settings. For example, Likert-scale surveys such as the one used to capture teachers' beliefs about mathematics instruction, possess natural internal biases when participants self-report their responses. As well, teachers' interview responses might be slanted toward a perceived confirmation of the positive effect of participating in a program. Other limitations of this research generalizability are based on the realities that this research took place in a medium-sized school board with a small number of teacher participants.

The student report card data presented limitations to the analyses as in some cases it was incomplete as teachers did not report on all strands in mathematics in both Terms 1 and 2. This renders the analyses invalid in some cases (notes have been made in the above tables to this effect). Additionally, there is the potential for a limitation to the instructional validity of the results of the student achievement data based on the fact that not all mathematics strands were the focus of the professional learning sessions. The design of this research could be enhanced with the inclusion of a student (non-intervention) control group. Finally, there is a lack of data from the perspective of the student learners in situ. Teachers commented on students' attitudes and behaviours; it would be optimal to garner the students' voices and examine their learning in the classroom.

## Next Steps

### Lessons Learned: Implications for Practice

Practicing teachers need a safe forum to express their beliefs about mathematics instruction. Facilitators need to begin this discussion with a debriefing about prior experiences as a student learning mathematics. Memories of effective and ineffective practices need to be deconstructed and connected to current, research-based instructional methods. The teacher's role as a director of knowledge versus a facilitator of student-directed learning should be explicitly addressed as part of teachers' beliefs and attitudes. This is an ongoing pursuit as teachers' own practices begin to change, their beliefs will be challenged and cognitive dissonance will ensue. Facilitators need to be acutely aware of the discomfort associated with cognitive dissonance, perceived loss of control, and resistance to change that some teachers exhibit.

Teachers are appreciative of direct supports for mathematics assessment and instruction. The Numeracy Nets were regarded as invaluable assessment tools and the teachers were looking for nets to cover all curricular expectations. This might be a focus of the curriculum department in the school board. Further, examples might be drawn from the teachers that are currently using the Numeracy Nets effectively to group students and differentiate instruction. There might be an emphasis on how this addresses the challenges in split grade classrooms and classrooms with a diversity of student needs in mathematics. In a similar vein, teachers might appreciate a repository of examples of "minds on" activities to identify and clear up students' misconceptions, problems that generate multiple solution pathways, and a variety of lesson consolidation activities.

Since the mathematics textbook was not comprehensively relied upon, it might be reviewed by a sub-committee of the curriculum department in order to identify specific and effective questions and activities. These might then be cross referenced to curricular expectations and recommended for classroom use in assessment or instruction.

With respect to the discomfort that teachers felt regarding covering fewer curriculum expectations than they had in the past, professional learning might focus on curriculum mapping and collapsing expectations into groupings that could be meaningfully taught concurrently. Modelling how to cluster expectations across strands and develop integrated mathematics lessons would be a next step in implementing this program of professional learning.

Teachers of students in Grades 3 and 6 need to become explicitly aware of how teaching through problem solving is embedded in EQAO assessment question items. In other words, EQAO preparation is ongoing throughout the primary and junior grades and inherently



a part of mathematics instruction. Teachers should not be regarding EQAO preparation as a distinct educational entity. Moreover, they should not be communicating it as such to their students as this reinforces the notion that it is a one-off assessment that does not require students to transfer their knowledge and skills.

A part of the initial professional learning agenda should include classroom set up and methods for students to work in cooperative groups. Teachers should work with strategies that address respect, social skills, listening, speaking and role-taking. Teachers might model 'math talk' and appropriate protocols for working in discussion groups. For students that are having difficulty engaging in open-ended problems, teachers could model their own conscious stream of inquiry through a talk aloud. When teachers highlight the fact that there is often no single best pathway to finding a solution, this provides validation for the multiple explanations.

Teachers should recognize that some of their students lack confidence and self-efficacy in mathematics and need positive reinforcement and assurance. Opportunities for this are presented when teachers are conferencing (one-on-one) with students and when students are presenting and sharing their work with their peers.

The role of the Intervention Coach should be sustained in a capacity that fully utilizes this educator's time and expertise. Tracking systems and procedures for identifying students' needs should continue to be honed and coaching time should be extended so that more students can be supported.

Without question, an essential component of this professional learning project was the release time that teachers received to co-plan and co-teach with their teaching partners. They regarded this piece as having an impact on both their practice and their students' learning. The time devoted to co-planning was used in a variety of ways and in some cases included teacher moderation of student work. Time allocated to co-teaching also varied and often included observation of students. The self-determination that teachers were granted to determine the path of their own professional learning was one of the key contributors to the perceived effect of this component of the project. Circuitously, this mirrors the key elements articulated in the purpose of the project as a whole: identifying needs, discussion, collaboration, problem solving and intervening.

### **Implications for Future Research**

Longitudinal research tracking the effects of teacher professional learning on both educators' practice and students' achievement is rare in educational research. An opportunity exists for a sustained investigation into the program of mathematics professional learning that has been presented herein. The teachers that have served as participants for this portion of the project are well-positioned to further enhance their mathematics instruction and be tracked for a full academic year – the achievement of their former and present students could also be studied. The research design could be extended to include additional teachers who might be mentored by the experienced ones. This type of parallel professional learning is collegial and affirming for all participants and would make a significant contribution to the research literature.

### **Moving Forward: Our Plan of Action for 2012-2013**

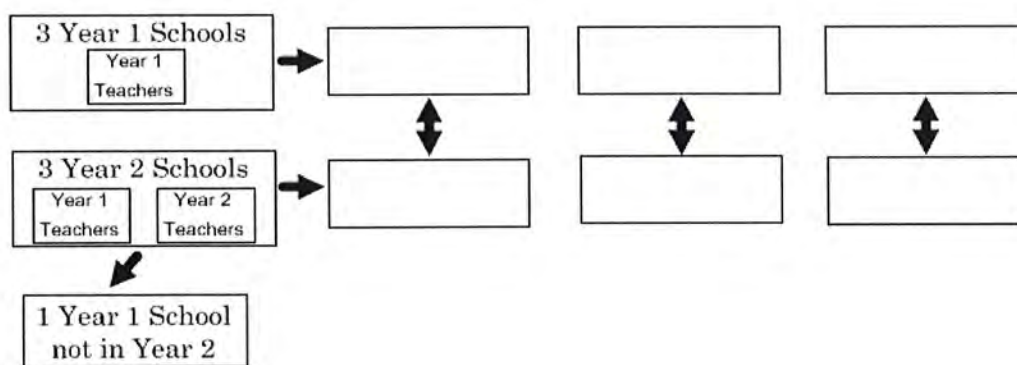
The following are steps that NCDSB will take next year in response to these lessons and to address the remaining implications:

- continue JMI research framework in 3 of four school sites in 2012-13



- introduce JMI project to three new school sites for 2012-13
- network each Year Two school with a Year One school
- alter to role of the Intervention Coach to gradually phase in all components of the project in Year One schools
- introduce Fosnot's *Contexts for Learning Mathematics* and *Landscapes of Learning* as a new resource to Year Two schools
- analyse teacher efficacy data for the following 4 parameters: Year One Teachers in Year One Schools, Year One Teachers in Year Two Schools, Year Two Teachers in Year Two Schools and Year Two Teachers in the non-participating school site.

**Figure 3.** below offers a flowchart of the JMI Project Framework (2012-2013) and **Table 7.** provides a description of the components of the JMI Coaching Focus Framework (2012-2013). Finally, **Table 8.** provides an associated Budget Request for 2012-2013.



**Figure 3.** JMI Project Framework (2012-2013)

Year One Schools	Year Two Schools
<b>Cycle #1: September / October</b>	
<ul style="list-style-type: none"> <li>• Numeracy Nets</li> <li>• Moderation of Numeracy Nets</li> <li>• Getting Ready for Problem Solving (Classroom Norms etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Getting Ready for Problem Solving (Classroom Norms etc.)</li> <li>• Co-teaching/Co-planning 3-part lessons (focus on consolidation)</li> <li>• <i>Year 1 teachers may need more of a Numeracy Nets focus</i></li> </ul>
<b>Cycle #2: November / December</b>	
<ul style="list-style-type: none"> <li>• Co-teaching/Co-planning 3-part lessons based on Numeracy Nets</li> </ul>	<ul style="list-style-type: none"> <li>• Intervention Coaching begins focused on teacher-targeted misconceptions</li> <li>• <i>Each teacher is released to meet 1-on-1 with coach for 1<sup>st</sup> debrief</i></li> </ul>

Cycle #3: January / February	
<ul style="list-style-type: none"> <li>Intervention Coaching begins focused on teacher-targeted misconceptions</li> <li>Each teacher is released to meet 1-on-1 with coach for 1<sup>st</sup> debrief</li> </ul>	<ul style="list-style-type: none"> <li>Intervention Coaching focused on teacher-targeted misconceptions</li> </ul>
Cycle #4: March / April / May	
<ul style="list-style-type: none"> <li>Intervention Coaching focused on teacher-targeted misconceptions</li> </ul>	<ul style="list-style-type: none"> <li>Intervention Coaching focused on teacher-targeted misconceptions</li> </ul>

**Table 6.** JMI Coaching Focus Framework (2012-2013)

Item #	Units	Description	Analysis	Cost/unit	Total
1	8 days	<b>Teacher Release Days</b>	6 schools 6 teachers/school = 36 teachers x \$245	<b>\$8,820</b>	<b>\$70,560</b>
2	18	<b>Resources Needed for Year 1 Schools</b>  One copy per teacher of <u>Big Ideas from Dr. Small</u>	18 teachers	<b>\$70</b>	<b>\$1,260</b>
	3	One set of Van de Walle's <u>Teaching Student-Centred Mathematics</u> per school	3 Year 1 Schools	<b>\$80</b>	<b>\$240</b>
3	1	<b>Intervention Coach Salary for 1 Year</b>			<b>\$90,000</b>
					<b>\$162,060</b>

**Table 7.** Budget Request for 2012-2013

### References

- Barlow, A. & Cates, J. (2006). The impact of problem posing on elementary teachers' beliefs about mathematics and mathematics teaching. *School Science and Mathematics*, 106(20), 64-73.
- Bauman, K. (2009). *Ontario numeracy nets: Grades 3-6*. Toronto: Pearson Education Canada.
- Charalambous, C. & George N. Philippou (2010). Teachers' concerns and efficacy beliefs about implementing a mathematics curriculum reform: integrating two lines of inquiry *Educational Studies in Mathematics*, 75, 1-21.
- Elmore, R. (2009). *Instructional rounds in education*. Cambridge: Harvard Education Press.

- Foong, P. Y., & Perry, B. (1998). Proportional reasoning and mathematical beliefs of student teachers from Singapore and Australia. *The Mathematics Educator*, 3(2), 38-53.
- Kramarski, B. (2009). *International Electronic Journal of Elementary Education*, 2(1).
- Lovin, L. & Van de Walle, J. (2006). *Teaching student-centred mathematics: Volumes 1-3*. Toronto: Pearson Education.
- Merriam, S. B. (2001). *Qualitative research and case study applications in education (2nd Ed.)*. Jossey-Bass.
- Ministry of Education. (2010). *Growing Success: Assessment, Evaluation, and Reporting in Ontario Schools. Assessment for Learning and As Learning*, 27-36.
- Ministry of Education. (2010). *School Effectiveness Framework. Components, Indicators and Evidence*, 11-37.
- Ministry of Education. (2011). *Paying Attention to Mathematics*.
- Perry, B., Howard, P., & Tracey, D. (1999). Head mathematics teachers' beliefs about the learning and teaching of mathematics. *Mathematics Education Research Journal*, 11, 39-53.
- Perry, B., Vistro-Yu, C., Howard, P., Wong, N-Y., & Fong, H. K. (2002). Beliefs of primary teachers about mathematics and its teaching and learning: Views of Singapore, Philippines, mainland China, Hong Kong, Taiwan and Australia. In B. Barton, K. Irwin, M. Pfannkuch, & M. Thomas (Eds.), *Mathematics education in the South Pacific (Proceedings of the 25th annual conference of the Mathematics Education Research Group of Australasia, Vol. 2, pp. 551-558)*. Sydney: MERGA.
- Perry, B., Wong, N. Y., & Howard, P. (2006). Comparing primary and secondary mathematics teachers' beliefs about mathematics, mathematics learning and mathematics teaching in Hong Kong and Australia. In K. D. Graf, F. K. S. Leung, & F. Lopez-Real (Eds.), *Mathematics education in different cultural traditions: A comparative study of East Asia and the West (pp. 435-448)*. New York: Springer.
- Sakshaug, L. & Wohlhuter, K. (2010). Journey toward teaching mathematics through problem solving. *School Science & Mathematics*, 110(8), p397-409.
- Small, M. (2009). *Big Ideas from Dr. Small: Grades K-3; 4-8*. Toronto: Nelson Education.
- SPSS Software. (2011). *PASW statistics 19.0*. Chicago, IL: SPSS Inc.
- Stake, R. E. (1995). *The art of case study research*. Sage Publications.
- Stake, R. E. (2006). *Multiple case study analysis*. The Guilford Press.



- Turner, F. (2009). Growth in teacher knowledge: individual reflection and community participation. *Research in Mathematics Education*, 11(1), 81-82.
- Warfield, J., Wood, T., & Lehman, J. (2005). Autonomy, beliefs and the learning of elementary mathematics teachers. *Teaching & Teacher Education*, 21(4), 439-456.
- White, Way, Perry & Southwell, (2005). Mathematical Attitudes, Beliefs and Achievement in Primary Pre-service Mathematics Teacher Education. *Mathematics Teacher Education and Development*, Vol. 7, 33-52.  
[http://www.merga.net.au/documents/MTED\\_7\\_White.pdf](http://www.merga.net.au/documents/MTED_7_White.pdf)
- Wilkins, J. (2008). The relationship among elementary teachers' content knowledge, attitudes, beliefs, and practices. *Journal of Math Teacher Education*, 11, 139-164.
- Yin, R. K. (2009). *Case study research: Design and methods (Applied Social Research Methods)* (4th Ed.). Sage Publications.
- Yin, R. K. (2004). *Applications of case study research*. Sage Publications.

#### **Author Note:**

Dr. Tiffany L. Gallagher is an educational researcher and Associate Professor in the Department of Teacher Education at Brock University. Her research expertise is in mixed methods research designs that investigate assessment and teaching strategies and students with exceptional learning needs. A request was made by NCDSB to the Research Officer at Brock University Faculty of Education for a researcher to investigate the *Junior Interventions Project* and Dr. Gallagher elected to assume this role. Throughout the 2011-2012 school year, Dr. Gallagher was at arms-length to the design and facilitation of this project. The research of this project was vetted through the Research Ethics Board at Brock University and NCDSB. Dr. Gallagher independently and confidentially collected and analyzed all of the data contained in this report. Dr. Gallagher has never been employed by Niagara Catholic District School Board and was not remunerated for the research or writing of this report; consequently she has remained an objective evaluator throughout this process.

# Final Report for the Literacy and Numeracy Secretariat:

Appendix B

## Niagara Catholic District School Board's Early Learning Math Inquiry Project (2013-2014)



June 27, 2014

**Brock University Faculty of Education Researchers:**

Tiffany Gallagher, Ph. D.

Marybeth Fortune, Ph.D.

**Niagara Catholic District School Board Team:**

John Crocco, Director of Education

Mark Lefebvre, Superintendent of Education

Christine Battagli, Research, Assessment, Evaluation & Reporting

Christopher Moscato, Numeracy Facilitator

© 2014

Final Report for the Literacy and Numeracy Secretariat:  
Niagara Catholic District School Board's Early Learning Math Inquiry Project

Table of Contents

<b>EXECUTIVE SUMMARY</b> .....	2
<b>Background and Identified Need</b> .....	4
Mathematics Achievement in the Province: NCDSB's Response .....	4
<b>Theoretical and Practical Foundations</b> .....	6
Theoretical Foundations: Academic Research .....	6
Practical Foundations: Ministry of Education and Literacy & Numeracy Secretariat Resources.....	8
Practical Foundations: Professional Resources.....	9
<b>Research Questions</b> .....	10
Teachers' Practices .....	10
Teachers' Beliefs and Attitudes .....	10
Students' Conceptual Understanding and Achievement .....	10
<b>Research Design</b> .....	10
Intervention Design .....	10
<b>Methodology</b> .....	12
School Sites, Teachers, and Students .....	12
Data Collection .....	13
Data Analysis .....	14
<b>Findings</b> .....	15
Teachers' Practices .....	15
Teachers' Beliefs and Attitudes .....	23
Students' Achievement .....	31
<b>Limitations</b> .....	37
<b>Next Steps</b> .....	38
Lessons Learned: Implications for Practice .....	38
Implications for Future Research .....	39
<b>References</b> .....	40
<b>Author's Note</b> .....	43



Final Report for the Literacy and Numeracy Secretariat:  
Niagara Catholic District School Board's Early Learning Math Inquiry Project

**EXECUTIVE SUMMARY**

**Background**

The program of professional learning that was the focus of this research sought to enhance early childhood educators' practices in mathematics instruction. Problem solving is the main context for mathematics learning and math talk is the vehicle for sharing and developing thinking. Within a math-talk community students engage in questioning, explain their mathematical thinking, describe sources of mathematical ideas, and assume responsibility for their own learning. Engaging with the big ideas in number sense and numeration allows students to explore the concepts in depth and see the connections to other concepts. This may be accomplished through inquiry-based instructional practices that engage students in co-operative, hands-on activities that make connections and applications between mathematics and other contexts. Teachers' use of inquiry-based instruction is influenced by their beliefs in its effectiveness. There is a need to support teachers' professional learning with respect to the role of language in mathematics inquiry-based teaching, while attending to their beliefs and attitudes about mathematics instruction and their content knowledge. A mathematics facilitator should support teachers as they explore pedagogies, mathematics concepts, and work in collaborative groups. Reflection is also an important consideration in teacher professional learning in mathematics. These components were key to the professional learning evaluated here which sought to build on early learning educators' mathematics content and pedagogical knowledge while bearing in mind their beliefs and attitudes about mathematics instruction and how students learn mathematics.

**Methodology**

The teacher professional learning in these schools focused on supporting students' conceptual understanding of number sense and numeration (e.g., cardinality, identifying symbols, composing/decomposing numbers, place and value) while participating in a collaborative, inquiry-based professional learning community. A Numeracy Facilitator led all professional learning sessions and worked with the Numeracy Consultant and two Math Coaches to offer ongoing support for the teachers throughout the project. There were two plenary sessions that were attended by all teacher participants and five, half day sessions that were guided by the Numeracy Facilitator at each of the school sites.

This research was an evaluative case study with the purpose to inquire into an educational program in order to determine its effectiveness. There were five research questions that related to educators' practices, beliefs, attitudes and students' achievement. Quantitative and qualitative data (surveys, interviews, fieldnotes, learning blogs, assessment scores) were collected from four sets of participants: teachers, early childhood educators, facilitators, and students. There were 16 teachers (ELKP to Grade 2) and 8 Early Childhood Educators (ECE) at three schools that participated in the program and their students (n=245) indirectly participated as recipients of the educators' professional learning. All participants signed informed consent forms to volunteer for the data collection.

**Findings**

The use of a diagnostic or assessment for learning measure provided teachers and early childhood educators with achievement data in relation to specific numeracy concepts to make instructional decisions accordingly. This moved the educators' orientation away from a deficiency perspective focussed on what the student *does not* know and prioritized student learning around foundational instructional concepts such as the eight principles of counting.

To foster dynamic inquiry-based instruction, educators allowed students to take the lead in their own learning, using students' interests as a catalyst. This supported students' knowledge of multiple ways to solve problems, make meaningful schematic connections, and it kept students engaged in the learning process. As well, teaching through problem solving with manipulatives and visuals was successful at supporting students' conceptual understandings, fostering student engagement and

making abstract concepts more meaningful and relevant. Educators intend to continue to teach number sense using inquiry and multiple strategies to accommodate for students' individual differences.

The importance of focusing on students' learning process, not just the product of their work, was identified as a way to promote students' understanding of concepts. Students were required to explain their thinking and talk about strategies to reinforce the importance of processes and appeal to higher-order thinking. Interactive dialogue with the student was highlighted as an important vehicle for cultivating an accurate picture of students' understanding. Educators became more aware of how they wanted to continue to use language in relation to how they talked about numbers. Math talk needs to be modelled and embedded into the culture of the classroom.

Educators investigated the progression of number sense expectations from primary grades into the junior division and recognized that number sense is pervasive throughout the curriculum. As a result, number sense could be effectively taught by integrating curriculum expectations into lessons rooted in other curricular strands and this appeared to be an efficient way to cover curriculum.

While there appears clear support for implementing evidence-based practices in the classroom, it can be difficult for teachers to know the extent to which they should be using such practices. Despite the consistent pressure of time constraints on classroom activities, teachers began covering material more thoroughly because they gave themselves permission to trust their instructional instincts enough to slow down and cover material comprehensively.

Shifts in educators' beliefs about math instruction occurred. Educators are less likely to hold the belief that mathematics problems are solved by proposing an absolute solution - there are multiple pathways to process mathematics questions. Similarly, these educators are more likely to believe that mathematics is a dynamic of many different ideas and learners interpret and organize this dynamic of information. These educators do not contend that mathematics learning is demonstrated through computations and the ability to memorize facts, procedures or formulae. In a similar vein, these educators do not believe that students should be focused on quickly getting a correct right answer to a mathematics problem - the process of problem solving and understanding why and how one derived at a solution is of great value. The educators regard a mathematics learning context as one that is enhanced by challenging mathematics problems within a supportive environment, and activities which build upon and respect students' experiences. The educators now appreciate their key role in monitoring and being responsive to students' activities in mathematics.

Educators welcomed the opportunity for growth, as they recognized they were at a critical inflection point on their own learning curve and that in order to promote student achievement they needed to invest in building their personal capacity. Accordingly, educators perceived their new instructional strategies and practices discussed at facilitated sessions to be of value to their instructional repertoire. Educators appreciated having access to support, both human support in their classroom to model best practices, and access to tangible resources. Support was a positive influence in their efforts around instructional capacity.

The results of the analyses of students' conceptual understanding and achievement were noted in students' transfer of skills to new settings and a demonstration of their own initiative without prompting. Students appear to be more confident in math, more comfortable with open ended tasks, and willing to take risks. Quantitative results derived from a pre-test and post-test of students' mathematical concepts complement these qualitative findings. There was a significant growth in student performance for all students (ELKP, Grade 1, 2) at all three schools in the majority of assessed concepts.

## Implications

Based on the findings, implications for practice and future research are offered. Facilitators should begin with a discussion of how to foster a student-driven classroom culture that supports inquiry-based strategies. On-site instructional modeling and demonstrations of new strategies might set the stage for educators to translate into their own practice. An expansion of the current program of professional learning might include a blend of teachers that have previously participated and teachers new to the initiative. Comprehensive baseline data about students' knowledge in relation to curricular expectations needs to be collected early in the school year.



**Final Report for the Literacy and Numeracy Secretariat:  
Niagara Catholic District School Board's Early Learning Math Inquiry Project**

**Background and Identified Need**

**Mathematics Achievement in the Province: Niagara Catholic District School Board's Response**

The mathematics achievement of students in the Province of Ontario has consistently dropped from Grade 3 to 6 over the past five years. Figures 1. and 2. display the percentage of all students (in Grades 3 and 6 respectively) at or above the provincial standard. Figure 3. shows the longitudinal changes in students' achievement from Grade 3 to 6.

**Percentage of All Grade 3 Students at or Above the Provincial Standard (Levels 3 and 4) Over Time**

	2008–2009	2009–2010	2010–2011	2011–2012	2012–2013
<b>NUMBER OF STUDENTS</b>	# = 125 481	# = 127 789	# = 124 117	# = 126 455	# = 127 645
<b>READING</b>	61%	62%	65%	66%	68%
<b>WRITING</b>	68%	70%	73%	76%	77%
<b>MATHEMATICS</b>	70%	71%	69%	68%	67%

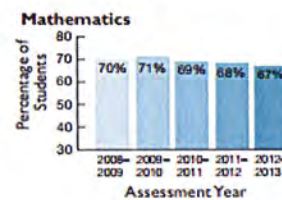
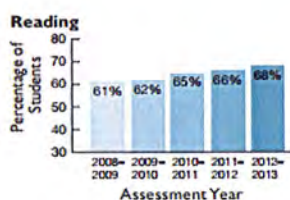


Figure 1. Grade 3 Students at or Above Provincial Standard

**Percentage of All Grade 6 Students at or Above the Provincial Standard (Levels 3 and 4) Over Time**

	2008–2009	2009–2010	2010–2011	2011–2012	2012–2013
<b>NUMBER OF STUDENTS</b>	# = 136 076	# = 134 294	# = 132 308	# = 129 477	# = 131 589
<b>READING</b>	69%	72%	74%	75%	77%
<b>WRITING</b>	67%	70%	73%	74%	76%
<b>MATHEMATICS</b>	63%	61%	58%	58%	57%

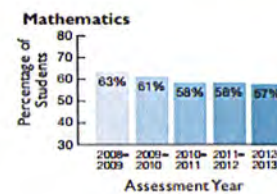


Figure 2. Grade 6 Students at or Above Provincial Standard



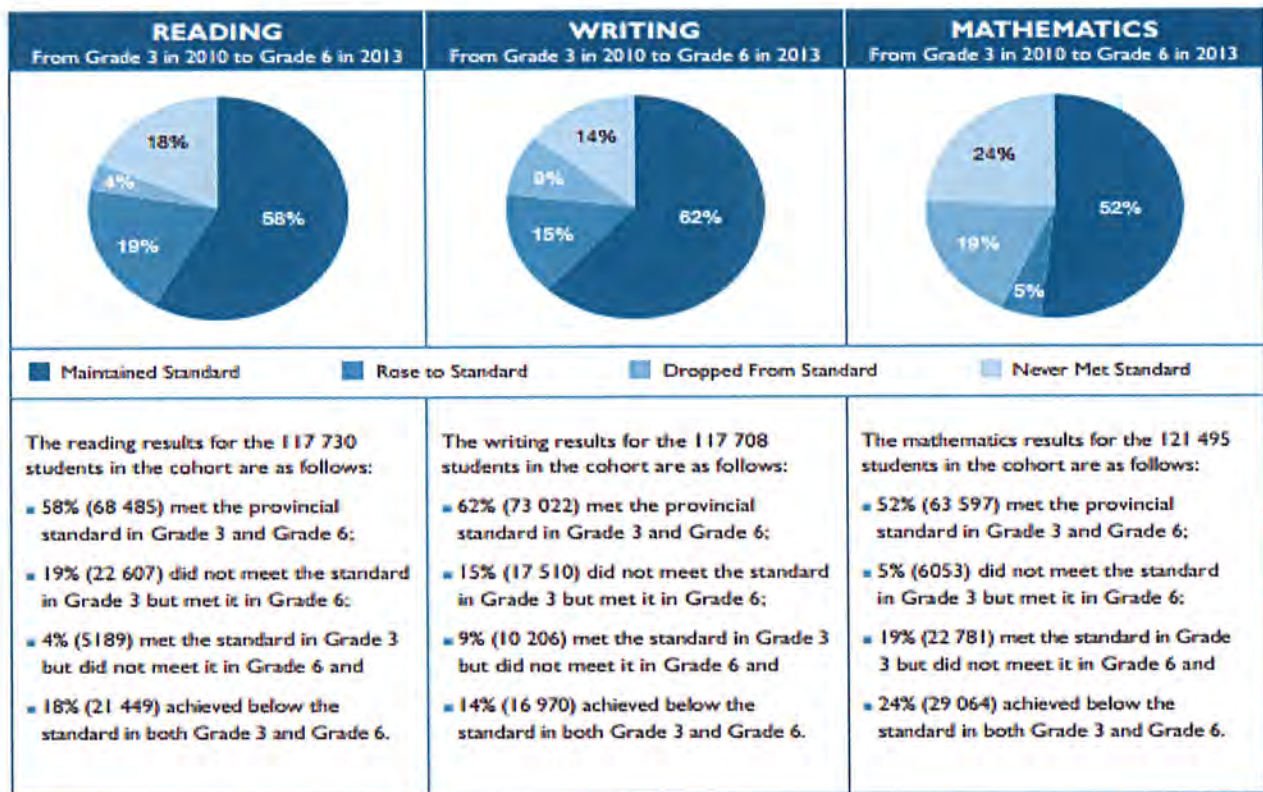


Figure 3. Change in Students' Achievement from Grades 3 to 6

In addition to this Provincial achievement data, the accomplishments of the previous two-year, *Junior Mathematics Intervention Project* provided the rationale for the Niagara Catholic District School Board to embark on a journey to solidify the number sense of students in ELKP-2. If there were significant gaps in student achievement with respect to number sense and these gaps could be closed with targeted intervention, then the instructional focus needed to be in the early years. The inquiry question that NCDSB adopted was:

*If we provide highly effective mathematics instruction focusing on Number Sense and Numeration in ELKP - Grade 2, then our students will have a deeper understanding of the concept of number and be able to use that understanding in a flexible manner to solve problems.*

The Niagara Catholic District School Board referenced the work of Duncan (2011) which identified six population-based data sets involving 16,387 children and included measures of reading and math competency, attention skills, pro-social behavior, and antisocial and internalizing behavior. Data were collected at the time of school entry, and then measures of reading and math competency were taken later in the primary or middle school years. This analysis is widely viewed as providing a clear answer about the relative role of school-entry skills and behaviors: early academic skills appear to be the strongest predictor of subsequent scholastic success - early math skills more so than early reading skills. Duncan asserts that research should now focus on why math skills, which combine conceptual and procedural competencies, are the most powerful predictor of subsequent achievement and attainment. Duncan (2011, as cited in Christensen, 2001), states that "experimental evaluations of early math programs that focus on particular skills and track children's reading and math performance throughout elementary school could help identify missing causal links between early skills and later success."

## Theoretical and Practical Foundations

### Theoretical Foundations: Academic Research

For over a decade, there has been an emphasis on supporting early learners as they engage with the big ideas in mathematics. There are five representations of mathematical ideas: pictures, written symbols, manipulative models, real-work situations, and oral language (Van De Walle, Karp, & Bay-Williams, 2013). Translations between and within each of these five representations can support understanding and aid learning new concepts. To foster an understanding of such broad new concepts, teachers should teach using these five representations. This call to action is premised on the notion of supporting "mathematical literacy which includes the roles of language, symbols, texts and social interactions in the early development of mathematical thinking and understanding" (Ashton, 2007). This notion implies that context and communication are integral to the application of mathematical representations.

Problem solving is the main context for mathematics learning and math talk is the vehicle for sharing and developing thinking (Ministry of Education, 2003). Engaging with the big ideas in number sense and numeration allows students to explore the concepts in depth and see the connections to other concepts. Using the big ideas in mathematics helps teachers to see that concepts should not be taught in isolation, but as "a connected network of interrelated concepts" (Ministry of Education, 2003). By teaching the big ideas in number sense, teachers are appealing to a depth of understanding as these big ideas are conceptually interdependent and overlapping. Implicit is the need to teach for this profundity in conceptual understanding, knowledge and language and not to cover a breadth of mathematical skills.

The program of professional learning that was the focus of this research sought to enhance early childhood educators' practices in mathematics instruction. Recommendations set out by the National Association for the Education of Young Children (NAEYC) and the National Council of Teachers of Mathematics (NCTM; 2010) were inherent in the mathematics programming espoused by the Niagara Catholic District School Board (NCDSB). These state that teachers of mathematics for 3- to 6-year-old children should:

1. enhance children's natural interest in mathematics and their disposition to use it to make sense of their physical and social worlds
2. build on children's experience and knowledge, including their family, linguistic, cultural, and community backgrounds; their individual approaches to learning; and their informal knowledge
3. base mathematics curriculum and teaching practices on knowledge of young children's cognitive, linguistic, physical, and social-emotional development
4. use curriculum and teaching practices that strengthen children's problem-solving and reasoning processes as well as representing, communicating, and connecting mathematical ideas
5. ensure that the curriculum is coherent and compatible with known relationships and sequences of important mathematical ideas
6. provide for children's deep and sustained interaction with key mathematical ideas
7. integrate mathematics with other activities and other activities with mathematics
8. provide ample time, materials, and teacher support for children to engage in play, a context in which they explore and manipulate mathematical ideas with keen interest
9. actively introduce mathematical concepts, methods, and language through a range of appropriate experiences and teaching strategies
10. support children's learning by thoughtfully and continually assessing all children's mathematical knowledge, skills, and strategies.

When teachers believe that they command a strong understanding of mathematics concepts, their students believe that they can generate ideas and solutions to mathematics problems and that math knowledge does not originate from external sources (Beghetto & Baxter, 2012). Yet, teachers hold different beliefs about the autonomy of students to construct mathematics knowledge through language



and their own autonomy to make instructional decisions. This reality was an important consideration for the program of professional learning featured here.

In general, teachers hold distinct beliefs about how their instruction is affected by their role, their students and the content (Elmore, 2009). Traditional, teacher-centred instruction contends that the role is teacher-as-director and students are recipients of the content. Contemporary, inquiry-based instructional practices engage students in hands-on activities with manipulatives to explore concepts and work on problems for which there is no immediately obvious method of solution (Wilkins, 2008). Nonetheless, not all teachers believe that students can self-direct their own mathematics learning. In a study of elementary teachers who focused their professional learning on how to enhance students' problem-solving strategies, only about half of the teachers involved the students in inquiry into their peers' strategies (Warfield, Wood & Lehman, 2005). By contrast, teachers who believe that inquiry-based instructional practices are effective will engage students in co-operative, hands-on activities that make connections and applications between mathematics and other contexts (Wilkins, 2008).

Teachers are beginning to value the utility of language and talk as integral to the dynamic of teaching mathematics through inquiry (Hye & Reifel, 2011). Students need to be engaged in communication with their peers while their teacher poses questions and allows them to explore potential solutions to mathematics problems. Teachers can elicit math-talk that actively engages students as they interact and explain their thinking. A math-talk learning community is defined as one in which students assist each other by engaging in meaningful mathematical discourse. Within this community students engage in questioning, explain their mathematical thinking, describe sources of mathematical ideas, and assume responsibility for their own learning (Hufferd-Ackles, Fuson, & Sherin, 2004). Teachers can effectively support primary level students to engage in math-talk that includes interrogation, explanations of their thinking processes and argument (Bruce & Flynn, 2011). Research has found that primary teachers can effectively support students in their use of talk as a tool for mathematical reasoning and problem solving (Mercer & Sams, 2006).

In a math-talk community, teachers should pose open-ended or open-routed questions. To do so effectively, teachers need to have experience in devising pedagogically meaningful questions and supporting students' responses that exemplify their efforts to make meaning and articulate their thinking. Teachers need to give pedagogically sound explanations that bridge mathematical content to students' thinking (Inoue & Buczynski, 2011). When teachers become active participants listening and talking during student conversations, they are able to help students express their thinking, assess students' understanding, and determine misconceptions (Vanderhye & Demers, 2008).

Accordingly, it is essential to address student misconceptions in mathematics through assessment to diagnose student needs (Airasian, Engemann, & Gallagher, 2010; Ministry of Education, 2010) and inform instructional decision-making. Good assessment practices provide information on student conceptual and skill development as well as information on the effectiveness of math-talk, questioning, and instructional activities. Teachers need to constantly assess and evaluate their teaching strategies to determine if they are supporting inquiry in the classroom (Jacobs, 2004) and facilitating the learning of big ideas in mathematics (Ministry of Education, 2006). In the early learning classroom, teachers should observe students to assess how they demonstrate an understanding of a concept, use strategies to solve the problem and then explain the strategies that they used.

The academic research points to the need to support teachers' professional learning with respect to the role of language in mathematics problem-solving teaching, while attending to their beliefs and attitudes about mathematics instruction and their content knowledge. Since beliefs, attitudes, and content knowledge are all related to teachers' mathematics instructional practice (Wilkins, 2008), a program of professional learning should address all of these components. In particular, attention must be paid to teachers' beliefs as these mediate the effects of content knowledge and instructional practice attitudes (Wilkins, 2008). Specifically, how do these factors interact with respect to inquiry-based mathematics instruction?

Teachers' use of inquiry-based instruction is influenced by their beliefs in its effectiveness. Not surprisingly, teachers with positive attitudes toward mathematics are more likely to believe in the effectiveness of inquiry-based instruction and use it more frequently in their classroom. Interestingly, a



recent study by Wilkins (2008) found that early primary teachers (grades K-2) tend to naturally use inquiry-based instructional methods more often than junior teachers (grades 3-5).

The design of a professional learning program in mathematics is essential. In particular, when the program of professional learning focuses on how to incorporate and pose effective mathematics problems, teachers' beliefs shift toward recognizing the impact of their mathematics instruction (Barlow & Cates, 2006). A successful program of professional learning for elementary teachers found that modelling self-questioning during mathematical problem solving combined with systematic reflective support from colleagues contributes to teachers' pedagogical-content knowledge and their metacognitive knowledge of mathematics (Kramarski, 2009). The program of professional learning evaluated here sought to build on early learning educators' mathematics content and pedagogical knowledge while bearing in mind their beliefs and attitudes about mathematics instruction and how students learn mathematics.

Supporting the practice and confidence of teachers to instruct mathematics through problem solving takes time and personnel (e.g., facilitators, consultants, coaches). Research (Obara & Sloan, 2009) on the role of a mathematics facilitator has found that teachers benefit from a site-based, long-term professional learning that targets content and pedagogical knowledge. The mathematics facilitator should support teachers as they explore pedagogies, mathematics concepts, and work in collaborative groups. Teachers also need opportunities to personally engage and practice problem solving together. This type of collaboration contributes to teachers becoming more comfortable with the mathematics and recognizing the importance of group work while problem solving. For most teachers, this transfers to how they then support their students' collaborative problem solving (Sakshaug & Wohlhuter, 2010).

Reflection is also an important component in teacher professional learning in mathematics. It has been found that teachers' individual reflection facilitates the reflexive relationships within a school's community of practice. Reflection enables teachers to improve their skills, beliefs and perceptions of mathematics teaching and is an overall facilitator of teacher development (Turner, 2009). The *Early Learning Math Inquiry Project* in NCDSB was conceived with these professional learning design components in mind.

## Practical Foundations: Ministry of Education and Literacy and Numeracy Secretariat Resources

### *Paying Attention to Mathematics Education K-12 (Ministry of Education, 2011)*

The Ministry of Education (2011) cites two factors that contribute to successful projects focused on mathematics instruction and student achievement. These two factors were integrated into *NCDSB's Early Learning Math Inquiry Project*:

1. collaboration and learning that includes *teacher professional development meetings and classroom experiences* for students and teachers;
2. use of mathematics content and pedagogical expertise that can *support the embedding of understanding of mathematics* content for teaching and learning within the ongoing work of teachers.

### *School Effectiveness Framework (2010)*

Key components of NCDSB's *Early Learning Math Inquiry Project* are the effective practices of *assessment for, as, and of learning* as well as *School and Classroom Leadership*. The following indicators from the *School Effectiveness Framework (2010)* were instrumental factors within this Project:

#### Indicator 1.5:

A variety of valid and reliable assessment data is used by students and teachers to continuously monitor learning, to inform instruction and assessment to determine next steps.

**Specifically:**

- Instructional decisions are made and actions are taken to respond to what student demonstrations reveal

**Indicator 2.4:**

Job-embedded and inquiry-based professional learning builds capacity, informs instructional practice and contributes to a culture of learning.

**Specifically:**

- Evidence of student learning is shared as a catalyst for professional dialogue.
- Knowledge and effective instructional practices are shared (through observation, co-planning, collaboration, mentoring and coaching)

**Practical Foundations: Professional Resources**

*Instructional Rounds in Education (Elmore, 2009)*

The *Early Learning Math Inquiry Project* cited Elmore's (2009) description of Cohen and Ball's instructional core: the relationship between the teacher, the student and the content. Based on this instructional core, Elmore's first principle challenges facilitators to:

- 1) increase the level of knowledge and skill that the teacher brings to the instructional process;
- 2) increase the level of complexity of the content the students are asked to learn;
- 3) change the role of the student in the instructional process.

In addition to these challenges, Elmore also outlines his considerations for effective professional development, noting its quality depends on:

- 1) what teachers are being asked to learn;
- 2) how they are learning it;
- 3) whether they can make the practices they are being asked to try, work in their classrooms.

Throughout the planning process, the *Early Learning Math Inquiry Project* facilitators frequently cross-referenced these six guidelines with the goals that were set for the professional learning sessions to ensure the cohesiveness of the project.

*Teaching Student-Centred Mathematics (Van de Walle & Lovin, 2006)*

Van de Walle and Lovin's *Teaching Student-Centred Mathematics K-3* provides NCDSB schools with a source for further content-knowledge-building and ideas for group-learning tasks. This resource allows teachers to locate relevant information and activities to help plan for targeting student misconceptions. All teacher participants were provided with an additional school set of this professional resource.

## Research Questions

Research questions that framed this case study were posed to evaluate the Niagara Catholic District School Board's *Early Learning Math Inquiry Project* (2013-2014). The five research questions that were identified relate to teachers' (both classroom teachers and early childhood educators) practices and beliefs, and students' conceptual understanding and achievement. The following are these research questions and sub-questions that guided the evaluation of this initiative:

### Teachers' Practices

1. Are teachers (ELKP, Grades 1-2) using evidence-based practices in their mathematics Number Sense and Numeration instruction?
  - a. Are teachers focusing on the relationship between the teacher, the student and the concepts?
  - b. Are teachers identifying curriculum connections and using curriculum mapping?
  - c. Are teachers promoting students' understanding of math content?
  - d. Are teachers using instructional strategies such as: mathematical discourse, collaborative inquiry, teaching through problem solving, open questions and parallel tasks?

### Teachers' Beliefs and Attitudes

2. Do teachers perceive growth in their knowledge of mathematics content and mathematics instructional methods in Number Sense and Numeration?
3. Has the recent project in professional learning in mathematics instruction increased teachers' self-efficacy in mathematics instruction?
4. Has the recent project in professional learning in mathematics instruction made an impact on teachers' intentions for their future practice?

### Students' Conceptual Understanding and Achievement

5. Were there shifts in students' (ELKP - Grade 2) conceptual understandings and mathematical achievement in Number Sense as a function of their teachers' participation in the (*Early Learning Mathematics Inquiry*) project?

## Research Design

### Intervention Design

The intervention design has overlapping layers of teacher professional learning and enhanced student learning in mathematics. Three schools (of a similar demographic profile) participated for the first time and focused on implementing and supporting successful instructional practices in order to focus on student mathematics achievement in the Early Learning Years (ELKP, Grades 1-2). The targeted strand in mathematics was Number Sense and Numeration with the view of ensuring that students have a firm foundation prior to the end of the primary grades. The teacher professional learning in these schools focused on supporting students' conceptual understanding of number sense and numeration (e.g., cardinality, identifying symbols, composing/decomposing numbers, place and value) while participating in a collaborative inquiry based professional learning community. Both classroom teachers and early childhood educators (in the ELKP classrooms) participated. In order to address this intention, these schools were introduced to the document, *Paying Attention to Mathematics*



*Education* (Ministry of Education, 2011) and the "Seven Foundational Principles for Improvement in Mathematics K-12."

Operationally, the intervention design included three key components: facilitated teacher professional learning sessions, collegial teacher professional learning, and targeted student instruction (based on diagnostic assessment) The project focused on providing teachers with professional learning and support in the use of the instructional methods of student inquiry. This was accomplished through professional learning sessions that sought to clarify mathematics content and enhance teachers' pedagogical expertise. It was also the intention of this initiative to increase teachers' efficacy by building their self-confidence in their abilities to develop accurate conceptions to remedy the misconceptions that commonly occur with early learners' understanding of mathematics. Taken together, this project sought to improve student conceptual understandings and create a classroom culture of student inquiry in mathematics.

### *Facilitated Teacher Professional Learning Sessions*

The teacher professional learning was facilitated in three NCDSB elementary schools. Teachers and early childhood educators in ELKP, Grades 1 and 2 participated in the project from October 2013 - May 2014. The Numeracy Facilitator (Carlo), Numeracy Consultant (Bettina) and two Numeracy Coaches (Luciana, Jessa) provided the teacher professional learning sessions to support:

- teaching through inquiry (e.g. teachers finding the mathematics in the work that they students were doing)
- strategies to target misconceptions identified through a diagnostic resources (e.g., *Developmental Math Assessment*)
- improve teacher efficacy through development of mathematics content and pedagogical knowledge

The Numeracy Facilitator led all professional learning sessions and offered ongoing support for the individual needs of teachers throughout the project. The schedule of facilitated professional learning sessions included one half plenary day, followed by five half days (approximately one per month), and then finished with one half day plenary. All participating teachers and early childhood educators had release time for these sessions.

The two plenary sessions were attended by all teacher participants and were co-facilitated by the Numeracy Consultant and two Numeracy Coaches. The first session in October, 2013 was an introductory session and the agenda included the following:

- overview of the research project
- key constructs: collaboration, inquiry, and number sense and numeration
- project vision and goals
- student assessment data
- progression from diagnostic assessments to responsive lesson planning to implementing inquiry in the classroom
- connections to mathematics expectations

The five, half day sessions were facilitated by the Numeracy Facilitator at each of the school sites and included in separate groupings the ELKP teaching team (teachers and early childhood educators) and the Grade 1 and 2 teachers. School administrators floated in and out of these sessions. These five sessions followed an identical agenda at each site which included guided activities for enhancing teachers' mathematics content and pedagogical knowledge and then group discussion. This discussion varied from session to session, however, the focus was typically on the school-site inquiry question, analysis of the mathematics diagnostic test results to identify student misconceptions; collaborative inquiry methods; teaching through student inquiry. There was time devoted during each of these

sessions for teacher participants to share their experiences and successes with their colleagues and write in their on-line learning logs.

The final plenary session in May, 2014, was a consolidation and debriefing session for all teachers and early childhood educators. The discussion focused on:

- same grade teacher discussion groups (planning; inquiry-based lessons; consolidation; next steps)
- sharing of grade-specific findings based on authentic student work samples
- school site discussions related to BIPSA planning for next year

Throughout the eight month duration of the project, the Numeracy Facilitator, Numeracy Consultant and two Numeracy Coaches were also available for each school to provide the teachers with on-going support in coaching, planning, modelling strategies, and/or providing co-instruction.

### Methodology

Case study is an exploration or study of a bounded system which may consist of multiple sites within the same study. This research is an evaluative case study with the purpose of inquiry into an educational program in order to determine its effectiveness as judged by the researcher (Merriam, 2001; Stake, 1995, 2006; Yin, 2004, 2009). This case study has been informed by both qualitative and quantitative data and in this vein employs mixed methods of data collection. Ethical clearance to conduct data collection was granted by both Brock University Research Ethics Board and Niagara Catholic District School Board's research ethics boards. All participants (teacher participants, facilitators, parents/guardians of students) signed informed consent forms.

### School Sites, Teachers and Students

In sum, three elementary schools participated in this program. Participating schools were chosen to build capacity within and throughout the system, as well as, staff readiness to incorporate inquiry-based professional learning in order to build capacity, inform instructional practice, and contribute to a culture of early years learning. The administrators at these schools held goals related to improving mathematics achievement in their school improvement plans - a program focused on early learning in math was anticipated to ameliorate for inconsistent student performance on the Grade 3 and 6 EQAO tests.

There were 16 teachers (ELKP, Grades 1 and 2) and 8 Early Childhood Educators (ECE) that participated in the program and their students indirectly participated as recipients of the teachers' professional learning. In total, there were 245 students in these 16 classrooms. The following **Table 1.** offers a coded profile of each of these school sites, the teachers, and their students. **Table 2.** is a summary of the student participant sample.

School Codes	Teacher Codes	ECE Codes	Grade	Number of Students
2	2AT	2AE	ELKP	22
	2BT	2BE	ELKP	19
	2CT	2CE	ELKP	26
	2DT	2DE	ELKP	21
	2FT		1	18
	2GT		1/2	16
	2HT		2	11
	2JT		2	12
3	3KT	3KE	ELKP	19
	3LT	3LE	ELKP	20
	3MT		1	10

	3NT		1/2	12
4	4QT	4QE	ELKP	6
	4RT	4RE	ELKP	11
	4ST		1/2	9
	4TT		1/2	13

Table 1. Summary of Sample: Schools, Teachers, ECE's, Grades, Students

Grade	School 2	School 3	School 4	Total Females	Total Males	TOTAL
ELKP (Yr. 1)	35	20	11	35	31	66
ELKP (Yr. 2)	53	19	7	33	46	79
Grade 1	27	16	10	28	25	53
Grade 2	30	6	12	21	27	48

Table 2. Summary of Student Sample by Grade, School, and Gender

### Data Collection

There were three sets of participants that data were collected from: teachers, facilitators and, students. Within each participant set, multiple forms of data were collected. This practice contributed to the triangulation of the data and the rigour of the findings.

#### *Teacher and ECE Data: Surveys*

In October, 2013 at the first plenary session, teachers were surveyed to capture their current practices and beliefs related to mathematics instruction. At the end of the final plenary session in May, 2014, the teachers were again surveyed to capture changes in their practices and beliefs as a function of the professional learning project. The surveys consisted of questions on a 5-point Likert scale (Strongly Disagree, Disagree, Undecided, Agree, Strongly Agree). Question items included statements summarizing contemporary approaches to teaching mathematics and commonly espoused teachers' beliefs about mathematics. The surveys were adapted from previously administered instruments (Foong & Perry, 1998; Perry, Howard, & Tracey, 1999; Perry et al., 2002; Perry, Wong, & Howard, 2006; Quillen, 2005; Van de Walle, Karp, & Bay-Williams, 2013; White, Way, Perry & Southwell, 2005; Wilkins, 2008). The surveys were coded for each of the teacher participants and question responses were compared for the October and May administration dates.

#### *Teacher and ECE Data: Anecdotal Notes during Professional Learning Meetings*

Anecdotal notes were taken by the researchers during the two plenary sessions and one of each of the half day sessions. During these sessions, the researcher was an unobtrusive observer taking fieldnotes of the professional dialogue and collecting artifacts. All three of the teacher, ECE and facilitator participants were observed.

#### *Teacher and ECE Data: Interviews*

Teachers (n=8) and ECE's (n=4) from each of the three schools were interviewed in May, 2014. These participants volunteered for this interview and were given release time. The purpose of the interview was to garner an elaboration of the educators' practices and beliefs with examples and illustrations from the classroom. Teachers were asked 8 questions about instructional strategies and



evidence-based instruction practices in mathematics. They were asked about their perceptions of students' understanding of math content and mathematics achievement. Finally, they were asked about their own professional learning growth and self-efficacy in mathematics instruction. The 30 minute interviews were transcribed by a transcriber.

### *Teacher and ECE Data: Learning Blogs*

Teachers wrote learning blog entries periodically during the project. The intent of the learning blog was to track teachers' experiences and reflections throughout the project. The entries were open-ended and teachers were encouraged to journal about any salient experiences, observations, or questions related to their practice or student learning. This activity was meant to bring awareness to educators' connections to exemplary instructional practices. Subsequent learning blog entries were prompted by the facilitated professional learning sessions. The final blog entry was intended to be a comprehensive reflection on the project and what the teachers believed that they had derived from it. The confidentially coded learning blogs were collected by the researchers at the end of the final session.

### *Facilitator Data: Anecdotal Notes during Professional Learning Meetings and Interview*

As noted above, anecdotal notes were taken by the researchers during the plenary sessions and at each of the on-site sessions observing the facilitator and the educators. Carlo, the K-12 Numeracy Facilitator was interviewed in May, 2014. The purpose of his interview was to garner an elaboration on his evaluation of the project and changes in teachers' and ECEs' practices and beliefs.

### *Student Data: Developmental Math Assessment (2013)*

The student data were coded by: school/teacher/grade/student code/gender. Student participants were tested one-on-one in October and May on the *Developmental Math Assessment*. There were four forms or versions of the assessment administered to each of the developmental levels of students: Prekindergarten Age 3-4 (ELKP Year 1 students); Prekindergarten Age 4-5 (ELKP Year 2 students); Grade 1 Readiness (Grade 1 students); Grade 1 Level (Grade 2 students). Each form of the test had several sub-tests (see Tables 4-7 below for the list of sub-tests and results). Student performance was recorded on an nominal scale as indicated on the DMA as 0=None Correct; 1=Part Correct; 2=All Correct.

## **Data Analysis**

The interviews (teachers, facilitator) were transcribed by a transcriber and the researchers then conducted qualitative data analysis including coding and collapsing data into themes. These subsequent themes were derived in response to the research questions. The learning logs and anecdotal notes were similarly coding using the same themes that evolved from the interview data. Interpretations of the themes were made and illustrative quotes were selected from all of the participants. These qualitative findings are mapped back to the five research questions in the following section.

The quantitative data (teachers' surveys, students' assessment data) were entered and analyzed using SPSS 19.0 (SPSS Software, 2011). The teacher survey data (October and May, 2014) and were compared using Paired Sample t-tests. The students' assessment data for pre-test (October) and post-test (May) were compared for all test items using Wilcoxon Signed-Ranks Test (Laerd, 2014).

## Findings

The following section is a presentation of the findings based on the data analyses. These findings respond to the clusters of research questions related to: "Teachers' Practices", "Teachers' Beliefs and Attitudes", and "Students' Conceptual Understanding and Achievement". Within these three clusters, the findings will describe how the teachers: focussed on the relationship between the teacher, student and the content; identified curriculum connections; promoted students' understanding of mathematics content; and used instructional strategies. Teachers' beliefs about growth in their knowledge, self-efficacy, and intentions for future practice are summarized. Finally, the results of the analyses of students' conceptual understanding and achievement as a function of the evidence-based practices are offered.

### Teachers' Practices

#### Are teachers focusing on the relationship between the teacher, the student and the content?

One of the first tasks completed in this project was to gather baseline data regarding students' existing knowledge of number sense. This in-depth information about each individual student, provided to the respective classroom teachers and early childhood educators, was a critical starting point for the facilitator's foundational position that educators' instructional decisions need to be data-driven. Upon reviewing this data, educators readily responded by noting achievement trends in relation to specific numeracy concepts and making instructional decisions accordingly. A factor in the teachers' approach to maximizing student achievement was to first to determine an accurate picture of students' conceptual strengths and weaknesses.

I think that the biggest thing with the teacher and the student is for the teacher to see where the students are at. I think that was a key for them to understand, to really know where students' mathematical instruction starts, to know where on the trajectory or where on the landscape of learning the student is, to see the mathematics that the student is presenting. Often times the teacher would start a lesson because that is where they needed to start and not necessarily know why they are starting there, and I think that when teachers saw students' work it really became evident to the teacher (Interview, Facilitator 1F).

When looking at my class data I was shocked that when my students were asked to orally count and count objects they had difficulty with it, the majority of the students could not complete this task. I was pleased to see that the majority of the class was able to compare and order and match. After looking at the data, this assisted me to find out the strengths and weaknesses of my students. From the data, I began to form my class TLCP where counting is the focus (Journal, Teacher 4RT, Dec 13/13).

What was most valuable to us when we started this was we didn't know where the students were in math. We didn't even know where to focus. So the base line, the original assessment, really helped us focus on what we really needed to teach them and that's what we focused on. That's how this whole thing has actually helped us and the end result was that they did improve (Interview, ELKP Teacher 4QT).

We have seen the students' testing and saw that some students improved and regressed in their math skills. With this information we, as teachers, can either give the students new challenges or continue to help with areas of difficulty (Journal, Early Childhood Educator 3KE, Feb. 25/14).

Clearly a lot of work needs to be done with a focus on number sense, which is the key to understanding and allowing a progression to occur, however small or big it may be. Concepts of subtraction and addition need to be practiced ongoing (Journal, Teacher 3NT, Dec. 16/14).

I was surprised at how many of my students were unable to answer questions about "1 more" and "10 more" but could answer questions about "less". I was also surprised to see how many year 2 students struggled with the question about matching. We have begun to use more/less more frequently throughout

the day and also have introduced the vocabulary "match" into our lessons instead of just using "pair" (Journal, Teacher 3LT, Dec. 13/13).

This year I really tried to take a few steps back and just really see where they are at and where I needed to move them individually, rather than as a whole. I tried to look at them more individually than I may have in the past (Interview, Grade 1/2 Teacher 2GT).

The importance of understanding the extent of students' conceptual knowledge included a clear impetus to honour what the child *does* know before leveraging students' prior knowledge to effectively address knowledge gaps. This moves a teacher's orientation of responding to assessment information away from a deficiency perspective focussed on what the student *does not* know.

Today it was interesting to focus on the idea of what the child *does* know when looking at a piece of student work. When we really sat down to analyze student work without knowing who the child was or having any preconceived ideas of their learning, we were able to look objectively and see an accurate picture of where they were. It was interesting how first spending time on what they do know before moving on to next steps helped us to see learning in more of a positive light (Journal, Teacher 3LT, Jan. 15/14).

Our meeting in January helped me to better understand that when I take a look at what the student *already knows*, then I can determine what should or could come next for that student. This is a great way to extend a student's learning so that they are challenged to go to the next level (Journal, Teacher 2DT, Jan. 27/14).

To foster the conditions necessary for dynamic inquiry-based classroom strategies, educators made a conscious effort to adjust their relationship with students to one that includes student driven practices. While this did not negate the need for some teacher driven instruction, it did provide the opportunity for students to take the lead in their own learning. Educators saw the benefits of allowing students to set the instructional pace and impact the focus of the lesson, which was made possible because the educators authentically listened to their students. Talking with their students and listening to them enabled educators to maximize their responsiveness to an individual student's learning needs.

It is the talking and listening to the students as opposed to them listening to us. More team work... I guess what I found through instruction with the students is that the relationship definitely was really to listen to them and see exactly where they were at. Without listening to them, and having them reflect on what it is exactly that they were thinking, you really did not understand where their numbers came from. So, as a teacher, I definitely started learning to really listen to see at what level they were at and to see exactly what clues or pieces were missing with the student in order for them to get to the answer. That was the huge thing that I noticed. Before, without that, I would look at the end result and they [the students] were not able to decipher it either. So that was a huge piece that I learned that we needed, which is relationship with the student for sure in order to understand where they were coming from, or the fact they were coming from nowhere, if that was the case (Interview, Grade 1/2 Teacher 3NT).

I think I've learned a lot in terms of shifting the way I've been looking at presenting concepts or the way that we relate to one another as I'm teaching. I try to take an inquiry-based stance... before I might have just introduced something and then we went and practiced it and it was more teacher directed and not really student driven. Now, this year, it's totally student driven and they often do the mini lessons, they often create the activities that the other kids are going to do, and go from there. We pull the curriculum in there, so it's like I'm covering the curriculum, or they are uncovering it, instead of me presenting it and saying, "this is what we are doing". So that's changed the relationship and my role in the classroom significantly (Interview, ELKP Teacher 2CT).

You always keep the curriculum in mind and then if they're here you start there [where they are] and if they are moving fast you move fast. If they are not grasping it as fast as you thought they might, then you stay where they are and move as they go (Interview, Early Childhood Educator 4QE).



I'm giving my students more of a chance to share their thoughts. So, if they suggest a strategy, we can look at it. I'll say, "Does that work for you?", "What works for you?" So that is what I noticed. They needed to share their own ideas, and I needed to let them. Then if something wasn't working, we'll go back and look at it again a different way... I'm pumping them up about it, saying that they can do it and it's okay if you made a mistake, and we can figure out what we did wrong. Then we go from there... I got them to sit down and think about what works for them... it's letting them lead some of the learning (Interview, Grade 2 Teacher 2HT).

I have been reminded to allow children to learn at their own pace, and each child solves a problem in a different way or views it differently. There are different ways to reach a solution. Children enjoy learning when it is presented to them in a fun way and not in a typical mundane manner (Journal, Early Childhood Educator 3KE, Dec. 16/13).

Another expressed benefit of consciously listening to their students and fostering student driven learning was that it augmented the teacher's ability to plan activities and learning opportunities that used students' interests as a catalyst. It enabled educators to teach number sense concepts contextually, embedded into an activity or topic that was already of interest to the student, making learning opportunities relevant and engaging for the students. Such learning opportunities occurred because teachers remained flexible and responsive to students' interests.

We have been focusing a lot on inquiry. It's based on the students' interests, and it's them [students] guiding us [teachers] with what's happening in the classroom when they go off to play and explore with things we have brought into the classroom. There's a lot of number sense in there (Interview, ELKP Teacher 3KT).

We did a counting jar over the year and students would bring in their own objects they would fill the jar. We would count them every day, we would estimate—how many do you think there are? We would count them and then we would sort them. So we grouped a lot of different math concepts into that. But it was stuff that they were interested in because it was stuff that they found from home so they were really excited about that. It was different to see. So say they had 40 Legos and then they had 40 little seeds. They would think that the bigger one is more—that there's more because it just looks fuller. Right? So we talked about that and that things can be different sizes. I guess they just weren't aware of that (Interview, Early Childhood Educator 2AE).

We have to use a lot of visual ways to cover material. We have so many different ways because they are just in so many different places right now. We have a group that is just identifying numbers, so my ECE made up a little hockey rink, because they like hockey. Sometimes its basketball, we have different things. They have a little puck with a number on it, and then on the ice there's a number, and they just have to match it... One on one matching is needed for some of them (Interview, Grade ELKP Teacher 4VT).

One day they were playing with money, so we learned a lot about money. I found songs about money. Patterning - we would look at patterning and the blocks that we had and then we would make necklaces out of the patterning, using fruit loops to make patterns and we found all kinds of things they enjoyed doing with patterning, even with clothing. And then they were identifying patterns in the room and they would make their own patterns out on the playground (Interview, ELKP Teacher 4QT).

As educators we need to have a thorough understanding of the curriculum, how students develop, be aware of their interests and try and capture learning whenever and wherever it is happening in our classrooms, and provide opportunities and experiences that will make it happen. We need to see the students as capable, competent individuals who are able to grow (Journal, Teacher 2CT, Jan. 14/14).

### **Are teachers identifying curriculum connections and using curriculum mapping?**

Curriculum mapping was a central element in one of the facilitated learning sessions, at which the facilitator had educators investigate the progression of curriculum expectations in number sense from primary grades into the junior division. This provided a framework for the educator's short-term instructional planning within a long-term context.

With the teachers, they would see where the concepts were going, and understand that this is not an isolated concept within their grade and saw a connection between grades. We mapped all the way to grade 5 multiplication and where that starts in the earlier years. That was a huge opener for teachers to say that the concepts go beyond my grade, that this concept keeps going and where it starts, that a simple concept like counting was so important to concepts of addition/subtraction and then to multiplication/division. I think when teachers saw that connection, it was an important moment for them... Teachers would say, wow, this can lead to measurement and I see how the measurement connects to this concept in number sense, and I see how time and fractions or perimeter and addition are related. They had all these different connections that they start seeing as they worked through the year, so their short-term plans could connect with their long range goals (Interview, Facilitator 1F)

After the release day while at the school, I realized that the Ontario Mathematics Curriculum expectations from grades ELKP to Grade 2 build upon each other each year. I found it purposeful to look at each grade's expectations and see the similarities and differences. As an ELKP teacher knowing what my students need to know by the end of ELKP and what the expectations are in Grade 1 etc. helps me to creatively plan and teach accordingly (Journal, Teacher 4RT, Dec. 13/13).

Release Date Nov. 28: I found it interesting when looking at the way a student develops through different skills, such as counting. They first recognize one-to-one, then how do they count, do they understand once they have counted 5 dots on a dice face once it will be the same when asked again how many dots, or do they need to count the same 5 again.? Do they know that 5 items in a line left to right is the same as a line of 5 items organized top to bottom? This session inspired us to start a counting jar. Students can take ownership of it, count it at home, then share it with their friends the next day. Students can build their estimation skills, and counting manipulatives skills. During counting we can make piles of 5 or 10 to show them how it is easier/quicker to group them to count. We can then sort the objects after we have counted them (Journal, Teacher 2AT, Jan.18/14)

A profound realization of participants in this curriculum mapping exercise was that number sense is pervasive throughout the curriculum. Educators discovered that number sense was relevant to many other strands within any given grade, both within numeracy strands and evidenced in other subject's strands as well. This fostered the resolve that there was no need to teach number sense as a separate strand or as a discrete unit because number sense could be effectively taught by integrating its curriculum expectations into lessons rooted in other curricular strands.

I always have in my mind what the [curriculum] expectations are that we have to cover, and base everything on that. If I can pull something from what they are doing, based on the expectations, I will do that, and relate it. Even if it is from a story, you can still get math from a story, like patterning, whether, again, its colors or numbers, anything like that. To me they are all kind of related (Interview, ELKP Teacher 4VT).

It's just allowing those kids to explore and go according to their interests in what they want to find out. I'm asking them questions, "What are you doing here [with this activity]? What can you find out? How do you know this?" It's all making sure you know your curriculum very well so you can get those connections met within the curriculum. You're making sure you are hitting number sense... you may be working on 3D shapes in one area, but it's not focused just on the geometry of the shapes. You're bringing in that number sense from other parts of the curriculum as well (Interview, ELKP Teacher 3KT).

It's not just teaching a strand and being done with it. It's connecting them. So, for example, when we learned time I'd say, "Can you see a fraction in that?" ...I mean you can't do it all, but it's exciting to see them making the connections and bringing it through. I'm trying to give them that time. That's been a really big thing for me this year (Interview, Grade 2 Teacher 2HT).

I think it is totally integrated now, where it wasn't before. They are definitely integrating it. The integration piece is really happening... Once they see it and you lay it out for them, they can see how everything can link. But that's like me telling you "you can do it", well it does not necessarily mean it will happen. Whereas in here, because they have had the inquiry based learning experience and they are doing this math initiative they are saying "wait a minute I can link this". So they are naturally discovering it

themselves. And I think that instead of me telling you that you can do it, you have to discover it yourself that it can be done. I think they naturally go hand in hand that way (Interview, Vice-Principal 2V).

The ever present issue of time constraints on the teacher, needing to cover a substantial amount of curriculum within a discrete time period, was an issue that was identified by educators at one of the facilitated learning sessions. Teaching number sense in an embedded way was subsequently realized to be a solution to some of the expressed time constraints - it appeared to be a more efficient way to cover curriculum than teaching strands in silos.

When discussing curriculum expectations, one educator verbalized concern: "How do we move students forward when they're falling behind on a strand when we have this really difficult time constraint to manage? My students are all over the place on what they know and don't know in the various strands and expectations. Sometimes it feels like there's not enough time to do everything (Fieldnotes, session 2).

I think that one thing that I learned as a teacher is that number sense is integrated everywhere. I think prior to this, and I think I am not going to speak for most teachers, but I think we kind of did it in blocks, like a unit, and then you put it aside. But I am... interweaving it... am revisiting it ongoing. So it is kind of like a weaving it in and out, and you see it everywhere now. And I think the students really have made that connection that numbers are everywhere, like even when you are looking at a pattern or what have you, you are always bringing those numbers back in, which for me was a big eye opener. So embeddedness versus a discrete unit - definitely. It is keeping number sense open at all times... *Before it did not seem I had enough time to teach but now it seems that it is integrated so you have more time for some reason...* It seems like you take that [number sense] unit out and are covering it everywhere. Whereas before you might have taken that month for just number sense, now you are just spreading it on top of another layer (Interview, Grade 1/2 Teacher 3NT).

#### Are teachers promoting students' understanding of math content? (beyond rote learning)

The importance of focusing on students' process, not just the product of their work, was identified as an avenue for promoting students' understanding of concepts beyond rote memorization. I enjoyed reading and discussing Pedagogical Documentation and reflecting on the practise of looking at the importance of the process rather than just the end product. Realizing that learning becomes more meaningful when we listen and allow students to take the lead in the learning and making them a part of the learning process, providing them with ownership of it (Journal, Teacher 2CT, Jan. 14/14).

When discussing the importance of helping students understand the process of a task, one teacher shared her reflection with the group: "With the kids I show them each step, and work with them on each step... then after a few steps they have figured it out and they don't need my help anymore. After that I see them excited to show their friends the steps they used, if their friend gets stuck on a problem" (Fieldnotes, Session 3).

Math is no longer *'this plus this equals this and looking at that end result'*. It doesn't really matter about the end result, it is just how we get there in our travels (Interview, Grade 1/2 Teacher 3NT).

When we dug deeper into the area of pedagogical documentation teachers really started to see the importance of the process of learning and not the product of the learning (Journal, Facilitator 1F)

If the process is to be valued, teachers identified that having students explain their thinking and talk about the strategies they used to arrive at an answer reinforces the importance of processes. Further, it develops a greater understanding of the material covered as students have to explain "why" and "how", which appeals to higher-order thinking. One by-product of this approach is that teachers are using fewer worksheets in favour of more meaningful collaborative strategies. Another benefit is that this higher-order dialogue renders a student's understanding of any particular concept more transparent to both the teacher and the student.



Sitting down with the child to ask them about their thinking added another piece to the puzzle which can then be followed up on. In my own class I am going to try to document more using pictures, and also using small labels that I can stick on their individual number sense page to write down observations we see during free play (Journal, Teacher 3LT, Jan. 15/14).

I did not have as many worksheets this year, I did not have them do as many workbook activities this year. This year it was more or less problem based learning, and them looking at, "What are we really talking about?" and "What does that mean?" rather just doing a question in a workbook to figure it out (Interview, Grade 1/2 Teacher 2GT).

I'm asking the students, "How do you know that? How are you getting that?" I'm letting them figure it out for themselves... I'm not drilling... I'm telling them, "You can figure that out for yourself". They need to find out and explain their thinking, instead of memorizing... They need to figure it out for themselves. They need the hands on manipulatives or activities to be able to figure out their answers for themselves. They really feel so good about themselves when they can do it on their own. You know, when you are observing students learning they feel proud when they are able to verify what they thought (Interview, ELKP Teacher 3KT).

I know I say, "Well how do we know?" instead of saying, "Did you make a mistake?" and "Let's try it again and let's try it like this". I've noticed a couple of kids do that [say "how do you know?"] on their own now (Interview, Early Childhood Educator 2AE).

It was interesting to be given a math problem and see how many different strategies people use to solve the exact same problem. It really makes you become aware of how important it is to allow students to share the strategies they used to solve a problem not just share the answer. That way all the students benefit from seeing how problems can be attacked in different ways and then start to identify the most efficient and effective strategies to use. The opportunity for sharing also helps students consolidate their learning. When the student voice is valued then a community of learners is created and students can become more comfortable in taking risks and make attempts to transfer their learning to a variety of situations (Journal, Teacher 2CT, Feb. 20/14).

First I think when [the facilitator] came in and started teaching us a couple of those strategies... it just kind of opened our eyes a bit to see how the children see those numbers. I started doing those from the book as well, and I did my own cards. The children would come up and show me how they got that number and it was interesting to see the children counting by ones, and some of the children would be grouping, and then some of the children would say that they saw what the other child was doing. I did see that growth, so those strategies were helpful for me, to see how those children were looking at numbers, or what their understanding was, and what they were not seeing. So it shows you what exactly what you need to work on with them and even how important it is to do that each day, and it has to be all year long (Interview, Grade 1 Teacher 2FT).

An educator shared: "When we let the kids talk things out with each other, it raises their self-efficacy because they have someone to work with so they'll take a risk, rather than saying they can't do it & shutting down. We let them know the *process* is the important thing, not the *final answer*." (Fieldnotes, Session 3).

In order to model abstract thinking processes, and subsequently assist students to communicate their higher-order thought processes, educators need to demonstrate their own thought processes by communicating their thought processes audibly. Math talk needs to be embedded into the culture of the classroom.

During a facilitated learning session, the facilitator emphasized that it was important to talk it out, to talk out loud when you're working on a problem so you're modeling the thinking that you go through for each step. This overt modeling helps the students to catch on faster to productive and successful strategies. An educator attending the session affirmed, "Yes, they need to hear my own thinking processes, and then you start to hear them using the same words and phrases." (Fieldnotes, Session 3).

Even what's on their bulletin boards in the halls, you can see that there is a lot more math talk. It was interesting because I can see the excitement in them, they come and share things and they say you've got to come and see and what they did (Interview, Vice-Principal 2V).

Several teachers affirmed the importance of making math come alive as a worthwhile approach to supporting deeper levels of student understanding and achievement. Manipulatives and visuals were perceived as successfully supporting students' conceptual understanding because it fosters student engagement and makes abstract concepts more meaningful and relevant. How the teacher brings math to life varied by classroom, but a common element was to appeal to students' kinesthetic preferences rather than using more traditional paper and pencil methods.

We had to find ways, and we found ways, of trying to make that [number sense concepts] come alive and act those things out, and then they could see it and they know it. We did a lot of activities everyday like standing on the carpet and we would count how many people are here. I'd say, "Ok we are going to send 2 to the bathroom so how many people are left? What if we bring 4 from another class, how many are left? So we did a lot of that, but it *had* to be hands-on visual kinds of things. A lot of it was taking what's on paper and bringing it to life... Paper doesn't work for us, ever (Interview, ELKP Teacher 4QT).

I think that with anything you learn, not just with math, but it needs to be relevant or you don't remember it. It needs to be something that is meaningful to them, that they're interested in so lots of times they'll go to something that they're already interested in and they're already doing and I'll just add the math in there. Not really add the math in there, it's point out the math that's already there because math is everywhere. I mean you can walk into my room at any point of the day and you can find math, so it's more like helping them recognize 'oh I'm using this skill' or making them aware that that is what they are using. It's helping them build on to what they already know and I can take it a little bit further to consolidate something, or maybe change their understanding of something, or maybe they misunderstood something. If they are doing it and interested in it, that's a connection for them rather than it being just a photocopy (Interview, ELKP Teacher 2CT).

Our kids grasp more with visuals, with their hands, rather than saying let's do a number sentence... gauging their interest in what they enjoy and just putting the math in there because if you said "math", our kids wouldn't know what you are talking about. I would just say that we don't focus so much on the memorization of the math itself, but just kind of putting it into everything in their daily life as a whole. They're getting the math and they're learning skills they need to get (Interview, Early Childhood Educator 4QE).

### Are teachers using instructional strategies?

Several teachers reported using inquiry-based strategies. Their commitment to inquiry is fueled by their observation that it supports students' knowledge of multiple ways to complete tasks and to solve problems, it helps students to make meaningful schematic connections, and it keeps students engaged in the learning process. Further, both small group and large group classroom, discussions are facilitated by the teacher's interaction with students working together on inquiry activities.

Play based inquiry allows children to learn at their own pace and see that there is more than one way to reach the same answer (Journal, Early Childhood Educator 3LE, Dec. 16/13).

Today we discussed the gap in student learning from grade 3 to 6 of about 15%. After having the opportunity to reread Pedagogical Documentation, it was interesting to see how much I took away from it again. After reading, we discussed what we thought to be of concern within our school being students' lack of schema (background knowledge) as they do not have the experiences necessary to make good meaningful connections. We continued to discuss how pedagogical documentation is ongoing which facilitates growth and improvement in student achievement. In our primary classes we try to look for opportunities to extend student learning through inquiry. We also have used a math strategies wall where

students can use it as a reference for number sense and numeration strategies. We will begin to use learning stories to demonstrate student growth (Journal, Teacher 3MT, Jan. 27/14).

The inquiry part of it has made a big impact on those kids that are not always on task because they do get interested in it, they are intrigued by things. It's fun! (Interview, Grade 1 Teacher 2FT).

I think it's just a lot more hands on easier for them grasp. You are not just sitting at your desk or the computer doing a work sheet... It's a lot more hands on and we're using inquiry... so we're not just sitting here getting bored with my pencil and my paper. It's [number sense] embedded in all aspects of it so I think that just makes it a little more real for them and easier to grasp (Interview, Early Childhood Educator 4QE).

We play and explore in the morning, and we have a lot of large group activities afterwards... So, if I can get in there, and start manipulating with them... then I find they are a little more open with me... We work together, and talk about it together, so there is not just small group thinking about it. Everyone gets involved so that the thinking gets a little bit higher, because there are more people involved. Their process of thinking is helping those other ones explain more and understand a little more (Interview, ELKP Teacher 3KT).

Teaching through problem solving with access to manipulatives was perceived to be an engaging method to effectively put skills into a context where students reason their approach based on the elements inherent in any given problem they are solving. This provides a context for fostering independent thinking within the framework of peer support. In the example below, access to manipulatives helped make the appropriately challenging problem more accessible to students.

When they [the students] are talking together or they are problem solving together, it's just that team work, and it's like, "let's try and figure this out". Like the other day, they wanted to figure out how many pennies were in this big bag. I thought *that will take forever*, but then there were three students deciding. First they started with groups of five - and they thought this will take a long time. Then they did groups of ten, so they ended up getting to 697 pennies, in about 10 minutes or so. That was neat to see. They were pretty excited. So it's that excitement... They figured out their own way which is automatically more engaging. And that's where you bring in all that number sense and you sit down with them and say, "we have a 100 here where else have we seen 100?" You are looking at all these different frameworks (Interview, Grade 1/2 Teacher 3NT).

One consideration regarding access to manipulatives and rich resources is the inequitable availability among schools. One educator expressed the sentiment that enthusiasm for a particular strategy is mediated by one's ability to access the manipulative at one's school. There was some variance among schools regarding the existence and availability of various specific manipulatives.

In the Math Inquiry Session of January 2014 it was mentioned... to not worry about what is not available and to concern yourself with what is available. I know that I do worry about not having resources available and thinking "Well, how am I supposed to implement certain things when I don't have it?" With this thinking I become stressed and feel like I am not doing my job adequately. I now have to learn to use what is readily available to meet students expectations and maybe it will spark other ideas to other resources to help with both students' learning and my teaching. I do realize that this will take time and it will become easier (Journal, Early Childhood Educator 3KE, Jan. 17/14).

While there appears clear support for, and enthusiasm for, implementing evidence-based practices in the classroom, it can be difficult for teachers to know the extent to which they should be using such practices. This would be a viable item for further discussion at future sessions conducted by the facilitator. Although it isn't possible to have a concrete way of definitively declaring the percentage of class time that should be allocated for such practices, a strategic discussion about this quandry, where colleagues can share personal perspectives and approaches to related best practices, may be helpful for the emergent implementer.

Our last visit (visit #2) in January we discussed documenting the students journey in math. My concern for this and in my classroom is that I am wondering if I am providing enough opportunity for math activities



during play and for enough math talk between myself and my students? (Journal, Teacher 3KT, Feb. 25/14).

Issues pertaining to the optimal assessment of students' knowledge who have learned concepts via evidence-based practices, such as inquiry, is an important item for consideration. Interactive dialogue with the student was highlighted as an important vehicle for cultivating an accurate picture of students' understanding. In the same way that interactive activities, rather than worksheets, assist students to develop their conceptual understanding more deeply, teachers' use of interactive and varied assessment practices will glean a more multi-faceted picture of what students have learned. Hence, if concepts are taught in an interactive way, there needs to be consideration of gathering measures of student achievement or understanding in interactive ways, as well, which includes multiple opportunities for students to demonstrate knowledge. The challenge of documenting numerous and varied assessments of student learning was also expressed.

Definitely we need to look at what students do and don't know on a piece of work, however as teachers we need to verbally ask questions to reveal more information because at times, students have thought abstractly or have hidden knowledge that we cannot see on paper (Journal, Teacher 3NT, Feb. 21/14).

It is important for us as professionals to take great care in our reflection and assessment practices to accurately gain a true picture of where each individual student is, where their needs are and how they can be moved forward to meet attainable goals successfully. Looking at methods of how we assess and keeping them specific and relevant, with much opportunity for students to demonstrate their knowledge, is key to successful teaching practise (Journal, Teacher 4TT, Jan. 29/14).

The article given to us to read (Pedagogical Documentation) said that there is no one right way to document learning. The point is to document so that you can support student learning. Good to know but documenting is very difficult since there are so many students learning on so many different levels all day long. It is overwhelming and can be time consuming. That is why I like the other part of the article that says to "establish your primary purpose". I have a better understanding of what I should be doing but I am still on the road to "discovery"! (Journal, Teacher 2DT, Jan. 27/14).

## Teachers' Beliefs and Attitudes

### Is there Growth in Teachers' Knowledge of Mathematics Content and Instructional Practices?

At the end of the project, seven questions on the teachers' survey, *Beliefs about Mathematics, Mathematics Learning and Mathematics Teaching*, had significantly changed response patterns for the teacher participants. When all educators' data were analyzed in an aggregate fashion, there were four questions with significant results; when the Early Childhood Educators' data were separately analyzed there was one question with significant change. This survey of their beliefs was on a Likert-scale (1=Strongly Disagree; 2=Disagree; 3= Undecided; 4=Agree; 5=Strongly Agree) and consequently the means (M) reflect these values. Table 3. is a summary of these significant survey questions, statistics, and interpretations.

Survey Questions	Paired Samples t-Tests All Educators	Paired Samples t-Tests Teachers	Paired Samples t-Tests ECE	Interpretation of Significant Results
Mathematics is computation,	$t(20)=-3.77$ , $p<.001$ , $CI=[-.51, 1.77]$  T1 ( $\bar{x} = 3.05$ ) is greater than T2 ( $\bar{x} = 1.90$ )	$t(11)=-3.45$ , $p<.01$ , $CI=[.27, 1.23]$  T1 ( $\bar{x} = 2.58$ ) is greater than T2 ( $\bar{x} = 1.83$ )	$t(7)=-4.43$ , $p<.01$ , $CI=[.99, 3.26]$  T1 ( $\bar{x} = 3.8$ ) is greater than T2 ( $\bar{x} = 1.75$ )	All Educators, Teachers and ECE's were less likely to agree with this statement at the end of the school year.
Right answers are much more important in mathematics than the ways in which you get them.	$t(20)=-2.17$ , $p<.05$ , $CI=[.02, .75]$  T1 ( $\bar{x} = 1.67$ ) is greater than T2 ( $\bar{x} = 1.29$ )	$t(11)=-2.35$ , $p<.05$ , $CI=[.02, .65]$  T1 ( $\bar{x} = 1.42$ ) is greater than T2 ( $\bar{x} = 1.08$ )	X	All Educators and Teachers were less likely to agree with this statement at the end of the school year. NOTE: ECE's means were similar at T1 and T2
Mathematics learning is being able to get the right answers quickly.	X	$t(11)=-2.80$ , $p<.05$ , $CI=[.09, .75]$  T1 ( $\bar{x} = 1.75$ ) is greater than T2 ( $\bar{x} = 1.33$ )	X	Teachers were less likely to agree with this statement at the end of the school year. NOTE: all Educators and ECE's means were similar at T1 and T2
Periods of uncertainty, conflict, confusion, surprise are a significant part of the mathematics learning process.	X	$t(11)=-2.57$ , $p<.05$ , $CI=[-.93, -.07]$  T1 ( $\bar{x} = 4.25$ ) is less than T2 ( $\bar{x} = 4.75$ )	X	Teachers were more likely to agree with this statement at the end of the school year. NOTE: all Educators and ECE's means were similar at T1 and T2
Being able to memorize facts is critical in mathematics learning.	X	$t(11)=-2.72$ , $p<.05$ , $CI=[.18, 1.66]$  T1 ( $\bar{x} = 3.00$ ) is greater than T2 ( $\bar{x} = 2.08$ )	X	All Educators, Teachers and ECE's were less likely to agree with this statement at the end of the school year. NOTE: all Educators and ECE's means were similar at T1 and T2
Mathematics learning is enhanced by activities which build upon and respect students' experiences.	$t(20)=-2.96$ , $p<.01$ , $CI=[-.649, -.113]$  T1 ( $\bar{x} = 4.33$ ) is less than T2 ( $\bar{x} = 4.71$ )	$t(11)=-2.35$ , $p<.05$ , $CI=[-.64, -.02]$  T1 ( $\bar{x} = 4.42$ ) is less than T2 ( $\bar{x} = 4.75$ )	X	All Educators and Teachers were more likely to agree with this statement at the end of the school year. NOTE: ECE's means were similar at T1 and T2
I know how to effectively monitor mathematics activities.	$t(20)=-2.68$ , $p<.01$ , $CI=[-.847, -.106]$  T1 ( $\bar{x} = 3.71$ ) is less than T2 ( $\bar{x} = 4.19$ )	$t(11)=-2.97$ , $p<.01$ , $CI=[-1.16, -.17]$  T1 ( $\bar{x} = 3.58$ ) is less than T2 ( $\bar{x} = 4.25$ )	X	All Educators and Teachers were more likely to agree with this statement at the end of the school year. NOTE: ECE's means were similar at T1 and T2

Table 3. Summary of Significant Results of Teachers' and ECE's Survey

Based on these significant survey question responses, educators are less likely to hold the belief that mathematics problems are solved by proposing an absolute solution - there are multiple pathways to process mathematics questions. Similarly, these educators are more likely to now believe that mathematics is a dynamic of many different ideas and learners interpret and organize this dynamic of information - this is part of the learning process in mathematics. In general, educators are less likely to hold the belief that it is important to memorize facts in mathematics. These educators do not contend that mathematics learning is demonstrated through computations and the ability to memorize facts, procedures or formulae. In a similar vein, these educators do not believe that students should be focused on quickly getting a correct right answer to a mathematics problem - the process of problem solving and understanding why and how one derived at a solution is of great value. The educators regard a mathematics learning context as one that is enhanced by challenging mathematics problems within a supportive environment, and activities which build upon and respect students' experiences. The educators now appreciate their key role in monitoring and being responsive to students' activities in mathematics.

The concept of a 'growth mindset', versus a 'fixed mindset' was a point of discussion at a facilitated learning session. Whereas a fixed mindset limits improvement in math because of perception that math is a gift and one either has this gift or not, a growth mindset advocates that knowledge can be impacted with effort. Accordingly, the facilitator cautioned the educators against emulating a fixed mindset, where mistakes tend to be stigmatized rather than being perceived as a welcome opportunity for learning. If effort can promote learning, then mistakes become a natural part of a healthy learning process. Educators who foster a growth mindset in their students are cultivating resilient learners and promoting greater opportunity for achievement. Educators embraced this concept, and strove to embody a growth mindset in their classrooms. This was a new approach, for some, and represented growth. Accordingly, educators are now more likely to accept that periods of uncertainty, conflict, confusion, surprise are a significant part of the mathematics learning process.

I am thoroughly enjoying exploring the principles of counting and the major concepts of number sense and numeration within the context of inquiry based learning. The learning trajectories and developmental levels really provide a great resource for supporting student learning. I believe in the "growth mindset" we all need to have so we can all become persistent and resilient learners who celebrate the learning, use our mistakes as moments to problem solve and grow and celebrate and value the process and effort not always just the final product (Journal, Teacher 2CT, Dec. 12/13).

I found the session very interesting and full of information. I liked to see how we all can look at a problem differently and solve it in different ways. Some things that stuck out were that it's always about learning, making mistakes and keep learning keep trying. It's ok if it's hard to solve, just keep learning. Mistakes are a natural part of learning. Don't have a fixed mindset, effort doesn't mean you aren't smart! (Journal, Teacher 2FT, Dec. 13/13)

Inherent in a growth mindset is an explicit recognition that there are multiple ways to tackle a problem or task, which values process over product. Further, this conceptual perspective includes an openness to multiple ways of thinking and an acknowledgement of the viability of multiple methods to solve math questions. Many educators cited this as an aspect of their growth in their instructional approach. Therefore, educators are now less likely to view mathematics learning as being able to get the right answers quickly. They now are also less likely to feel that right answers are much more important in mathematics than the ways in which you get them. Accordingly, they are less likely to perceive that mathematics is computation.

This opportunity gave me the chance to see how many different ways there are to figure out a solution to a problem. As a teacher, giving students those learning opportunities to "play" with numbers was a powerful moment and I left the meeting ready to observe the many ways my students see and "play" with numbers (Journal, Teacher 4RT, Dec. 13/13).

Great in-session with a lot to leave with and to think about. What I have been discovering, the more that I do go along, is that students, when it comes to math, definitely do progress at their own rate and in their



own methods. In the classroom we need to offer a wide range of materials/manipulatives in order to let the students explore in their own ways. Through the use of "play based inquiry" this gives the students an outlet and an opportunity to explore in their own ways and to understand in their ways and at their own level of readiness. As educators we need to be open to ways of thinking to allow the students' natural progression of understanding to happen at any points of the year (Journal, Teacher 3NT, Dec. 16/13).

Well I think when you are working with the students, before I would say, "This is how you do it", "Here is the correct way", or "No that's wrong". But when you are letting them talk to each other and work in groups, they are solving it. Some are making mistakes and then they are talking about it with their peers and they are showing them saying, "This is what I was thinking", or, "Oh, look how someone else solved it" and they get excited about it. It is not coming from me it is coming from them. They are talking with each other, and they are comfortable with each other. If I asked them a question sometimes they will get nervous like, "Oh no, the teacher is coming" but when they are in their group, they open up, and it takes away some of those barriers so they are able to talk to each other help each other out... There is a lot to be gained from their mistakes and looking at how other kids thought about it (Interview, Grade 1 Teacher 2FT).

The importance of making math dynamic and contextual was an area of growth cited by some educators. The benefit of how this interactive approach supports student achievement fueled educators' immediate application of this new approach. Accordingly, educators are now less likely to contend that being able to memorize facts is critical in mathematics learning. Educators are now also more likely to advocate that mathematics learning is enhanced by activities which build upon and respect students' experiences. Educators' experiences implementing dynamic strategies in their classroom provided the impetus for their confidence that they now knew how to effectively monitor mathematics activities.

I learned a lot. Take it off the page, I think that's the most important thing to have. Take it off the page, make it come to life so that they [students] see it and they can do it. If they can do it, they can learn it (Interview, ELKP Teacher 4QT).

We did a debrief when we read the book "The Ten Flashing Fireflies". We got this big plastic jar and ten little toys to represent the ten flashing fireflies, so as we were reading the book we would ask the kids, "so how many do you think are in here?" Then they'd say "let's count them, let's do it in real life"... So they got to listen to it, see it in the book and then act it out. It was just compounding itself and making it a little more concrete for them... Here, we do a lot more hands on now and I think it's easier for them to grasp because you are not just sitting there with your pencils writing your number sentence (Interview, Early Childhood Educator 4QE).

Ultimately, educators welcomed the opportunity for growth, as they recognized they were at a critical inflection point on their own learning curve. A receptivity regarding professional growth is an important element in an educator's ability to cultivate an updated, effective repertoire of high quality instructional practices. Due to a clear correlation between instructional quality and student achievement, educators recognized that in order to promote student achievement they needed to invest in building their personal capacity.

My class had similar areas that we needed to work on as other classes at my school and with others. Place value and counting, and more and less were areas to focus on. I found that out myself when working with the students in the class. I was looking forward to learning new strategies to help my students pick up those concepts because I was frustrated as well (Journal, Teacher 2FT, Dec. 13/13).

Today's session went well. We read the monograph: Maximizing Student Mathematical Learning in the Early Years. I found some areas to be interesting, particularly the subheading (Deepening of Teacher Understanding + shifts in instructional practice = impact on student learning), as we are learning to be flexible in our teaching practices as there is research to show that early math conversations and knowledge have long lasting implications for later school achievement. My concern at this point was that some of my students do not have the prior knowledge and experience they bring to school therefore at times it has become challenging. For example, at this point in the school year I have a student who still

finds it difficult to count orally by 1's consistently and accurately. How can I move forward with having this student understand place value for instance (an area of concern for many in my class) if my student is unable to understand counting? I guess it's a learning curve for all of us teachers on this journey as well. I need to look at other ways this student can develop these necessary skills (Journal, Teacher 3MT, Feb. 25/14).

I think that teachers had lots of growth because they were open to the learning. They were at the point where they were saying "I just don't know math that well, I don't know the content that well", so I think that they were open to the idea that there was content to be learned (Interview, Facilitator 1F).

Accordingly, educators perceived their new instructional strategies and practices discussed at facilitated sessions to be of value to their instructional repertoire. Some self-reported growth was identified specific to a concept, such as teaching students how to compose or decompose numbers. Other educators identified growth that was more broad in scope, such as skills relevant to creating and monitoring open-ended activities, how to apply differentiated instruction when problem solving, or how to promote a student-centered learning environment.

I feel the release day offered me new ways to show children how to compose and decompose numbers (Journal, Early Childhood Educator 4QE, Jan. 7/14).

Our facilitator used a great minds on activity which involved solving different math problems. It allowed me to see that there are more effective ways to solve the problem than the way I was taught using standard algorithms (Journal, Teacher 3MT, Dec. 13/13).

I think that my content knowledge is probably the same, but my ability to teach different strategies or to recognize different strategies has definitely grown, which has helped me, and in turn helped my students (Interview, Grade 1/2 Teacher 2GT).

In today's session, I have learned the *5 productive talk moves* stated in the reading material that was given to us. This will help me to help the students to discover their thinking process and to amplify it (Journal, Early Childhood Educator 3KE, Feb. 25/14).

Letting the kids lead, that was a big change for me. Standing back and letting go. We have done it for so long in Literacy instruction, it took some time for Numeracy to catch up... I am still learning but there needs to be a willingness to learn, and then you will be ok. You just have to try it and if you're not successful at it the first year it doesn't matter as long as you are open to it. But I think how they looked at numbers or how they learned is a big shift for me. Letting the students talk and almost letting them learn from each other... I am happy that I am learning. I am happy that I am not a stick in the mud not saying, "Nope, I am doing the old stuff", because I do see that I am happy and that I am open to this. I am learning how the kids are learning, they are more engaged and I feel more successful (Interview, Grade 1 Teacher 2FT).

The things that I've seen them create and explore... It was like I was limiting them before with my very close-ended activities and I wasn't really reaching anybody's potential because the activity was so restrained. Now that they have the freedom to do it, they can show me in so many ways that their skills are so all over the place (Interview, ELKP Teacher 2CT).

### **Is there an increase in teachers' self-efficacy in mathematics instruction?**

In their quest to improve or update their instructional capacity, educators appreciated having access to support, both human support in their classroom to model best practices, and access to tangible resources. Support was a positive influence in their efforts around instructional capacity.

I think this is a great opportunity for all involved and it is key that we are all on the same page. I like the fact that where I am lacking in this area, I will have support for a better understanding, and with the combined knowledge of the children's interests and developmental levels, success will be achieved (Journal, Early Childhood Educator 4RE, Dec. 28/13).

I enjoyed seeing the data and seeing how some/most children improved and where we still need to focus on. I will check out the web site EduGAINS.ca [a website discussed at the facilitated learning session] for ideas and guidance. It is good to have strategies presented that you maybe haven't thought of. It was interesting to see how wording can determine the outcome of the answers, the understanding of what is expected. Thanks for the insights (Journal, Early Childhood Educator 3LE, Feb. 25/14).

Out of all this program, I liked having people come in [to my classroom]. I like to learn those things and I like the support. Really, the support is big because you can *te//* somebody, "Ok, this is how you are doing it" and it goes on a shelf to be honest because if you don't understand it you are not going to do it. But if you have someone coming in and showing you, demonstrating, modeling, and you're going to another class to see it - if you have that then you are going to use it. So I just hope that they do something every year, it just helps, otherwise you just take something and it goes on the shelf and that is a waste.... You need instruction. You need people to come in to a class and show you if you want it done... Not everyone can learn by looking at a book, you want to have someone who knows about it come in a show you, and then you can try it, and you are a little more comfortable to try it. And then they can say, "try this" and if everybody else in your hallway is trying it, then you are learning together (Interview, Grade 1 Teacher 2FT).

Talking with other educators and having the time to dialogue around best practices was a specific form of support that had a positive impact on educators' confidence. These opportunities for dialogue provided a welcoming environment in which one could show vulnerability by asking questions without being stigmatized. Self-efficacy needs to be sufficiently robust in order to risk such vulnerability, and involvement in the project appeared to foster such confidence.

My confidence totally gained throughout the year. Even just meeting with our groups and sharing stories, you get ideas from some of the other teachers and then you can bring it back into the classroom... We would have liked to see a little bit more of hands-on modelling in the classroom [from the facilitator]... I don't know if it's available out there, but ... it's always easier to see something demonstrated and say, "oh yeah, I can do it that way"... Like the one time we went into one of the classrooms, we had the manipulatives and all of us were in there and we were doing an activity and it was kind of nice to see the hands-on demonstrated and then we can bring it back into our own classroom (Interview, Early Childhood Educator 2BE).

The Collaborative inquiry... talking to the other [participants], talking about "What have you been doing?, What's working for you?", and when we had the last meeting, on the 20<sup>th</sup> with [participants] from other schools, that was really helpful because they talked about some things they implemented themselves that I have already talked to my next year's teaching partner about doing in September (Interview, Grade 2 Teacher 2HT).

I think I have learned a lot, I would definitely have to say that. I also learned we don't really know enough about math as well, although it is grade 1/2 there definitely has opened our eyes in just different ways to approach something and it is like that in every subject. We don't have all the answers but it is just realizing that, "ya we don't have all the answers", and it is up to us to jump in and ask those questions. Definitely is has been a welcoming environment for us to actually ask questions. But you have to be willing to realize that in order to ask those questions and realize that there is still so much to learn about math (Interview, Grade 1/2 Teacher 3NT).

Educators appeared to be more confident in their approach to how they were covering their curriculum. Despite the consistent pressure of time constraints on classroom activities, they began covering select material more thoroughly because they gave them self permission to trust their instructional instincts enough to slow down and cover material more thoroughly when needed, rather than succumb to rushing through curriculum to be covered. Less stress was experienced around time constraint issues.



I feel better, I feel more excited, I feel more like I am doing it [number sense] justice... I know that I am not just skimming the surface of all these things, I am doing a much better job with those topics now (Interview, Grade 1/2 Teacher 2GT).

I can admit to them that I don't know everything. I struggle too, but that's ok, you work through it. And just slowing it down. Where before I was so worried about producing, where now I want to take that time with them... I need time to sit and talk with them. Where I didn't do it in all areas before, now I want to, it's more important for me. I get a better grasp of who they are. It's [being involved in this project has] given me the confidence to do that, to know that's ok. It's ok that I don't have 15 different items that I've marked and recorded. That doesn't matter. You know you have those few good ones, more in depth ones, and that's what matters (Interview, Grade 2 Teacher 2HT).

I don't have to sit down as a whole class and say, "Ok, we are going to do adding and subtracting today, or we are focusing on patterns today". I know that I am going to reach those strands everywhere in my inquiry classroom. It's popping up everywhere and it's based on the children's interests. I don't have to stress all the time because now I know I'm reaching [covering] the strand. I know that within the little groups or talking one on one that I am able to address that math curriculum... I remember teaching last year, it was June and I was thinking, "I haven't done adding and subtraction yet". This year we don't have to do just a month of adding and subtraction. We are always talking about it everywhere... I'm not worried about what strands I have covered or haven't covered. It matters how many kids you have reached with that learning, like with your assessment and all of that documentation. So that's something I would have learned, and I was thinking, "Why didn't I make my life easier before?" (Interview, ELKP Teacher 3KT).

### What is the impact on teachers' intentions for their future practice?

Educators saw value in understanding where students were in their learning process early in the school year in order to move student achievement forward in a strategic manner. Ideally, this would involve comprehensively assessing students in the Fall, and then using an approach grounded in the stages of development and the learning trajectories to guide their instructional pacing in order to strategically improve individual students' knowledge. Prioritizing student learning around the 8 principles of counting was another element that educators would now use to make more informed instructional decisions from the onset of the school year.

Another thing that they've voiced strongly is the diagnostic math assessment being administered in the Fall. I have been giving them some assistance with that, perhaps the supply teacher coverage or something so that they can get a handle on it from the beginning of the year. Some have said that a mid-year assessment might be a good too, and then we could target areas (Interview, Vice-Principal 2V).

I was excited to learn about the stages of development in the different areas of math. Can't wait to use this to find out where the students are and then teach next steps. Although we teach some of these skills naturally, there are a lot of little steps in between that will help us teach to the next level without guessing or relying on old strategies. It just makes so much sense. I wish we had access to this sooner and I can't wait to make use of this information in the class (Journal, Teacher 2DT, Dec. 13/13).

In addition, we discussed the 8 principles of counting which was interesting to learn that we assume students know the simplest counting activity, but may not. For example I assumed it would be easy for my students to know one to one correspondence but came to discover some may struggle with understanding that each object being counted must be given one count and only one count. They can do this easily by moving one item out of the way after it has been counted. I really learned a lot from the learning trajectories. I need to focus on the developmental levels for counting before I can move along. This will be my focus going forward (Journal, Teacher 3MT, Dec. 13/13).

Today during the release day it came to knowledge how different students' thinking is for many different skills. When we looked at the simple math questions (addition/subtraction/ multiplication) and had to figure out how the student solved their problem. It was interesting to hear what their thinking process is, we are so used to using the basic carry a number, and so forth, the standard way. We were given the 8 Principles of Counting. Again this was interesting, I was unaware of any principles. We just assume

students know when they count how many objects are in a set, they can tell us how many are there, or so forth, but some cannot answer how many are in a set, right after they count it. In reflection of my teaching, I need to take my time and model more of these principles when I am teaching my lesson, so students pick up on them, and then begin to use them regularly (Journal, Teacher 3KT, Dec. 13/13).

The 8 principals of counting were also interesting to me. I was not familiar with them. I did not realize that students may not realize the last number that we counted represented how many there were in total. Nor did I think that the space objects covered may influence students to think there were more or less of an item. We have begun to work on these principles during morning message, play based centres and math lessons, as well as whenever the opportunities presents itself throughout the day (Journal, Teacher 3LT, Dec. 13/13).

Educators became more aware of how they wanted to continue to use language in relation to how they talked about numbers. Their consolidated growth regarding math vocabulary and language, and its role in math instruction, is a meaningful improvement that they intend to also apply to future practices.

Release Date Nov. 28.... This session also made a change in how I talk about numbers. Instead of saying 23 "is a 2 then a 3" I will work at saying 23 "the 2 is 2 groups of 10 and 3". I also want to make a greater than, less than, and equal to magnets with popsicle sticks, and make them into monster. I noticed in our data that students did not understand greater then, or less then. I will use the  $<$ ,  $>$ ,  $=$  symbols during our circle times (Journal, Teacher 2AT, Jan. 18/14).

Now my thinking is this: so say we had 25. Normally I would just say, if we are writing it, I would say, "a 2 and a 5". So my language and my thinking is now I always ask, well "what does this number represent? If the number is 25, what does the 5 represent and what does the 2 represent?" A lot of my kids now know that 2 means there's two groups of 10 where before they thought it was just a 2 and a 5. So I think that's on a regular basis, they are more conscious of that and then even my wording to them too... it's more of a growth for me in the language that I use: fewer, more, less than. I probably wouldn't have thought of before, but it's more on my mind now (Interview, Early Childhood Educator 2AE).

Ok, for me the strategies and the discourse, they go together... the discourse in how we talk and the language we use, the vocabulary we use... [Facilitator] was telling us about numbers versus numerals so... I'm thinking maybe next year I'll start to do it with numerals... We also talked about less versus fewer... and it got me thinking, so when I talk to them, I watch how I speak and then I tell how they should be saying it, not that they have to (Interview, Teacher 4VT).

Another resolve among educators in relation to their use of evidence-based practices was to continue to teach number sense using inquiry and multiple strategies to accommodate for students' individual differences. In this way they are supporting student achievement by embodying a growth mindset as they continually find new ways to teach concepts and to expand their repertoire of interactive instructional approaches.

It's using different approaches with different kids, sitting down with them and getting to know them. In September once we got to know the difference from this child and that child, there were different ways of getting them to tell you what those numbers are. It's just using different approaches. Before, I always thought that when I sit down with them [students], we are going to do it *this way*. And then after sitting down and meeting with [the facilitator] and we took different approaches to try and get what we were looking for... Just trying different ways and not always doing it the same way (Interview, Early Childhood Educator, 2BE).

I would like some more ways to make games *or interactive actives* with manipulatives. I did get the book that has games in it and I have just now done some of them and but I didn't have enough time to do a lot of them... It's beneficial because that is how some of them learn, everybody learns differently. Some of them are hands-on learners, so it appeals to a lot of different learning styles (Interview, Early Childhood Educator 3LE).

I did have students gain in areas such as place value. This was a focus for me since the initial testing as we did not score well. I will continue to work with my students in these areas and will continue to use inquiry in the classroom (Journal, Teacher 3MT, Feb. 25/14).

The new approach to embedding and integrating number sense into other strands was a compelling way to make instruction around number sense more meaningful and relevant to learners. Since this approach was a more efficient way to cover curriculum, and also provided an engaging route for teaching number sense in a context, it was clear that educators will not revert to old methods of teaching number sense concepts in isolation.

Well if I think right now, before we used to look at all of the different strands and teach them separately. Now I find I am more open to relating them. Like number sense and numeration seems to be the base for everything, and you can kind of take and put it in everything else: into patterning, into graphing... (Interview, ELKP Teacher 4VT).

At the beginning when we were here with [facilitator] he told us to open up the curriculum, go through the math and point out where math and number sense is in every strand. I'm thought... it's just in number sense. I've been teaching for a long time. But then I realized, "Oh my goodness how come I never saw this? Why didn't I pull this apart before? It's in geometry, it's in patterning, and it's everywhere". So, now it's not just number sense separately, now it's everywhere... As a teacher I don't have to just focus on just number sense alone, I focus on number sense everywhere (Interview, ELKP Teacher 3KT).

## Students' Achievement

**Were there gains in students' conceptual understanding and achievement as a function of the evidence-based practices?**

Educators did see marked improvements in students' understanding and achievement of concepts related to number sense. Their expressed commitment to revise their teaching strategies around decomposing and composing numbers, and to generally ensure they have sufficiently covered the 8 principles of counting was a catalyst for improved student achievement.

I would say that even then decomposing and composing numbers now, they are so much more familiar with it. We would do random things now where we'd have like in our story it would say the five ducks and I'd say "Oh! Show me on your fingers how can we see 5 ducks." I would have just done five and zero, but they know there are many ways now of making these numbers... Just because I think it's 5 and zero doesn't mean it always is. So kids know there's other ways to represent and understand... They also know that if they're wrong, they're not in trouble for being wrong. We can help them, you know we might say, "Who can help them? Who can offer some help?" They love being able to help their friends... they have become more confident over the year (Interview, Early Childhood Educator 2AE).

The breaking down of the number, like the number 10. I would have never of thought that at that age they could deconstruct them... I know they have improved... So when they first got the buckets [manipulatives for their inquiry activities] some of them were like "what do I do?" If they had blocks they were building with them, they were making towers and things like that with no rhyme or reason to them. But after a little while they were sorting, and if they built something they built it red, blue, then red, blue, then red, blue type of thing. They had patterns within their structure... Also they can match and see that the five does not have to be 5 in a row, it could be 3 up and 2 down. It could be different ways, but it is still 5 (Interview, Early Childhood Educator 3LE).

Overall I am pleased with their recognition of what a number is and how to break it down. So I saw a lot of gains that way, and in their confidence. As a whole, I saw an improvement in their confidence. I have one little guy, who was very unsure, very nervous, and constantly looking for reassurance asking me, "Is this what I do? Is this what I do?" And he's blossomed. He couldn't even find the page before if it was a high digit number, he didn't even know where to look. Now he is getting to the page, he's waiting for the instruction, but then he is doing it on his own. And he understands the number concepts (Interview, Grade 2 Teacher 2HT).



I have noticed it more in our adding numbers together in word problems, that is where I have seen a big change and how its help them (Interview, Grade 1 Teacher 2FT).

Educators have also noticed that students can transfer skills to new settings and have been able to demonstrate skills on their own initiative without prompting. This achievement means that students have internalized new learning into their repertoire of knowledge, and verifies that student achievement has authentically extended beyond superficial levels characterized by rote learning or memorization.

We noticed that they started doing patterning and things like that on their own now... And the other day someone came over and said to me, "look Mrs. [name], I'm making a pattern. Do you know what happens next? There is 2 blue and 2 brown. What happens after the brown? Do you know Mrs. [name]?" and I purposely said a wrong answer to see if they'd know. So they said, "Oh no that's not the right colour Mrs. [name]. It's 2 blue, 2 brown and *then 2 blue again*". So I said, "oh ok, thank you for letting me know". You can tell that they've learned it, they've grasped it and now they are roll-playing it in all their different centers so it's really nice to see that... They play teacher a lot at the front of the classroom with our white board... they pretend they are teachers. We taught them, so now they are trying to teach all their little buddies. It's kind of cute that they've grasped it and are now teaching it to all their friends (Interview, Early Childhood Educator 4QE).

We grew different plants in our classroom and we would measure them and I had a girl the other day and she said "Look this one is so big now it's longer than the ruler". I said, "how can we see then how much more it is?" It's cool just on her own that she noticed these things (Interview, Early Childhood Educator 2AE).

I have really started to notice that the students start to naturally make patterns, sort, measure and count. They enjoy the play time, and see my prompts and challenges as fun instead of feeling like it is work. They have begun to have conversations about Math with peers and now, when they are unable to solve a problem, they are more open to talking to a peer next to them to work it out... We need to give time to explore Math during play, but they also need time to reflect on it and then discuss it with their peers (Journal, Teacher 3LT, Feb. 25/14).

Students appear to be more confident in math, more comfortable with open ended tasks, and are willing to take risks on their own by engaging in various activities. Undoubtedly, educators' renewed focus on process, rather than product, and their stance that mistakes are a productive part of a successful learning experience has cultivated a positive learning environment where individual students' processes are valued and encouraged, which has fostered a risk-free environment promoting student engagement and willing participation in activities.

I think the gains for my students... one thing I noticed before is 'math is math' and a lot would think 'I am good at it or not'. One thing that I didn't see now is students not wanting to do math. But whether it be because it was not pencil and paper, they really seem to enjoy it... In general, they feel more confident, maybe, but they are definitely willing to jump into math (Interview, Grade 1/2 Teacher 3NT).

We've seen a lot of comfort in open ended tasks... Like even just building, there is a few that love to go with cubes. They always go to cubes, so now we always ask them either make a plan, or try to relate it to something else that we were working on. We were learning about insects, and one little boy, no one told him anything, he went right to the cubes and built a dragon fly. He made sure he used a pattern, I watched him. He counted to make sure the wings were exactly the same length. He used same amount of cubes, he used different ones for the eyes and he made sure they stuck out. He just had a lot of skills, a lot of concepts being used (Interview, ELKP Teacher 4VT).

Quantitative results complement these qualitative findings. The results of the quantitative analyses computed using the students' assessment data are displayed in **Tables 3. to 6.** The tables provide a summary of both the significant and non-significant findings of the Wilcoxon Signed-Rank Test for each of the question items on the *Developmental Math Assessment*. Results are displayed

when scores for all schools (at each of the grades) are combined together. There is an interpretation of the significant results in the final column.

DMA Sub-tests	Wilcoxon Statistics	Overall Interpretation
<i>Oral Counting</i>	Z = -3.15, p = 0.00 Median=2.0	There was a statistically significant change in <b>Oral Counting</b> sub-test scores from the beginning of the school year to the end of the school year.
<i>Object Counting (1-1)</i>	Z = -2.12, p = 0.03 Median=2.0	There was a statistically significant change in <b>Object Counting (1-1)</b> sub-test scores from the beginning of the school year to the end of the school year.
<i>Object Counting (cardinality)</i>	Z = -3.31, p = 0.00 Median=2.0	There was a statistically significant change in <b>Object Counting (cardinality)</b> sub-test scores from the beginning of the school year to the end of the school year.
<i>Visual Patterns</i>	Z = -3.31, p = 0.00 Median=2.0	There was a statistically significant change in <b>Visual Patterns</b> sub-test scores from the beginning of the school year to the end of the school year.
<i>Compare (more in a group)</i>	Z = -2.45, p = 0.01 Median=2.0	There was a statistically significant change in <b>Compare (more in a group)</b> sub-test scores from the beginning of the school year to the end of the school year.
<i>Matching</i>	Z = -0.71, p = 0.48 Median=2.0	There was NOT a statistically significant change in <b>Matching</b> sub-test scores from the beginning of the school year to the end of the school year.

Table 4. Comparison of Pre-Test to Post-Test ELKP (Year 1) All Students at All Schools

There was a significant growth in student performance for all ELKP (Year 1) students at all three schools in the following five concepts: Oral Counting; Object Counting (1-1); Object Counting (cardinality); Visual Patterns; Comparing (more in a group). There was NOT growth in concept of Matching.

DMA Sub-tests	Wilcoxon Statistics	Interpretation
<b>Oral Counting</b>	Z= -1.41, p = 0.16 Median=2.0	There was NOT a statistically significant change in <b>Oral Counting</b> sub-test scores from the beginning of the school year to the end of the school year.
<b>Object Counting (1-1)</b>	Z= -2.33, p = 0.02 Median=2.0	There was a statistically significant change in <b>Object Counting (1-1)</b> sub-test scores from the beginning of the school year to the end of the school year.
<b>Object Counting (cardinality)</b>	Z= -1.67, p = 0.09 Median=2.0	There was NOT a statistically significant change in <b>Object Counting (cardinality)</b> sub-test scores from the beginning of the school year to the end of the school year.
<b>Object Counting (using a plan)</b>	Z=-2.00, p = 0.05 Median=2.0	There was a statistically significant change in <b>Object Counting (using a plan)</b> sub-test scores from the beginning of the school year to the end of the school year.
<b>Identify Symbols</b>	Z=-4.24, p = 0.00 Median=2.0	There was a statistically significant change in <b>Identifying Symbols</b> sub-test scores from the beginning of the school year to the end of the school year.

One More (come after)	Z=-1.15, p = 0.25 Median=2.0	There was NOT a statistically significant change in <b>One More (come after)</b> sub-test scores from the beginning of the school year to the end of the school year.
One More (one more)	Z=-2.60, p = 0.01 Median=2.0	There was a statistically significant change in <b>One More (one more)</b> sub-test scores from the beginning of the school year to the end of the school year.
One Less	Z=-1.00, p = 0.32 Median=2.0	There was NOT a statistically significant change in <b>One Less</b> sub-test scores from the beginning of the school year to the end of the school year.
Visual Patterns	Z= -4.24, p = 0.00 Median=2.0	There was a statistically significant change in <b>Visual Patterns</b> sub-test scores from the beginning of the school year to the end of the school year.
Compare (more in a group)	Z= -1.89, p = 0.06 Median=2.0	There was NOT a statistically significant change in <b>Compare (more in a group)</b> sub-test scores from the beginning of the school year to the end of the school year.
Compare (greater number)	Z=-0.63, p = 0.53 Median=2.0	There was NOT a statistically significant change in <b>Compare (greater number)</b> sub-test scores from the beginning of the school year to the end of the school year.
Sort	Z=-3.05, p = 0.00 Median=2.0	There was a statistically significant change in <b>Sort</b> sub-test scores from the beginning of the school year to the end of the school year.
Matching	Z= -4.95, p = 0.00 Median=0 at pre-test Median=2.0 at post-test	There was a statistically significant change in <b>Matching</b> sub-test scores from the beginning of the school year to the end of the school year.
Positional Words	Z=-2.00, p = 0.05 Median=2.0	There was a statistically significant change in <b>Positional Words</b> sub-test scores from the beginning of the school year to the end of the school year.

**Table 5.** Comparison of Pre-Test to Post-Test ELKP (Year 2) All Students at All Schools

There was a significant growth in student performance for all ELKP (Year 2) students at all three schools in the following eight concepts: Object Counting (1-1); Object Counting (using a plan); Identify Symbols; One More; Visual Patterns; Sorting; Matching; Positional Words. There was NOT growth in concepts of Oral Counting; Object Counting (cardinality); One More (come after); One Less; Compare (more); Compare (greater).

DMA Sub-tests	Wilcoxon Statistics	Interpretation
Oral Counting	Z=-0.50 , p = 0.62 Median=2.0	There was NOT a statistically significant change in <b>Oral Counting</b> sub-test scores from the beginning of the school year to the end of the school year.
Oral Counting (next decade)	Z=-2.83, p = 0.01 Median=0 at pre-test Median=2.0 at post-test	There was a statistically significant change in <b>Oral Counting (next decade)</b> sub-test scores from the beginning of the school year to the end of the school year.
Oral Counting (by 10's)	Z=-3.61, p = 0.00 Median=2.0	There was a statistically significant change in <b>Oral Counting (by 10's)</b> sub-test scores from the beginning of the school year to the end of the school year.



Oral Counting (come after: next decade)	Z=-2.31, p = 0.02 Median=2.0	There was a statistically significant change in <b>Oral Counting (come after)</b> sub-test scores from the beginning of the school year to the end of the school year.
Object Counting (1-1)	Z=-1.13, p = 0.26 Median=2.0	There was NOT a statistically significant change in <b>Object Counting (1-1)</b> sub-test scores from the beginning of the school year to the end of the school year.
Object Counting (cardinality)	Z=- 1.63, p = 0.10 Median=2.0	There was NOT a statistically significant change in <b>Object Counting (cardinality)</b> sub-test scores from the beginning of the school year to the end of the school year.
Object Counting (using a plan)	Z=-2.50, p = 0.01 Median=2.0	There was a statistically significant change in <b>Object Counting (using a plan)</b> sub-test scores from the beginning of the school year to the end of the school year.
Identify Symbols	Z=-3.42, p = 0.00 Median=2.0	There was a statistically significant change in <b>Identifying Symbols</b> sub-test scores from the beginning of the school year to the end of the school year.
Write Symbols	Z=-2.60, p = 0.01 Median=2.0	There was a statistically significant change in <b>Writing Symbols</b> sub-test scores from the beginning of the school year to the end of the school year.
One More	Z=-2.19, p = 0.03 Median=2.0	There was a statistically significant change in <b>One More</b> sub-test scores from the beginning of the school year to the end of the school year.
One Less (comes before)	Z=-1.51, p = 0.13 Median=2.0	There was NOT a statistically significant change in <b>One Less (comes before)</b> sub-test scores from the beginning of the school year to the end of the school year.
One Less (one less)	Z=-3.05, p = 0.00 Median=0 at pre-test Median=2.0 at post-test	There was a statistically significant change in <b>One Less (one less)</b> sub-test scores from the beginning of the school year to the end of the school year.
Visual Patterns	Z=-3.28, p = 0.00 Median=2.0	There was a statistically significant change in <b>Visual Patterns</b> sub-test scores from the beginning of the school year to the end of the school year.
Compare (more in a group)	Z=-0.69, p = 0.49 Median=2.0	There was NOT a statistically significant change in <b>Compare (more in a group)</b> sub-test scores from the beginning of the school year to the end of the school year.
Compare (greater number)	Z=-0.45, p = 0.66 Median=2.0	There was NOT a statistically significant change in <b>Compare (greater number)</b> sub-test scores from the beginning of the school year to the end of the school year.
Order Numbers	Z=-2.52 , p = 0.01 Median=0 at pre-test Median=2.0 at post-test	There was a statistically significant change in <b>Order Numbers</b> sub-test scores from the beginning of the school year to the end of the school year.
Compose (how many to 10)	Z= -3.13, p = 0.00 Median=0 at pre-test Median=2.0 at post-test	There was a statistically significant change in <b>Compose (how many to 10)</b> sub-test scores from the beginning of the school year to the end of the school year.

Decompose (ways to make 10)	Z=-4.49, p = 0.00 Median=0 at pre-test Median=2.0 at post-test	There was a statistically significant change in Decompose (ways to make 10) sub-test scores from the beginning of the school year to the end of the school year.
Place and Value	Z=-2.65, p = 0.01 Median=0	There was a statistically significant change in Place and Value sub-test scores from the beginning of the school year to the end of the school year.

**Table 6.** Comparison of Pre-Test to Post-Test Grade 1 All Students at All Schools

There was a significant growth in student performance for all Grade 1 students at all three schools in the following thirteen concepts: Oral Counting (next decade); Oral Counting (by 10's); Oral Counting (come after); Object Counting (use a plan); Identify Symbols; Write Symbols; One More; One Less (less); Visual Patterns; Order Numbers; Compose; Decompose; Place and Value. There was NOT growth in concepts of Oral Counting; Object Counting (1-1); Object Counting (cardinality); One Less; Compare (more); Compare (greater).

DMA Sub-tests	Wilcoxon Statistics	Interpretation
Oral Counting	Z=-0.82, p = 0.41 Median=2.0	There was NOT a statistically significant change in Oral Counting sub-test scores from the beginning of the school year to the end of the school year.
Oral Counting (next decade)	Z=-1.63, p = 0.10 Median=2.0	There was NOT a statistically significant change in Oral Counting (next decade) sub-test scores from the beginning of the school year to the end of the school year.
Object Counting (1-1)	Z=-1.41, p = 0.16 Median=2.0	There was NOT a statistically significant change in Object Counting (1-1) sub-test scores from the beginning of the school year to the end of the school year.
Object Counting (counts by 10's)	Z=-2.83, p = 0.01 Median=2.0	There was a statistically significant change in Object Counting (counts by 10's) sub-test scores from the beginning of the school year to the end of the school year.
Object Counting (unitizing)	Z=-1.94, p = 0.05 Median=2.0	There was a statistically significant change in Object Counting (unitizing) sub-test scores from the beginning of the school year to the end of the school year.
Identify Symbols	Z=-3.67, p = 0.00 Median=1 at pre-test Median=2.0 at post-test	There was a statistically significant change in Identifying Symbols sub-test scores from the beginning of the school year to the end of the school year.
Write Symbols	Z=-3.15, p = 0.00 Median=1 at pre-test Median=2.0 at post-test	There was a statistically significant change in Writing Symbols sub-test scores from the beginning of the school year to the end of the school year.
One More	Z=-1.51, p = 0.13 Median=2.0	There was NOT a statistically significant change in One More sub-test scores from the beginning of the school year to the end of the school year.
Ten More	Z=-2.83, p = 0.01 Median=0	There was a statistically significant change in Ten More sub-test scores from the beginning of the school year to the end of the school year.

One Less	Z=-3.38, p = 0.00 Median=0 at pre-test Median=2.0 at post-test	There was a statistically significant change in <b>One Less</b> sub-test scores from the beginning of the school year to the end of the school year.
Ten Less	Z=-2.67, p = 0.01 Median=0	There was a statistically significant change in <b>Ten Less</b> sub-test scores from the beginning of the school year to the end of the school year.
Comes Before	Z=-3.00, p = 0.00 Median=0 at pre-test Median=2.0 at post-test	There was a statistically significant change in <b>Comes Before</b> sub-test scores from the beginning of the school year to the end of the school year.
Visual Patterns	Z=-2.53, p = 0.01 Median=1 at pre-test Median=2.0 at post-test	There was a statistically significant change in <b>Visual Patterns</b> sub-test scores from the beginning of the school year to the end of the school year.
Compare Numbers	Z=-2.74, p = 0.01 Median=2.0	There was a statistically significant change in <b>Compare Numbers</b> sub-test scores from the beginning of the school year to the end of the school year.
Order Numbers	Z=0.00, p = 1.00 Median=2.0	There was NOT a statistically significant change in <b>Order Numbers</b> sub-test scores from the beginning of the school year to the end of the school year.
Compose/Decompose	Z=-3.31, p = 0.00 Median=0 at pre-test Median=1.5 at post-test	There was a statistically significant change in <b>Compose/Decompose</b> sub-test scores from the beginning of the school year to the end of the school year.
Place and Value (making number)	Z=-1.21, p = 0.23 Median=2.0	There was NOT a statistically significant change in <b>Place and Value (making number)</b> sub-test scores from the beginning of the school year to the end of the school year.
Place and Value (meaning of digit)	Z=-2.89, p = 0.00 Median=0	There was a statistically significant change in <b>Place and Value (meaning of digit)</b> sub-test scores from the beginning of the school year to the end of the school year.

Table 7. Comparison of Pre-Test to Post-Test Grade 2 All Students at All Schools

There was a significant growth in student performance for all Grade 2 students at all three schools in the following twelve concepts: Object Counting (counts by 10's); Object Counting (unitizing); Identify Symbols; Write Symbols; Ten More; One Less (less); Ten Less; Comes Before; Visual Patterns; Compare Numbers; Compose/Decompose; Place and Value (meaning of digit). There was NOT growth in concepts of Oral Counting; Oral Counting (next decade); Object Counting (1-1); One More; Order Numbers; Place and Value (making number).

### Limitations

Educational research is inherently open to limitations due to the nature of the work with human participants. The study examined here exhibits some limitations that merit noting. There is the risk of response bias of social desirability when the teachers, early childhood educators, and facilitator were interviewed (Creswell, 2012). Specifically, the interviewees might have filtered their responses in a conscious effort to create a favourable impression of participating in this project. There is an even stronger tendency for participants to modify their responses when they are not anonymous (Creswell, 2012). A related concern might be from the self-report measure that the teachers completed. Likert-scale surveys such as the one used to capture teachers' beliefs about mathematics instruction are



susceptible to biased self-reporting (Creswell, 2012). Another limitation might stem from the researchers (and facilitator) being present during the observation, co-planning, and meetings. The Hawthorne effect (i.e., participants may change their typical behaviour merely because of the presence of the researchers) may have limited results (Creswell, 2012).

The student assessment data presented some minor limitations to the analyses as in some cases it was incomplete due to student mobility, attrition or lack of final parental consent. As well, this research also included a small number of teacher participants from a medium-sized school board which results in a low level of generalizability. There was also no random assignment of teachers to a control or intervention condition. This research could thus be enhanced using a quasi-experimental design with the inclusion of a teacher (non-intervention) control group. Finally, there is a lack of data from the perspective of the student learners in situ. Teachers commented on students' attitudes and behaviours; it would be optimal to garner the students' voices and examine their learning in the classroom.

## Next Steps

### Lessons Learned: Implications for Practice

After a facilitated learning session of curriculum mapping, educators realized the extent to which curriculum expectations in number sense are interrelated with other curriculum expectations in math, and in other subjects. This fueled their ability to create authentic learning opportunities for their students in which number sense concepts were taught in a relevant context, and not simply as an isolated skill. The contextualized learning fostered students' understanding beyond rote learning mechanics, and propelled their meaningful understanding of number sense to a deeper level. Consequently, students were able to generalize their learning to the extent that they demonstrated transfer of skills to a variety of other contexts. Since the catalyst to this rich learning environment was a curriculum mapping exercise, in order to promote educators' integrated instructional practices, facilitators should ensure that educators are explicitly aware of curricular connections. An unexpected positive outcome of integrated instruction was that it alleviated some stress pertaining to covering curriculum within concrete time constraints, as educators saved time by layering concepts taught concurrently. This positive implication for practice should be made apparent to educators at the beginning of the project to assuage any potential concerns about covering the breadth of concepts. Professional learning facilitators might lead curriculum mapping in-services or provide documents detailing curriculum connections to educators.

The success of inquiry-based approaches was contingent on educators feeling comfortable adjusting their traditional classroom role from a teacher-driven environment to one that incorporated student-driven practices. Although it may have been a difficult adjustment at times, the benefits of allowing students to take ownership over their own learning proved to be worthwhile. Educators observed students' excitement during student-led activities, which ultimately translated in more engaged learners and improved student achievement. When introducing inquiry-based processes, facilitators should overtly discuss the critical transition of educators' orientation from teacher-driven to student-driven practices so that a forum for a discussion of best practices around the classroom conditions needed for successful inquiry-based practices can ensue. At the beginning of a program of professional learning, facilitators should avoid the pragmatics of specific inquiry-based strategies and begin with a discussion of how to foster a student-driven classroom culture that supports such inquiry-based strategies.

One of the most effective ways to support educators' adoption of new practices in their classroom is to have the innovative strategies modeled for them in an authentic classroom setting. While many educators were open to trying the new strategies or approaches discussed at facilitated learning sessions, many lacked either the confidence or the instructional skill set to implement the innovative strategies until they directly observed a classroom demonstration of such strategies. Further, the fruitful collegial discussions around best practices that classroom demonstrations launch were cited as instrumental to educators' gravitation towards the implementation of new strategies. Therefore, in

order for educators to perceive the implementation of innovative practices as viable in their own classroom, facilitators should couple their discussions pertaining to instructional strategies with opportunities for educators to directly observe them being modeled in the classroom. Professional learning facilitators should prioritize on-site instructional modeling and demonstrations of new strategies to set the stage for educators to translate into their own practice.

An expansion of the current program of professional learning might include a blend of teachers that have previously participated and teachers new to the initiative. In a family of geographical related schools, teachers might co-plan, model, and co-teach early learning math lessons. An on-line forum for sharing resources, recommendations and feedback would support this professional learning community. Facilitators such as the Numeracy Facilitator, Numeracy Consultant and Math Coaches could offer on-going support to the educators. Both teachers and students who participate in the 2013-2014 school year should be monitored with data collection (e.g., interviews, student math assessments).

A comprehensive assessment of students' knowledge, along with a clear understanding of developmental stages and learning trajectories, enabled educators to strategically determine a data-driven plan for individual student achievement. The detailed inventory of an individual student's knowledge base early in the school year was instrumental information for the development of student success plans. While the challenge of completing rigorous diagnostic assessments for each student is time consuming, since this baseline data is valuable information for instructional planning purposes, it is a task that needs to be prioritized. Therefore, if true meaningful, data-driven instructional decisions are to be made, comprehensive baseline data about students' knowledge in relation to curricular expectations needs to be collected early in the school year.

The findings of this project evaluation have provided quantitative evidence that an instructional focus on specific concepts in number sense and numeration enhance student performance on a criterion-based assessment. Such integrity between assessed and identified concepts and instruction is the key principle underlying curricular redesign and instructional planning. This premise should be at the forefront in preparing for subsequent iterations of this project. The investment in solidifying the assessment to instruction cycle will reap dividends as the early learning challenges and uncorrected misconceptions in mathematics will be identified and addressed. This will support students' early learning success in mathematics, encourage risk-taking during problem solving, and inoculate against poor math self-efficacy.

### **Implications for Future Research**

The paucity of longitudinal research tracking the effects of teacher professional learning on both educators' practice and students' mathematics achievement means that little is yet known about the potential for establishing enduringly effective professional learning communities. An opportunity exists for a sustained investigation into the program of mathematics professional learning that has been presented herein. The teachers that have served as participants for this portion of the project are well-positioned to further enhance their mathematics instruction and be tracked into the next academic year. This could adopt a quasi-experimental research design with a non-intervention group or an intimate case study design. This also poses interesting prospects as some teachers enter their first, second or third year of the project. The achievement of their former and present students could also be studied. The research design could be extended to include additional teachers who might be mentored by the experienced ones. This type of parallel professional learning is collegial and affirming for all participants and would make a significant contribution to the research literature.



## References

- Airasian, P., Engemann, J., & Gallagher, T. (2010). *Classroom assessment*. Toronto: McGraw-Hill Ryerson.
- Ashton, E. (2007). *Children's mathematical thinking*. Early Childhood Centre Research and Development Group, University of New Brunswick, Fredericton. Retrieved [http://www.eccenb-sepenb.com/uploads/Website\\_Assets/Children\\_Math\\_Thinking.pdf](http://www.eccenb-sepenb.com/uploads/Website_Assets/Children_Math_Thinking.pdf)
- Barlow, A. & Cates, J. (2006). The impact of problem posing on elementary teachers' beliefs about mathematics and mathematics teaching. *School Science and Mathematics*, 106 (20), 64-73.
- Beghetto, R. & Baxter, J. (2012). Exploring student beliefs and understanding in elementary science and mathematics. *Journal of Research in Science Teaching*, 49 (7), 942-960.
- Bruce, C. & Flynn, T. (2011). Which is greater: One half or two fourths? An examination of how two grade 1 students negotiate meaning. *Canadian Journal of Science, Mathematics & Technology Education*, 11 (4), 309-327.
- Christensen, N. (2011). *Early math skills predict later academic success*. Retrieved <http://phys.org/news/2011-04-early-math-skills-academic-success.html#iCp>
- Developmental Math Group (2013). *Developmental Math Assessment*. Retrieved <http://www.developmentalmathgroup.com/products/developmental-math-assessment>
- Duncan, G. (2011). *The importance of academic skills for PreK-3<sup>rd</sup>. A Report to the Foundation for Child Development*. Retrieved <http://fcd-us.org/sites/default/files/Brief%20on%20Academic%20Skills%20and%20School%20Readiness%20011311.pdf>
- Elmore, R. (2009). *Instructional rounds in education*. Cambridge: Harvard Education Press.
- Foong, P. Y., & Perry, B. (1998). Proportional reasoning and mathematical beliefs of student teachers from Singapore and Australia. *The Mathematics Educator*, 3 (2), 38-53.
- Hufferd-Ackles, K., Fuson, K., & Sherin, M. (2004). Describing levels and components of a math-talk learning community. *Journal for Research in Mathematics Education*, 35 (2), 81-116.
- Hye, Y. & Reifel, S. (2011). Promoting children's communication: A Kindergarten teacher's conception and practice of effective mathematics instruction. *Journal of Research in Childhood Education*, 25 (2), 194-210.
- Inoue, N. & Buczynski, S. (2011). You asked open-ended questions, now what? Understanding the nature of stumbling blocks in teaching inquiry lessons. *Mathematics Educator*, 20 (2), 10-23.
- Jacobs, H. (2004). *Assessment, Evaluation, and Curriculum Redesign*. Educational Broadcasting Corporation. Retrieved <http://www.thirteen.org/edonline/concept2class/assessment/index.html>
- Kramarski, B. (2009). Developing a pedagogical problem solving view for mathematics teachers with two reflection programs. *International Electronic Journal of Elementary Education*, 2 (1), 137-153.



- Laerd Statistics (2014). Wilcoxon signed-rank test using SPSS. Retrieved <https://statistics.laerd.com/spss-tutorials/wilcoxon-signed-rank-test-using-spss-statistics.php#procedure>
- Merriam, S. B. (2001). *Qualitative research and case study applications in education (2nd Ed.)*. Jossey-Bass.
- Mercer, N. & Sams, C. (2006). Teaching children how to use language to solve maths problems. *Language & Education: An International Journal*, 20 (6), 507-528.
- Ministry of Education. (2010). Assessment for learning and as learning. *Growing success: Assessment, evaluation, and reporting in Ontario schools*, 27-36.
- Ministry of Education. (2010). *School effectiveness framework. Components, indicators and evidence*, 11-37.
- Ministry of Education. (2011). *Paying attention to mathematics K-12*.
- Ministry of Education Ontario (2006). *A guide to effective instruction in mathematics K to 6, Volume 4: Assessment and home connections*. Retrieved [http://eworkshop.on.ca/edu/resources/guides/Guide\\_Math\\_K\\_6\\_Volume\\_4.pdf](http://eworkshop.on.ca/edu/resources/guides/Guide_Math_K_6_Volume_4.pdf)
- Ministry of Education Ontario (2003). *A guide to effective instruction in mathematics K to 3: Number sense and numeration*. Retrieved [http://eworkshop.on.ca/edu/resources/guides/Guide\\_Math\\_K\\_3\\_NSN.pdf](http://eworkshop.on.ca/edu/resources/guides/Guide_Math_K_3_NSN.pdf)
- National Association for the Education of Young Children (NAEYC) & National Council of Teachers of Mathematics (NCTM) (2010). *Early childhood mathematics: Promoting good beginnings*. Position Statement. Retrieved <https://www.naeyc.org/files/naeyc/file/positions/psmath.pdf>
- Obara, S. & Sloan, M. (2009). The evolving role of a mathematics coach during the implementation of performance standards. *Professional Educator*, 33 (2), 11-23.
- Perry, B., Howard, P., & Tracey, D. (1999). Head mathematics teachers' beliefs about the learning and teaching of mathematics. *Mathematics Education Research Journal*, 11, 39-53.
- Perry, B., Vistro-Yu, C., Howard, P., Wong, N-Y., & Fong, H. K. (2002). Beliefs of primary teachers about mathematics and its teaching and learning: Views of Singapore, Philippines, mainland China, Hong Kong, Taiwan and Australia. In B. Barton, K. Irwin, M. Pfannkuch, & M. Thomas (Eds.), *Mathematics education in the South Pacific* (Proceedings of the 25th annual conference of the Mathematics Education Research Group of Australasia, Vol. 2, pp. 551-558). Sydney: MERGA.
- Perry, B., Wong, N. Y., & Howard, P. (2006). Comparing primary and secondary mathematics teachers' beliefs about mathematics, mathematics learning and mathematics teaching in Hong Kong and Australia. In K. D. Graf, F. K. S. Leung, & F. Lopez-Real (Eds.), *Mathematics education in different cultural traditions: A comparative study of East Asia and the West* (pp. 435-448). New York: Springer.
- Quillen, M.A. (2005). *Relationships among prospective elementary teachers' beliefs about mathematics, mathematics content knowledge, and previous mathematics course experiences*.

Retrieved [http://scholar.lib.vt.edu/theses/available/etd-03252004-144145/unrestricted/Quillen\\_Dissertation.pdf](http://scholar.lib.vt.edu/theses/available/etd-03252004-144145/unrestricted/Quillen_Dissertation.pdf)

- Sakshaug, L. & Wohlhuter, K. (2010). Journey toward teaching mathematics through problem solving. *School Science & Mathematics, 110* (8), 397-409.
- SPSS Software. (2011). *PASW statistics 19.0*. Chicago, IL: SPSS Inc.
- Stake, R. E. (1995). *The art of case study research*. Sage Publications.
- Stake, R. E. (2006). *Multiple case study analysis*. The Guilford Press.
- Turner, F. (2009). Growth in teacher knowledge: individual reflection and community participation. *Research in Mathematics Education, 11* (1), 81-82.
- Van De Walle, J., Karp, K., & Bay-Williams, J. (2013). *elementary and middle school mathematics: teaching developmentally, Eighth Ed*. Upper Saddle River, NJ: Pearson.
- Van de Walle, J. & Lovin, L. (2006). *Teaching student-centred mathematics: Grades K-3*. Toronto: Pearson Education.
- Vanderhye, C. & Demers, C. (2008). Assessing students' understanding through conversations. *Teaching Children Mathematics, 14* (5), 260-264.
- Warfield, J., Wood, T., & Lehman, J. (2005). Autonomy, beliefs and the learning of elementary mathematics teachers, *Teaching & Teacher Education, 21* (4), 439-456.
- White, Way, Perry & Southwell, 2005). Mathematical Attitudes, Beliefs and Achievement in Primary Pre-service Mathematics Teacher Education. *Mathematics Teacher Education and Development, Vol. 7*, 33-52. Retrieved [http://www.merga.net.au/documents/MTED\\_7\\_White.pdf](http://www.merga.net.au/documents/MTED_7_White.pdf).
- Wilkins, J. (2008). The relationship among elementary teachers' content knowledge, attitudes, beliefs, and practices. *Journal of Math Teacher Education, 11*, 139-164.
- Yin, R. K. (2009). *Case study research: Design and methods (Applied Social Research Methods)* (4th Ed.). Sage Publications.
- Yin, R. K. (2004). *Applications of case study research*. Sage Publications.

### Authors' Note:

Dr. Tiffany L. Gallagher is an educational researcher and Associate Professor in the Department of Teacher Education at Brock University. Her research expertise is in mixed methods research designs that investigate assessment and teaching strategies and students with exceptional learning needs.

Dr. Marybeth Fortune is an educational researcher and instructor in the Department of Teacher Education at Brock University. Her research expertise includes the investigation of leadership strategies in relation to the implementation of improvement initiatives and the management of organizational change.

A request was made by NCDSB to the Research Officer at Brock University Faculty of Education for researchers to investigate the *Early Learning Math Inquiry Project* and together Drs. Gallagher and Fortune elected to assume this task. Throughout the 2013/2014 school year, Drs. Gallagher and Fortune have remained at arms-length to the design and facilitation of this project. The research of this project was vetted through the Research Ethics Board at Brock University and NCDSB. The researchers independently and confidentially collected and analyzed all of the data contained in this report. Drs. Gallagher and Fortune have never been employed by Niagara Catholic District School Board and were not remunerated for the research or writing of this report; consequently they have remained objective evaluators throughout this process.



**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: EXTENDED OVERNIGHT FIELD TRIP, EXCURSION AND  
EXCHANGE APPROVAL COMMITTEE 2014 - 2015**

---

---

The Extended Overnight Field Trip, Excursion and Exchange Approval Committee 2014-2015 report is presented for information.

---

---

Prepared by: Mark Lefebvre, Superintendent of Education

Presented by: Mark Lefebvre, Superintendent of Education

Approved by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014



NIAGARA CATHOLIC  
DISTRICT SCHOOL BOARD

## REPORT TO THE BOARD SEPTEMBER 23, 2014

### EXTENDED OVERNIGHT FIELD TRIP, EXCURSION AND EXCHANGE APPROVAL COMMITTEE 2014 - 2015

---

---

#### BACKGROUND INFORMATION

The Extended Overnight Field Trip, Excursion and Exchange Approval Committee continues to review proposals for 2014-2015 extended overnight field trips, excursions and exchanges as submitted to date. The composition of the approval Committee is as follows:

1 Supervisory Officer	-	Mark Lefebvre
1 Secondary School Vice-Principal	-	Andrew Bartley
1 Secondary School Principal	-	Jeff Smith
1 Elementary School Principal	-	Steve Ward
1 Program Department Consultant	-	Mike Sheahan

As defined in the Niagara Catholic Educational Field Trip Policy (400.2) Administrative Guidelines, an Extended Overnight Field Trip is:

- “Any school/board sponsored and supervised activity, on scheduled instructional days, beyond the school property that requires four or five more night lodgings”  
or
- “Requiring an individual flight ticket of \$600.00 or more.” (Part II, A.4)

An Excursion is defined as follows:

- “A trip not directly linked to specific subject curriculum expectations, but provided to enrich a student’s overall Catholic education. An excursion is a trip that is planned and arranged for secondary school students that would be held during the year when the students are not normally expected to be attending classes and that does not adhere to all guidelines and procedures relating to Educational Field Trips.” (Part II, A.5)

Attached to this information report is an Executive Summary of a 2012-2013 Extended Overnight Field Trip as submitted on Tuesday, September 23, 2014. (Appendix A)

The Extended Overnight Field Trip, Excursion and Exchange Approval Committee 2014-2015  
report is presented for information.

Prepared by: Mark Lefebvre, Superintendent of Education

Presented by: Mark Lefebvre, Superintended of Education

Approved by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014



## Appendix A

## EXECUTIVE SUMMARY

## Extended Overnight Field Trip, Excursion and Exchange Committee Approval – 2014-2015

SCHOOL	TYPE	APPROVAL REQUIRED	DESTINATION	CURRICULUM UNIT/THEME	EDUCATION VALUE	DATE	NUMBER OF STUDENTS, STAFF & CHAPERONES ON TRIP	DURATION	COST (APPROX)	TRANSPORTATION
Saint Paul Catholic High School	Extended Overnight Excursion	Superintendent and Extended Overnight Field Trip Committee	Atlantis, Bahamas, (KSA Events)	Sports	Social and cultural growth, educational exhibits, student leadership conference on crossing boundaries and discovering a new global awareness, team competition and team growth.	Friday, November 28, 2014 to Wednesday, December 3, 2014	14 students 2 staff	6 days 5 nights (4 school days)	Approximately \$1,299.00 per person – transportation, accommodations (with breakfast), Student Leadership Conference, Basketball Tournament, taxes & gratuities.  Additional personal spending money.	Air and land transportation
Blessed Trinity Catholic Secondary School	Extended Overnight Excursion	Superintendent and Extended Overnight Field Trip Committee	Honolulu, Hawaii, Island of Oahu, U.S.A.	Music/Religion	Performance and cultural tour of Hawaii (Oahu) for music students. It will allow students to fulfill many expectations in the music and religious education curricula.	Wednesday, March 4, 2015 to Tuesday, March 10, 2015	40 students 2 staff 3 chaperones	7 days 6 nights (5 school days)	Approximately \$2,701.21.00 per person – transportation, accommodations, instrument transportation, 7 breakfasts, 5 dinners, tours, 2 clinics, participation in the Hawaii music festival, taxes & gratuities.  Additional personal spending money.	Air, coach, land transportation

## EXECUTIVE SUMMARY

## Appendix A

## Extended Overnight Field Trip, Excursion and Exchange Committee Approval – 2014-2015

SCHOOL	TYPE	APPROVAL REQUIRED	DESTINATION	CURRICULUM UNIT/THEME	EDUCATION VALUE	DATE	NUMBER OF STUDENTS, STAFF & CHAPERONES ON TRIP	DURATION	COST (APPROX)	TRANSPORTATION
Saint Michael Catholic High School	Extended Overnight Excursion	Superintendent and Extended Overnight Field Trip Committee	Europe (France, Italy and Spain)	Religion, Language, Arts, Social Science	Many connections to the Catholic Graduate Expectations, Financial Literacy Requirements and Overall or Specific Course Expectations;	Thursday, March 12, 2015 to Sunday, March 22, 2015 (March Break)	15 students 2 staff 2 chaperones	11 days 10 nights 1 school day	Approximately \$3,600.00 per person – transportation, accommodations, breakfast, dinner, tours and activities, taxes & gratuities. Additional personal spending money.	Air & land transportation
Denis Morris Catholic High School	Extended Overnight Excursion	Superintendent and Extended Overnight Field Trip Committee	Europe (France, Italy and Spain)	Religion, Language, Arts, Social Science	Many connections to the Catholic Graduate Expectations, Financial Literacy Requirements and Overall or Specific Course Expectations;	Thursday, March 12, 2015 to Sunday, March 22, 2015 (March Break)	15 students 2 staff 2 chaperones	11 days 10 nights 1 school day	Approximately \$3,600.00 per person – transportation, accommodations, breakfast, dinner, tours and activities, taxes & gratuities. Additional personal spending money.	Air and land transportation

**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: STAFF DEVELOPMENT DEPARTMENT PROFESSIONAL  
DEVELOPMENT OPPORTUNITIES**

---

---

The Staff Development Department Professional Development Opportunities report is  
presented for information.

---

---

Prepared by: Frank Iannantuono, Superintendent of Education  
Anthony Corapi, Coordinator of Staff Development

Presented by: Frank Iannantuono, Superintendent of Education  
Anthony Corapi, Coordinator of Staff Development

Approved by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014





## REPORT TO THE BOARD SEPTEMBER 23, 2014

### STAFF DEVELOPMENT DEPARTMENT PROFESSIONAL DEVELOPMENT OPPORTUNITIES

---

#### BACKGROUND INFORMATION

In alignment with the Board's Vision 2020 Strategic Plan and annual System Priorities, the Department of Staff Development, as an integral aspect of its mandate, acts as the point of co-ordination among various departments. Thus ensuring that all professional development opportunities for staff, both teaching and non-teaching, occur in a seamless fashion so as to minimize disruptions to the myriad services provided within our Niagara Catholic community.

The following is a listing of activities occurring during the period September 2, 2014 through October 9, 2014.

#### **Wednesday, September 10<sup>th</sup> and Thursday, September 11<sup>th</sup>, 2014**

##### *EASy Appraisal Training for Administrators*

- To facilitate the transition to the new EASy Appraisal program, all administrators are invited to attend a 2 –hour training sessions on the new software program on September 10<sup>th</sup> and 11<sup>th</sup> being held at the Catholic Education Centre.

#### **Thursday, September 11<sup>th</sup>, 2014**

##### *Safe Management Training (SMG) Full Certification*

- A Safe Management (SMG) Full Certification training will take place at Alexander Kuska Catholic Elementary School on Thursday, September 11, 2014 from 8:30 a.m. - 3:30 p.m. and Friday September 12, 2014 from 8:30 a.m. - 3:30 p.m. for selected personnel, from the following Catholic schools:
  - o St. Mark Catholic Elementary School
  - o St. Joseph (Snyder) Catholic Elementary School
  - o Monsignor Clancy Catholic Elementary School

#### **Tuesday, September 16<sup>th</sup>, 2014**

##### *Elementary Sports representative and Sports Council Meeting*

- A half day release for our annual Sport Representative and Council organizational meeting is scheduled for Tuesday September 16, 2014.
- In addition to information related to tournament dates, rules, budget supports and procedures, the meeting will review the Niagara Catholic Concussion Protocol and provide further clarification on the resources currently available to schools when dealing with possible head injuries as required by the Ministry of Education.

### **Wednesday, September 17<sup>th</sup>, 2014**

#### *Understanding Needs of Deaf and Hard of Hearing Students Workshop*

- Educational Resource Teachers (ERT's) and regular Classroom Teachers, who will be working with deaf or hard of hearing students in their schools during the 2014–15 school year, are invited to attend one of two workshop sessions available on Wednesday, September 17, 2014 being held in the Father Burns Boardroom at the Catholic Education Centre.
- Ron Foster, Resource Services-Outreach Programs Provincial Schools, together with a Niagara Catholic team of Teachers of the Deaf and Hard of Hearing will be presenting on:
  - o hearing loss / the audiogram
  - o FM systems in the classroom
  - o academic and social implications of a student's hearing loss in the classroom.
  - o strategies and accommodations that are necessary to meet the needs of students who are deaf or hard of hearing
  - o how the classroom teacher collaborates with the teachers of the deaf

### **Friday, October 10<sup>th</sup>, 2014**

#### *Professional Activity Day*

- The primary venue for all elementary and secondary school staff is their home school, except for colleagues who will be identified in subsequent memos as having to attend mandatory workshops and/ or training sessions provided by the Special Education Department.
- The PA day is dedicated to School Improvement Planning, and will include the following employee groups:
  - o Principals
  - o Vice-Principals
  - o Teachers (ELKP – Grade 12)
  - o Educational Resource Teachers (ERT's)
  - o Early Childhood Educators (ECE's)
  - o Educational Assistants (EA's)
  - o Child Youth Workers (CYW's)
  - o Library Technicians
  - o Chaplains
  - o School Secretaries
- Catholic Education Centre Staff:
  - o CEC staff will spend the day working within their department unless involved in other activities throughout the board
- Catholic Education Centre – Program Staff:
  - o Itinerant Arts Teachers
  - o Numeracy and Literacy Coaches
  - o English as a Second Language Teachers (ESL)
  - o Program Consultants
- Catholic Education Centre - Special Education Staff
  - o Coordinators
  - o Program Resource Teachers
  - o Behaviour Resource Teachers
  - o Deaf & Hard of Hearing Teachers
  - o Blind & Low Vision Teacher
  - o Communicative Disorders Assistants
  - o Speech/Language Pathologists
- All staff unless involved in other activities, will be deployed to schools for the day to participate in the Professional Activity Day program.
- All CEC Staff should confirm the location for the day with their supervisor and principal of the school prior to October 10<sup>th</sup>.

The Report on Staff Development: Professional  
Development Opportunities is presented for information.

Prepared by: Frank Iannantuono, Superintendent of Education  
Anthony Corapi, Coordinator of Staff Development

Presented by: Frank Iannantuono, Superintendent of Education  
Anthony Corapi, Coordinator of Staff Development

Approved by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014



**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: FINANCIAL REPORTS  
MONTHLY BANKING TRANSACTIONS  
FOR THE MONTHS OF JUNE, JULY AND AUGUST, 2014**

---

---

**RECOMMENDATION**

**THAT** the Niagara Catholic District School Board approve the Report on the Monthly Banking Transactions for the months of June, July and August 2014 as presented.

---

---

Prepared by: Rosa Rocca, Controller of Business & Financial Services

Presented by: Giancarlo Vetrone, Superintendent of Business & Financial Services

Recommended by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014



**REPORT TO THE BOARD  
SEPTEMBER 23, 2014**

**MONTHLY BANKING TRANSACTIONS  
FOR THE MONTH OF JUNE, JULY AND AUGUST 2014**

---

---

**BACKGROUND INFORMATION**

In accordance with the Monthly Financial Reports Policy Statement, we are pleased to enclose the Monthly Banking Transactions for the Niagara Catholic District School Board for the months of June, July and August, 2014 as follows:

June 2014      Appendix A  
July 2014      Appendix B  
August 2014    Appendix C

As required by the Policy, a monthly list of payments is available in the Holy Cross Community Room for the Trustees to review at their convenience.

**RECOMMENDATION**

**THAT** the Niagara Catholic District School Board approve the Report on the Monthly Banking Transactions for the months of June, July and August, 2014 as presented.

---

---

Prepared by:      Rosa Rocca, Controller of Business & Financial Services

Presented by:     Giancarlo Vetrone, Superintendent of Business & Financial Services

Recommended by: John Crocco, Director of Education/Secretary-Treasurer

Date:                September 23, 2014

NIAGARA CATHOLIC DISTRICT SCHOOL BOARD REPORT ON BANKING TRANSACTIONS SUMMARY OF BANK TRANSACTIONS FOR THE MONTH OF: JUNE, 2014		
DESCRIPTION OF ITEMS		BANK ACCOUNT
CASH BALANCE AT BEGINNING OF MONTH	(A)	21,785,186
<b>OPERATING CASH RECEIPTS FOR THE MONTH</b>		
1. GENERAL LEGISLATIVE GRANTS		19,379,904
2. CAPITAL GRANTS		730,824
3. OTHER GRANTS (EPO, O.E.Y.C.)		112,406
<b>SUB-TOTAL - MINISTRY OF EDUCATION GRANTS</b>		<b>20,223,138</b>
4. ONTARIO EARLY YEARS CENTRE		42,116
5. INTEREST REVENUE		24,157
6. MUNICIPAL TAXES		11,455,231
7. TUITION FEES REVENUE - A.C.E. & OTHER		209,151
8. COMMUNITY USE		43,077
9. CHARITABLE DONATIONS		2,909
10. GOVERNMENT REBATES (HST 93% REBATE ON TAXABLE PURCHASES)		398,840
11. RECOVERY OF COSTS (LTD, WCB, BENEFITS, OTHER REIMBURSEMENTS)		205,992
12. OTHER CASH RECEIPTS		
- Other receipts and refunds		9,091
- Donations Collected from Employees - Other		0
- Other		0
13. TRANSFER IN FROM SINKING FUNDS		0
14. PROCEEDS FROM DEBENTURE ISSUE (NET)		0
15. CAPITAL LOAN PRINCIPAL ADVANCES		0
<b>TOTAL OPERATING CASH RECEIPTS AND LOAN ADVANCE</b>	<b>(B)</b>	<b>32,613,691</b>
<b>OPERATING CASH DISBURSEMENTS FOR THE MONTH</b>		
1. ACCOUNTS PAYABLE (NET OF CANCELLED CHEQUES AND DEBT REPAYMENTS)		-12,743,858
2. TEACHER PENSION DEDUCTIONS		-1,340,397
3. O.M.E.R.S. PENSION DEDUCTIONS		-884,293
4. CANADA SAVINGS BONDS DEDUCTIONS		-123,295
5. TRANSFER TO 4 OVER 6 TRUST ACCOUNTS		-77,029
6. OTHER DEBITS		-24,218
7. PAYROLL TRANSFER		-9,053,821
8. INTEREST PAYMENTS ON CAPITAL DEBT		-76,158
9. PRINCIPAL PAYMENTS ON CAPITAL DEBT		-550,000
<b>TOTAL OPERATING CASH DISBURSEMENTS</b>	<b>(C)</b>	<b>-24,872,866</b>
<b>CASH BALANCE AT END OF MONTH</b>	<b>A + B - C = D</b>	<b>(D)</b> 29,526,010

NIAGARA CATHOLIC DISTRICT SCHOOL BOARD REPORT ON LOAN BALANCES SUMMARY OF LOAN BALANCES AS AT: JUNE, 2014 The Debentures & Capital Loans are made up as follows:				
Loan Description	Opening Balance	Loan Advances	Loan Repayments	Ending Balance
1. OFA - GPL1 Loan 26 YR.	-11,300,857.53			-11,300,857.53
2. OFA - GPL2 Loan 26 YR.	-8,547,872.78			-8,547,872.78
3. OFA - GPL3 Loan 26 YR.	-4,142,264.06			-4,142,264.06
4. OFA - 2010-11 DEBENTURE - GPL 3	-1,236,744.81			-1,236,744.81
5. OFA - 2010-11 DEBENTURE - PCS 1	-3,064,822.82			-3,064,822.82
6. OFA - PTR - Completed 2010/11	-7,823,327.62			-7,823,327.62
7. OFA - 2001-A1 Debenture	-1,860,186.31			-1,860,186.31
8. OFA - 2013 PCS Stage 1	-948,676.79			-948,676.79
9. Debenture (Niagara Region)	-824,000.00			-824,000.00
10. Debenture (Niagara Region)	-1,800,000.00		550,000.00	-1,250,000.00
11. Capital Projects - Completed 2001	-12,532,891.93			-12,532,891.93
12. Capital Projects - Completed 2002/03	-19,156,930.66			-19,156,930.66
13. Capital Projects - Completed 2004/05	-4,058,555.44			-4,058,555.44
14. Capital Projects - Completed 2005/06	-7,031,933.42			-7,031,933.42
15. Sinking Fund Asset	621,463.77			621,463.77
<b>Total Debentures &amp; Capital Loans</b>	<b>-83,807,600.00</b>	<b>0.00</b>	<b>550,000.00</b>	<b>-83,257,600.00</b>

PREPARED BY: Rosa Rocca  
 PRESENTED BY: Giancarlo Vetrone



NIAGARA CATHOLIC DISTRICT SCHOOL BOARD REPORT ON BANKING TRANSACTIONS	
SUMMARY OF BANK TRANSACTIONS FOR THE MONTH OF: JULY, 2014	
DESCRIPTION OF ITEMS	BANK ACCOUNT
CASH BALANCE AT BEGINNING OF MONTH	(A) 29,526,010
OPERATING CASH RECEIPTS FOR THE MONTH	
1. GENERAL LEGISLATIVE GRANTS	10,503,807
2. CAPITAL GRANTS	3,429,589
3. OTHER GRANTS (EPO)	5,000
SUB-TOTAL - MINISTRY OF EDUCATION GRANTS	14,338,406
4. ONTARIO EARLY YEARS CENTRE	41,616
5. INTEREST REVENUE	16,677
6. MUNICIPAL TAXES	6,798
7. TUITION FEES REVENUE - A.C.E. & OTHER	234,481
8. COMMUNITY USE	41,096
9. CHARITABLE DONATIONS	0
10. GOVERNMENT REBATES (11ST 83% REBATE ON TAXABLE PURCHASES)	800,213
11. RECOVERY OF COSTS (LTD, WCB, BENEFITS, OTHER REIMBURSEMENTS)	71,298
12. OTHER CASH RECEIPTS	
- Other receipts and refunds	32,450
- Proceeds from sale of tangible capital assets	854,503
- Other	
13. TRANSFER IN FROM SINKING FUNDS	0
14. PROCEEDS FROM DEBENTURE ISSUE (NET)	0
15. CAPITAL LOAN PRINCIPAL ADVANCES	0
TOTAL OPERATING CASH RECEIPTS AND LOAN ADVANCE	(B) 16,439,616
OPERATING CASH DISBURSEMENTS FOR THE MONTH	
1. ACCOUNTS PAYABLE (NET OF CANCELLED CHEQUES AND DEBT REPAYMENTS)	-8,026,714
2. TEACHER PENSION DEDUCTIONS	-1,874,340
3. O.M.E.F.S. PENSION DEDUCTIONS	-502,149
4. CANADA SAVINGS BONDS DEDUCTIONS	-113,475
5. TRANSFER TO 4 over 5 ACCOUNTS	-50,618
6. OTHER DEBITS	-56,885
7. PAYROLL TRANSFERS	-12,320,439
8. INTEREST PAYMENTS ON CAPITAL DEBT	-168,300
9. PRINCIPAL PAYMENTS ON CAPITAL DEBT	-142,287
TOTAL OPERATING CASH DISBURSEMENTS	(C) -24,166,187
CASH BALANCE AT END OF MONTH	A + B - C = D (D) 21,800,441

NIAGARA CATHOLIC DISTRICT SCHOOL BOARD REPORT ON LOAN BALANCES				
SUMMARY OF LOAN BALANCES AS AT : JULY, 2014				
The Debentures & Capital Loans are made up as follows:				
Loan Description	Opening Balances	Loan Advances	Loan Repayments	Ending Balance
1. OFA - GPL1 Loan 25 YR.	-11,300,857.53			-11,300,857.53
2. OFA - GPL2 Loan 25 YR.	-8,847,872.78			-8,847,872.78
3. OFA - GPL3 Loan 25 YR.	-4,142,264.06			-4,142,264.06
4. OFA - 2010-11 DEBENTURE - GPL 3	-1,236,744.61			-1,236,744.61
5. OFA - 2010-11 DEBENTURE - PCS 1	-3,064,822.62			-3,064,822.62
6. OFA - PTR - Completed 2010/11	-7,823,327.62			-7,823,327.62
7. OFA - 2001-A1 Debenture	-1,860,186.31			-1,860,186.31
8. OFA - 2013 PCS Stage I	-948,676.79			-948,676.79
9. Debenture (Niagara Region)	-824,000.00			-824,000.00
10. Debenture (Niagara Region)	-1,250,000.00			-1,250,000.00
11. Capital Projects - Completed 2001	-12,532,891.93			-12,532,891.93
12. Capital Projects - Completed 2002/03	-19,156,830.68			-19,156,830.68
13. Capital Projects - Completed 2004/05	-4,058,555.44			-4,058,555.44
14. Capital Projects - Completed 2005/06	-7,031,833.42		142,287.00	-6,889,546.42
15. Sinking Fund Asset	821,463.77			821,463.77
Total Debentures & Capital Loans	-83,267,600.00	0.00	142,287.98	-83,115,312.02

PREPARED BY : Rosa Rocca  
PRESENTED BY: Giancarlo Voltrone

NIAGARA CATHOLIC DISTRICT SCHOOL BOARD REPORT ON BANKING TRANSACTIONS SUMMARY OF BANK TRANSACTIONS FOR THE MONTH OF:		AUGUST, 2014
DESCRIPTION OF ITEMS		BANK ACCOUNT
CASH BALANCE AT BEGINNING OF MONTH	(A)	21,800,441
<b>OPERATING CASH RECEIPTS FOR THE MONTH</b>		
1. GENERAL LEGISLATIVE GRANTS		10,880,243
2. CAPITAL GRANTS		301,127
3. OTHER GRANTS (EPO)		88,607
SUB-TOTAL - MINISTRY OF EDUCATION GRANTS		11,270,007
4. ONTARIO EARLY YEARS CENTRE		41,615
5. INTEREST REVENUE		26,513
6. MUNICIPAL TAXES		0
7. TUITION FEES REVENUE - A.C.E. & OTHER		231,405
8. COMMUNITY USE		8,058
9. CHARITABLE DONATIONS		0
10. GOVERNMENT REBATES (HST 83% REBATE ON TAXABLE PURCHASES)		0
11. RECOVERY OF COSTS (LTD, WCB, BENEFITS, OTHER REIMBURSEMENTS)		214,628
12. OTHER CASH RECEIPTS		28,918
- Other receipts and refunds		
- Proceeds from sale of tangible capital assets		
- Other		0
13. TRANSFER IN FROM SINKING FUNDS		0
14. PROCEEDS FROM DEBENTURE ISSUE (NET)		
15. CAPITAL LOAN PRINCIPAL ADVANCES		
<b>TOTAL OPERATING CASH RECEIPTS AND LOAN ADVANCE</b>	<b>(B)</b>	<b>11,827,104</b>
<b>OPERATING CASH DISBURSEMENTS FOR THE MONTH</b>		
1. ACCOUNTS PAYABLE (NET OF CANCELLED CHEQUES AND DEBT REPAYMENTS)		-5,102,559
2. TEACHER PENSION DEDUCTIONS		-1,288,708
3. O.M.E.R.S. PENSION DEDUCTIONS		-235,547
4. CANADA SAVINGS BONDS DEDUCTIONS		-84,600
5. TRANSFER TO 4 OVER 5 TRUST ACCOUNTS		-38,071
6. OTHER DEBITS - Canada Revenue Agency (Employee Deductions)		-18,387
7. PAYROLL TRANSFERS		-10,737,062
8. INTEREST PAYMENTS ON CAPITAL DEBT		0
9. PRINCIPAL PAYMENTS ON CAPITAL DEBT		0
<b>TOTAL OPERATING CASH DISBURSEMENTS</b>	<b>(C)</b>	<b>-17,604,834</b>
CASH BALANCE AT END OF MONTH	4 A + B - C = D	(D) 16,122,811.32

NIAGARA CATHOLIC DISTRICT SCHOOL BOARD REPORT ON LOAN BALANCES SUMMARY OF LOAN BALANCES AS AT: AUGUST, 2014 The Debentures & Capital Loans are made up as follows:				
Loan Description	Opening Balance	Loan Advances	Loan Repayments	Ending Balance
1. OFA - GPL1 Loan 25 YR.	-11,300,857.63		0.00	-11,300,857.63
2. OFA - GPL2 Loan 25 YR.	-8,847,872.78			-8,847,872.78
3. OFA - GPL3 Loan 25 YR.	-4,142,284.06			-4,142,284.06
4. OFA - 2010-11 DEBENTURE - GPL 3	-1,236,744.61			-1,236,744.61
5. OFA - 2010-11 DEBENTURE - PCS 1	-3,064,822.62			-3,064,822.62
6. OFA - PTR - Completed 2010/11	-7,623,327.62		0.00	-7,623,327.62
7. OFA - 2001-A1 Debenture	-1,860,186.31			-1,860,186.31
8. OFA - 2013 PCS Stage 1	-848,676.78		0.00	-848,676.78
9. Debenture (Niagara Region)	-824,000.00			-824,000.00
10. Debenture (Niagara Region)	-1,250,000.00		0.00	-1,250,000.00
11. Capital Projects - Completed 2001	-12,532,891.93			-12,532,891.93
12. Capital Projects - Completed 2002/03	-19,158,930.66			-19,158,930.66
13. Capital Projects - Completed 2004/05	-4,058,555.44			-4,058,555.44
14. Capital Projects - Completed 2005/06	-8,889,846.04			-8,889,846.04
15. Sinking Fund Asset	621,463.77			621,463.77
<b>Total Debentures &amp; Capital Loans</b>	<b>-83,115,312.62</b>	<b>0.00</b>	<b>0.00</b>	<b>-83,115,312.62</b>

PREPARED BY: Ross Tocco  
PRESENTED BY: Giancarlo Volpone

**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: FINANCIAL REPORTS  
STATEMENT OF REVENUE & EXPENDITURES  
AS AT YEAR END AUGUST 31, 2014**

---

**RECOMMENDATION**

**THAT** the Niagara Catholic District School Board approve the Report on the Statement of Revenue & Expenditures as at year end August 31, 2014, as presented

---

Prepared by: Rosa Rocca, Controller of Business and Financial Services

Presented by: Giancarlo Vetrone, Superintendent of Business & Financial Services

Recommended by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014





**REPORT TO THE BOARD  
SEPTEMBER 23, 2014**

**STATEMENT OF REVENUE & EXPENDITURES AS AT  
YEAR END AUGUST 31, 2014**

---

---

**BACKGROUND INFORMATION**

In accordance with the Monthly Financial Reports Policy Statement, please be advised that a summarized Statement of Revenue and Expenditures by Department as at year end August 31, 2014 will be presented to the Trustees at the Board Meeting. (See Appendix A)

As required by the Policy, a copy of the Financial Statement is available in the Holy Cross Community Room for the Trustees to review at their convenience.

**RECOMMENDATION**

**THAT** the Niagara Catholic District School Board approve the Report on the Statement of Revenue and Expenditures as at year end August 31, 2014 as presented.

---

---

Prepared by: Rosa Rocca, Controller of Business and Financial Services

Presented by: Giancarlo Vetrone, Superintendent of Business & Financial Services

Recommended by: John Crocco, Director of Education/Secretary-Treasurer

Date: September 23, 2014

# Appendix A

**NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
SUMMARY OF REVENUE AND EXPENDITURES - OPEN  
SUMMARY STATEMENT  
AS AT AUGUST 31, 2014**

For presentation at Board Meeting on September 23, 2014

ACCOUNT DESCRIPTION	THIS YEAR			CHANGES	LAST YEAR		
	EXPENDED	BUDGET	% LEFT		EXPENDED	BUDGET	% LEFT
<b>REVENUE</b>							
REVENUE	(253,389,502)	-252,877,171	-0.2%		-183,342,120	-251,780,708	27.2%
<b>TOTAL REVENUE</b>	<b>-253,389,502</b>	<b>-252,877,171</b>	<b>-0.2%</b>		<b>-183,342,120</b>	<b>-251,780,708</b>	<b>27.2%</b>
<b>EXPENDITURES</b>							
BOARD ADMINISTRATION	8,179,010	6,810,166	-20.1%		7,742,038	7,371,598	-5.0%
ELEMENTARY SCHOOLS	126,997,417	127,673,043	0.5%		118,731,135	124,939,319	5.0%
SECONDARY SCHOOLS	67,545,396	68,859,064	1.9%		67,716,181	69,371,333	2.4%
CON ED	5,913,905	5,534,700	-6.9%		5,777,751	6,834,616	1.0%
PLANT OPERATIONS	18,287,698	16,632,073	-10.0%		17,767,591	16,903,100	-5.1%
PLANT MAINTENANCE	3,814,861	3,673,612	1.6%		3,480,937	3,645,292	4.3%
TRANSPORTATION	9,019,623	9,728,201	-2.0%		10,034,470	9,539,412	-5.2%
CAPITAL AND OTHER EXPENDITURES	14,189,865	13,965,412	-1.6%		14,121,817	14,176,139	0.4%
<b>TOTAL EXPENDITURES</b>	<b>254,647,775</b>	<b>252,877,171</b>	<b>-0.7%</b>		<b>245,377,920</b>	<b>251,780,708</b>	<b>2.5%</b>

PREPARED BY : Rosa Rocca  
Finance Department

**NIAGARA CATHOLIC DISTRICT SCHOOL BOARD**  
**UPDATED UNAUDITED EXPENDITURE STATEMENT - OPEN**  
**FOR THE PERIOD ENDED: AUGUST 31, 2014**  
**BOARD ADMINISTRATION**

ACCOUNT	THIS YEAR TO DATE			CHANGES	LAST YEAR TO DATE		
	EXPENDED	BUDGET	% LEFT		EXPENDED	BUDGET	% LEFT
SALARY & BEN - TRUSTEES	220,579	233,262	8.8		223,385	232,744	4.0
SALARY & BEN - SENIOR STAFF	1,419,128	1,346,260	2.6		1,335,496	1,343,673	0.6
SALARY & BEN - MANAGERS	1,643,886	1,251,280	14.2  -		1,569,247	1,619,022	3.1
SALARY & BEN - TECHNICAL	459,407	456,547	6.7		448,146	329,736	35.9 -
SALARY & BEN - CLERICAL	2,117,943	1,937,287	1.3  -		1,981,961	1,931,361	2.6 -
TEMPORARY STAFF	35,704	64,448	53.3		64,039	64,388	0.5
PROFESSIONAL DEVELOPMENT	75,411	62,500	16.9  -		61,631	62,500	1.4
SUPPLIES - ADMINISTRATION	383,276	463,082	18.5  -		463,744	472,500	1.9
SUPPLIES - HUMAN RESOURCES	19,927	20,000	14.0		25,289	20,000	26.5 -
SUPPLIES - COMPUTER SERVICE	95,545	62,500	19.4  -		130,982	62,500	109.6 -
SUPPLIES - PLANT OPERATIONS	493,489	380,000	9.9  -		465,330	380,000	22.5 -
SUPPLIES - BUILDING MAINTENANCE	102,130	50,000	74.8  -		81,601	50,000	63.2 -
FURNITURE & EQUIPMENT	65,440	48,000	8.6		14,240	48,000	70.3
FEES & CONTRACTS	1,030,291	395,000	131.9  -		847,450	715,000	18.5 -
MISCELLANEOUS EXPENDITURES	16,854	40,000	70.2		29,497	40,000	26.3
<b>TOTAL - BOARD ADMINISTRATION</b>	<b>8,179,010</b>	<b>6,810,166</b>	<b>% Left</b>		<b>7,742,038</b>	<b>7,371,424</b>	<b>% Left</b>



**NIAGARA CATHOLIC DISTRICT SCHOOL BOARD**  
**UPDATED UNAUDITED EXPENDITURE STATEMENT - OPEN**  
**FOR THE PERIOD ENDED: AUGUST 31, 2014**  
**ELEMENTARY SCHOOLS**

ACCOUNT	THIS YEAR TO DATE				LAST YEAR TO DATE		
	EXPENDED	BUDGET	% LEFT	CHANGES	EXPENDED	BUDGET	% LEFT
CLASSROOM TEACHERS	86,273,777	85,001,452	1.0	-	78,341,058	83,415,659	6.1
OCCASSIONAL TEACHERS	2,477,318	2,760,745	10.4		2,640,290	2,926,379	9.8
TEACHER ASSISTANTS	18,524,073	18,599,490	0.5		17,038,067	16,982,224	0.3 -
PROFESSIONAL STAFF	3,124,922	2,816,950	2.7	-	2,965,786	2,721,131	9.0 -
LIBRARY TECHNICIANS	1,892,422	2,224,330	14.7		2,024,361	2,051,968	1.4
PRINCIPALS & V.PS.	7,418,193	7,297,827	6.1		7,516,432	7,259,793	3.5 -
SCHOOL SECRETARIES	2,316,119	2,462,711	5.8		2,362,090	2,575,112	8.3
TEACHER CONSULTANTS	1,028,007	1,108,915	13.8		1,352,173	1,109,941	21.8 -
SALARY & BEN - CLERICAL	59,110	0	0.0		99,243	0	0.0
LIBRARY & GUIDANCE - TEACHING	395 -	0	0.0		0	0	0.0
PROFESSIONAL DEVELOPMENT	104,848	380,000	76.8		325,444	430,000	24.3
PROGRAM CLASSROOM RESOURCE	556,559	1,012,500	49.9		758,666	1,555,000	51.2
CLASSROOM SUPPLIES	1,141,522	1,458,280	33.2		1,302,892	1,494,869	12.8
PROGRAM SUPPLIES	112,739	195,000	44.7		169,426	195,000	13.1
SCHOOL ADMIN. SUPPLIES	360,822	384,000	12.8		378,083	380,000	0.5
COMPUTERS - CLASSROOM	1,157,092	1,279,561	13.9		1,046,538	1,117,976	6.4
COMPUTERS - NON CLASSROOM	27,313	49,956	45.3		21,887	49,956	56.2
F & E - CLASSROOM	413,638	600,456	42.4		364,086	604,939	39.8
F & E - NON CLASSROOM	7,105	40,870	85.1		24,613	42,214	41.7
SUPPLIES - COMPUTER SERVICE	2,233	0	0.0		0	0	0.0
<b>TOTAL - ELEMENTARY SCHOOLS</b>	<b>126,997,417</b>	<b>127,673,043</b>	<b>% Left</b>		<b>118,731,135</b>	<b>124,912,161</b>	<b>% Left</b>

**NIAGARA CATHOLIC DISTRICT SCHOOL BOARD**  
**UPDATED UNAUDITED EXPENDITURE STATEMENT - OPEN**  
**FOR THE PERIOD ENDED: AUGUST 31, 2014**  
**SECONDARY SCHOOLS**

ACCOUNT	THIS YEAR TO DATE				LAST YEAR TO DATE		
	EXPENDED	BUDGET	% LEFT	CHANGES	EXPENDED	BUDGET	% LEFT
CLASSROOM TEACHERS	48,082,843	48,539,423	8.1		46,810,749	47,803,396	2.1
OCCASSIONAL TEACHERS	1,610,382	1,428,715	12.7	-	1,812,143	1,656,678	9.4 -
TEACHER ASSISTANTS	4,459,432	4,331,430	3.1	-	4,773,902	4,747,417	0.6 -
PROFESSIONAL STAFF	1,272,865	1,683,704	30.3		1,284,655	1,411,148	9.0
LIBRARY TECHNICIANS	405,118	409,215	0.7		411,720	408,900	0.7 -
PRINCIPALS & V.PS.	2,985,558	3,157,475	12.7		3,012,536	3,018,686	0.2
SCHOOL SECRETARIES	1,904,559	1,793,332	3.9	-	2,028,248	2,054,006	1.3
TEACHER CONSULTANTS	531,907	1,004,371	50.2		683,299	901,065	24.2
SALARY & BEN - CLERICAL	60,648	0	0.0		91,222	0	0.0
LIBRARY & GUIDANCE - TEACHING	2,597,039	1,932,826	25.7	-	2,781,467	1,923,258	44.6 -
PROFESSIONAL DEVELOPMENT	30,771	101,550	73.3		102,459	120,000	14.6
PROGRAM CLASSROOM RESOURCE	1,547,519	2,011,227	30.2		1,761,888	2,076,227	15.1
CLASSROOM SUPPLIES	1,302,246	1,369,256	14.8		1,353,756	1,355,459	0.1
PROGRAM SUPPLIES	21,261	66,091	68.9		37,577	66,091	43.1
SCHOOL ADMIN. SUPPLIES	186,128	206,400	17.1		229,747	204,998	12.1 -
COMPUTERS - CLASSROOM	279,383	628,830	57.1		387,736	543,476	28.7
COMPUTERS - NON CLASSROOM	113,826	25,000	355.3	-	11,587	25,000	53.7
F & E - CLASSROOM	52,238	76,790	35.7		56,851	80,240	29.2
F & E - NON CLASSROOM	18,673	22,329	16.4		1,639	20,369	92.0
FEES & CONTRACTS	83,000	72,000	15.3	-	83,000	72,000	15.3 -
<b>TOTAL - SECONDARY SCHOOLS</b>	<b>67,545,396</b>	<b>68,859,964</b>	<b>% Left</b>		<b>67,716,181</b>	<b>68,488,414</b>	<b>% Left</b>

NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
 UPDATED UNAUDITED EXPENDITURE STATEMENT - OPEN  
 FOR THE PERIOD ENDED: AUGUST 31, 2014  
 CON ED

ACCOUNT	THIS YEAR TO DATE				LAST YEAR TO DATE		
	EXPENDED	BUDGET	% LEFT	CHANGES	EXPENDED	BUDGET	% LEFT
TEACHER ASSISTANTS	60,875	45,436	26.6	-	50,662	36,978	37.0
PROFESSIONAL STAFF	107,485	104,500	5.1		107,085	104,500	2.5
PRINCIPALS & V.P.S.	478,597	474,594	7.1		473,152	355,614	33.1
SCHOOL SECRETARIES	382,077	389,343	5.7		409,281	397,475	3.0
TEMPORARY STAFF	39,429	28,779	0.7	-	51,850	22,616	129.3
GRANT OFFICERS	15,482	16,167	85.5		15,619	16,167	3.4
A.E. TEACHERS / INSTRUCTORS	3,580,469	3,289,271	0.3		3,685,089	3,680,647	0.1
PROFESSIONAL DEVELOPMENT	8,491	13,400	38.5		11,297	19,300	41.5
PROGRAM CLASSROOM RESOURCE	286,326	415,578	33.5		302,864	428,890	29.4
CLASSROOM SUPPLIES	882,676	752,632	2.0	-	617,612	679,279	9.1
COMPUTERS - CLASSROOM	71,998	5,000	1183.0	-	53,240	40,000	33.1
<b>TOTAL - CON ED</b>	<b>5,913,905</b>	<b>5,534,700</b>	<b>% Left</b>		<b>5,777,751</b>	<b>5,781,466</b>	<b>% Left</b>



**NIAGARA CATHOLIC DISTRICT SCHOOL BOARD**  
**UPDATED UNAUDITED EXPENDITURE STATEMENT - OPEN**  
**FOR THE PERIOD ENDED: AUGUST 31, 2014**  
**PLANT OPERATIONS**

ACCOUNT	THIS YEAR TO DATE				LAST YEAR TO DATE		
	EXPENDED	BUDGET	% LEFT	CHANGES	EXPENDED	BUDGET	% LEFT
SALARY & BEN - MANAGERS	722,515	815,922	18.5		788,700	866,501	9.0
SALARY & BEN - CARETAKERS	5,708,621	5,415,004	5.8		5,390,334	5,336,302	1.0 -
SALARY & BEN - CLEANERS	3,936,744	4,272,145	11.8		4,440,777	4,251,280	4.5 -
SALARY & BEN - CLERICAL	115,369	131,502	19.1		113,241	196,517	42.4
PROFESSIONAL DEVELOPMENT	6,917	10,000	61.4		7,946	10,000	20.5
SUPPLIES - UTILITIES	4,709,515	3,370,000	22.7	-	4,293,001	3,370,000	27.4 -
SUPPLIES - PLANT OPERATIONS	831,130	762,500	8.9		968,323	762,500	27.0 -
SUPPLIES - GROUNDS	1,068,204	575,000	76.5	-	638,450	875,000	27.0
F & E - PLANT OPERATIONS	506,012	675,000	25.2		503,842	675,000	25.4
FEES & CONTRACTS	682,671	605,000	9.6	-	622,977	560,000	11.3 -
<b>TOTAL - PLANT OPERATIONS</b>	<b>18,287,698</b>	<b>16,632,073</b>	<b>% Left</b>		<b>17,767,591</b>	<b>16,903,100</b>	<b>% Left</b>

**NIAGARA CATHOLIC DISTRICT SCHOOL BOARD**  
**UPDATED UNAUDITED EXPENDITURE STATEMENT - OPEN**  
**FOR THE PERIOD ENDED: AUGUST 31, 2014**  
**PLANT MAINTENANCE**

ACCOUNT	THIS YEAR TO DATE				LAST YEAR TO DATE		
	EXPENDED	BUDGET	% LEFT	CHANGES	EXPENDED	BUDGET	% LEFT
SALARY & BEN - MANAGERS	511,174	528,311	9.6		519,809	510,573	1.8 -
SALARY & BEN - TECHNICAL	1,070,996	1,079,765	8.3		1,026,831	1,079,870	4.9
SALARY & BEN - CLERICAL	112,813	89,654	4.7		93,092	78,985	17.9 -
TEMPORARY STAFF	18,838	5,382	148.4	-	10,904	5,364	103.3 -
PROFESSIONAL DEVELOPMENT	1,126	7,500	86.3		4,699	7,500	37.3
SUPPLIES - PLANT OPERATIONS	306,790	400,000	38.4		216,815	400,000	45.8
SUPPLIES - GROUNDS	196,884	180,000	20.0		149,559	180,000	16.9
SUPPLIES - PLANT MAINTENANCE	171,852	169,000	9.9		181,031	169,000	7.1 -
SUPPLIES - BUILDING MAINTENANCE	1,120,108	1,102,500	14.7		1,194,113	1,102,500	8.3 -
F & E - PLANT MAINTENANCE	26,480	36,500	29.4		0	36,500	100.0
FEES & CONTRACTS	77,800	75,000	18.2		90,084	75,000	20.1 -
<b>TOTAL - PLANT MAINTENANCE</b>	<b>3,614,861</b>	<b>3,673,612</b>	<b>% Left</b>		<b>3,486,937</b>	<b>3,645,292</b>	<b>% Left</b>

NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
 UPDATED UNAUDITED EXPENDITURE STATEMENT - OPEN  
 FOR THE PERIOD ENDED: AUGUST 31, 2014  
 TRANSPORTATION DEPARTMENT

ACCOUNT	THIS YEAR TO DATE			CHANGES	LAST YEAR TO DATE		
	EXPENDED	BUDGET	% LEFT		EXPENDED	BUDGET	% LEFT
SALARY & BEN - MANAGERS	83,090	117,371	34.8		82,843	115,222	28.1
SALARY & BEN - TECHNICAL	69,072	169,736	62.5		68,889	172,959	60.2
SALARY & BEN - CLERICAL	0	25,332	100.0		0	22,760	100.0
SUPPLIES - ADMINISTRATION	245	76,799	99.7		246	75,707	99.7
FURNITURE & EQUIPMENT	0	10,581	100.0		0	12,675	100.0
FEES & CONTRACTS	9,767,216	9,328,382	4.3		9,882,492	9,140,089	8.1
<b>TOTAL - TRANSPORTATION DEPARTMENT</b>	<b>9,919,623</b>	<b>9,728,201</b>	<b>% Left</b>		<b>10,034,470</b>	<b>9,539,412</b>	<b>% Left</b>



NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
 UPDATED UNAUDITED EXPENDITURE STATEMENT - OPEN

FOR THE PERIOD ENDED: AUGUST 31, 2014  
 CAPITAL AND OTHER EXPENDITURES

ACCOUNT	THIS YEAR TO DATE				LAST YEAR TO DATE		
	EXPENDED	BUDGET	% LEFT	CHANGES	EXPENDED	BUDGET	% LEFT
GOOD PLACES TO LEARN	1,800,225	1,780,912	1.1	-	1,823,721	1,933,974	5.7
FACILITY RENEWAL PROJECTS	0	624,666	100.0		0	624,666	100.0
DEBT CHARGES BEFORE MAY, 1998	239,573	239,573	0.0		294,405	311,506	5.5
DEBT CHARGES AFTER MAY, 1998	0	117,487	100.0		117,487	117,487	0.0
NEW PUPIL PLACES	2,707,114	2,082,470	30.0	-	2,889,650	2,191,952	31.8
AMORTIZATION & NET LOSS DISPOSALS	<b>9,442,953</b>	<b>9,120,304</b>	<b>100.0</b>		8,996,554	8,996,554	0.0
<b>TOTAL - CAPITAL AND OTHER</b>	<b>14,189,865</b>	<b>13,965,412</b>	<b>% Left</b>		<b>14,121,817</b>	<b>14,176,139</b>	<b>% Left</b>

NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
 UPDATED UNAUDITED EXPENDITURE STATEMENT - OPEN  
 FOR THE PERIOD ENDED: AUGUST 31, 2014

ACCOUNT	THIS YEAR TO DATE			LAST YEAR TO DATE	
	EXPENDED	BUDGET	% LEFT   CHANGES	EXPENDED	BUDGET % LEFT
TOTAL EXPENDITURES	254,647,775	252,877,171	1.0	245,377,920	250,817,408 2.2

**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: CORRESPONDENCE  
RETIREMENT CELEBRATION – THANK YOU LETTER**

---



Mr. John Crocco and Board  
Members,

Thank you for a wonderful  
celebration at the retirement  
dinner. The statue of the  
Holy Family is lovely and  
a beautiful memento.

It has truly been a  
pleasure and great source of  
pride to teach for the NCDSB.  
I have been blessed to have  
loved teaching and working  
with so many amazing  
colleagues.

It is sad, but also an  
exciting time as I begin a  
new journey in life.

Thank you, Cynthia Palumbo

**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

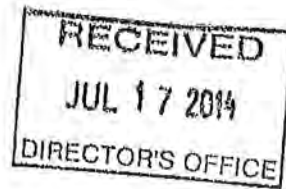
***PUBLIC SESSION***

**TITLE: CORRESPONDENCE  
NIAGARA CATHOLIC EDUCATION AWARD OF  
DISTINCTION JULY 15, 2014**

---

July 15, 2014

Mr. John Crocco,  
Niagara Catholic District School Board,  
427 Rice Road,  
Welland, ON,  
L3C 7C1



Dear Mr. Crocco,

I would like to express a very sincere thank-you to you and the board on behalf of the family of Monsignor Matthew Clifford for selecting him as the recipient of the 2014 Niagara Catholic Education Award of Distinction.

To see him honoured in this way is especially gratifying considering how much time has passed since he left us. This well deserved honour will ensure that his great devotion to Catholic education in Niagara will be remembered.

Those of us who could attend the gala were extremely proud to be there. We all remember him as our favourite uncle, but he meant so much to the entire Catholic community as well.

Thank-you again for bestowing this special honour upon him.

Yours truly,

A handwritten signature in black ink, appearing to read "Peter Clifford".

Peter Clifford  
209 Riverview Blvd.,  
St. Catharines, ON,  
L2T 3E7  
texguapo@cogeco.ca



**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: CORRESPONDENCE  
OFFICE OF THE MAYOR – CITY OF THOROLD**

---



## Office of the Mayor

September 16, 2014

Mr. John Crocco  
Director of Education/Secretary-Treasurer  
Niagara Catholic District School Board  
427 Rice Road  
Welland, ON L3C 7C1



Dear Mr. Crocco:

It is my honour as Mayor, on behalf of Council, to offer sincere best wishes to all Niagara Catholic District School Board trustees, staff, teachers and students as you begin the new school year.

It is with this fresh start of a new school year in mind that I bring to your attention the deteriorating condition of the tennis courts adjacent to Monsignor Clancy Catholic Elementary School in the City of Thorold. Unfortunately our Operations Department, in particular, has for some time now been in regular receipt of citizen concerns regarding the courts' state of disrepair. Citizens express concern that a valuable amenity is not being maintained in order that it can be used to advantage, and also express concerns about safety now that this area adjacent to a school is not regularly maintained.

I wished to take this opportunity, while City staff are also reaching out to Mr. Dan Trainor, Principal at Msgr. Clancy to explore future opportunities for the tennis courts, to ensure your awareness of our City's commitment to community-based partnerships.

Please contact me through my Assistant Wendy Luce at 905-227-6613 x231 / [wluce@thorold.com](mailto:wluce@thorold.com) should you wish an appointment to discuss this matter in person.

Yours truly,

A. T. (Ted) Luciani  
Mayor, City of Thorold

**cc:** Councillors, City of Thorold  
Rhianon Burkholder, Board Vice-Chairperson/Trustee, Thorold & Merriton  
Scott Whitwell, Controller of Facilities Services – NCDSB  
Dan Trainor, Principal, Monsignor Clancy Catholic Elementary School  
Mike Sauchuk, Director of Operations – City of Thorold

**City of Thorold**

P.O. Box 1044, 3540 Schmon Parkway, Thorold, Ontario L2V 4A7

[www.thorold.com](http://www.thorold.com)

Tel: 905-227-6613

**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: CORRESPONDENCE  
NIAGARA-ON-THE-LAKE - PROPOSAL**

---



Mr. Pat Darte  
246 Four Mile Creek Road  
St. Davids, ON L0S 1P0

September 18, 2014

Ms. Kathy Burtnik  
Chairperson

Mr. John Crocco  
Director of Education and Secretary/Treasurer  
Niagara Catholic District School Board  
427 Rice Road, Welland, ON

Dear Ms. Burtnik and Mr. Crocco

Please find attached a proposal for a new Catholic Secondary School in Niagara-on-the-Lake. I respectfully submit this document for review by Board members and staff and look forward to beginning a collaborative and productive dialogue that I hope will result in improved education services and infrastructure in our community.

I am very grateful for the opportunity to submit this proposal and I thank you for taking the time to review it.

I looking forward to meeting with you in the future to discuss this exciting possibility.

Best Regards,

A handwritten signature in black ink, appearing to read 'Pat Darte', with a stylized flourish extending from the end.

Pat Darte

**Building a Stronger Community**  
**A Proposal for a New Secondary Catholic School**  
**for Niagara-on-the-Lake**

**Respectfully submitted to:**  
**Niagara Catholic District School Board**  
**Board of Trustees**

**September 18, 2014**

**Submitted by: Patrick Darte**

## **Introduction**

The purpose of this proposal is to garner support for a new secondary school in the Town of Niagara-on-the-Lake. We believe the Niagara Catholic School Board is the local schooling system that best aligns with our belief in schools as community hubs and that Niagara-on-the-lake is uniquely positioned to support innovative programming given its deep ties to agriculture, culinary arts and theatre.

It is without question, there needs to be a critical mass of students to justify the operational expenses of a school. This proposal recognizes this fact. It offers possible solutions, discussion points and ideas for thought. We believe that with forward thinking, consensus building and a focus on students, it is time for a new secondary school (Grades 7 – 12) to serve Niagara-on-the-Lake and surrounding communities.

## **Background and Current Status (The Situation)**

- Since 2010, Niagara-on-the-Lake has been without a secondary school.
- Students are being bussed, or driven by parents, up to one hour into other communities such as St. Catharines and Niagara Falls for schooling purposes. This situation does not promote student well being, nor does it support a sense of community.
  - Children have increased sedentary time, resulting in reduced overall health with declining physical and mental wellbeing.
  - Children are extremely disadvantaged in their ability to pursue extracurricular activities before and after school, including sports teams, clubs and volunteer work.

The absence of a secondary school reduces the overall time and presence our children have in our community. This is a strong deterrent for families with school age children to remain in Niagara-on-the-lake as well as for families looking to relocate and establish their roots here. Measuring the negative ripple effect of closing schools in communities is challenging, but there is no question that it has many negative social, spiritual and economic impacts.



## **The Opportunity**

We believe that now is a perfect time for the Niagara Catholic District School Board to revisit its plan for education in Niagara-on-the-lake. There is a need to develop a plan that embraces schools as community hubs, and utilizes our resources effectively toward building a new vision for education going forward. We acknowledge that the school board is the expert in education. We ask for the opportunity to work together with the Board on this plan. This plan could encompass, but is not restricted to, a new school building, a formal theatre, an artificial turf multi-purpose sports field and development of innovative specialty programs.

The community is committed to working with the Board in forming partnerships (both program and financial) with local businesses and educational institutions. These partnerships are a key to the success of the school. It is easy to envision a natural alignment with community partners such as the Niagara Parks Commission, Niagara College, The Shaw Festival Theatre, and others.

## **Attraction and Retention**

Niagara on the Lake has a total population over 15,000 residents and is growing. Our demographic profile is changing, with younger families settling into our various communities and neighbourhoods at an increasing rate. We would like to recognize this fact, and work with the NCSB to set a plan in motion that anticipates this growth, encourages repatriation of students who now travel to Niagara Falls and St. Catharines, and builds a reputation and program to attract new students to our school.

This type of planning cannot occur in a vacuum, and the Board must consider how a change of this magnitude will affect neighbouring schools. We believe this plan can support the Board in its efforts to maximize existing facilities, such as St. Michael's, Holy Cross and St. Francis, and we welcome these discussions.

Given the right support, policies and physical environment, enrolment at a new secondary school (Grades 7 – 12) in Niagara-on-the-Lake can reach over 1000 students within the first three years. And have the potential for even greater growth, taking into consideration additional opportunities to work with international schooling systems (i.e. Chinese) and other specialized programming. Our community is ready and willing to work with the Board to centre our schools as community hubs. We are committed to driving enrolment based on this value.

There are many studies that clearly show that students who attend smaller schools, in their own community, are more engaged, achieve higher academic standards and participate in more school sports and other extracurricular activities. We ask for the opportunity work towards this end.

I thank the members of the Board for taking the time to review this proposal. It is an opportunity to move forward in partnership, to further your Mission and to continue to build upon the positive relationship between the Niagara Catholic District School Board and the community of Niagara-on-the-Lake. We would appreciate the opportunity to discuss this in more detail with the staff and the Board as we explore this possibility.

Wishing you continued success as you nurture souls and build minds,

Warmest regards,

Patrick J. Darte

Resources and Links:

The Importance of Schools in Rural Communities

<http://www.ascd.org/publications/researchbrief/v3n02/toc.aspx>

Many Benefits to Smaller Schools

George A. Clowes – George A. Clowes – February 1, 2003

<http://heartland.org/policy-documents/many-benefits-smaller-schools>

What's So Big About Small Schools? The Case for Small Schools: Nationwide and in North Dakota - Jordan Hylden, Harvard University

<http://www.hks.harvard.edu/pepg/PDF/Papers/PEPG05-05Hylden.pdf>

Charles Bloom Secondary School, Lumby British Columbia

[http://www.sd22.bc.ca/school/international/About/schools/Documents/Charles\\_Bloom.pdf](http://www.sd22.bc.ca/school/international/About/schools/Documents/Charles_Bloom.pdf)

**TO: NIAGARA CATHOLIC DISTRICT SCHOOL BOARD  
BOARD MEETING  
SEPTEMBER 23, 2014**

***PUBLIC SESSION***

**TITLE: TRUSTEE INFORMATION  
CALENDAR OF EVENTS – SEPTEMBER 2014**

---



# September 2014



Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2 First Day of School	3 SEAC	4	5	6
7	8	9 SAL Meeting CW Meeting	10	11 NCIPC	12	13
14	15	16	17	18	19	20
21	22	23 Policy Committee Board Meeting	24	25	26	27 Grape Festival Grande Parade
28	29	30				