

## Virtual School Student Performance in a Rural and Remote Jurisdiction

Michael K. Barbour  
Wayne State University  
Dennis Mulcahy  
Memorial University of Newfoundland

## Newfoundland and Labrador

- the island is 43,359 square miles, while Labrador covers 112,826
- population was 505,469 in 2006 Census
  - 551,795 in 1996 / 568,350 in 1986
- 294 schools in 2005-06
  - 343 in 2000-01 / 472 in 1995-96
- 76,763 students in 2005-06
  - 110,456 in 1995-96 / 142,332 in 1985-86
- average school size is 220 pupils
  - 45% > 200 and 25% > 100



## Centre for Distance Learning and Innovation

The CDLI was founded in December 2000 by the Department of Education

### Synchronous – Online

- 30% to 80%, depending on subject area
- taught via a virtual classroom (e.g., *lluminate Live*)



### Asynchronous – Offline

- remainder of their time
- taught via a course management system (e.g., *WebCT/Desire2Learn*)
- usually consists of independent work from posted homework or assignments or from their textbooks



## Rationale

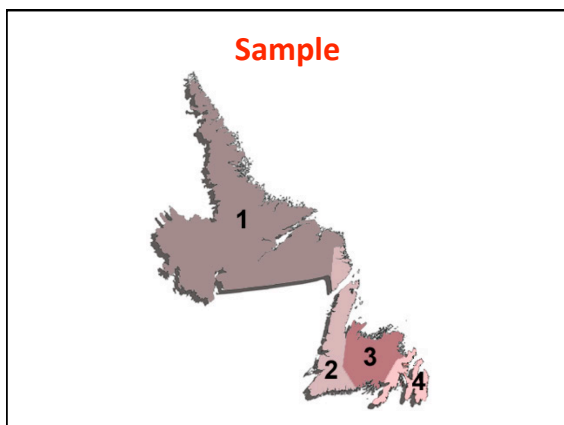
- Mulcahy (2002) speculated whether web-based distance education is suitable for all secondary-level students
- Barbour and Mulcahy (2006a) reported three major findings: 1) approximately the same level of retention in classroom-based and web-based AP courses; 2) student participation in the optional AP exam was higher among web-based students; and 3) student performance was higher in classroom-based courses

## Rationale

- Barbour and Mulcahy (2006b, 2007, 2008) to examine student performance in CDLI courses, where they found no significant differences in the performance of classroom-based students and web-based students in both standardized end-of-course exams and final course marks
- Mulcahy, Dibbon and Norberg (2008) found that two of the schools had a higher percentage of students enrolled in basic-level courses and speculated the fact that many of the academic courses were only available online through the CDLI as a possible cause

## Research Questions

- How does the average grade nine GPA of students who enroll in CDLI courses compare with the average grade nine GPA of students who take only classroom-based courses?
- How does the proportion of students enrolled in basic-level courses in schools who utilize the CDLI compare to provincial averages?



### Q1. Students in the Sample

Grade 9 Course	Grade
English Language Arts	74.3
Mathematics	65.3
Science	71.0
Social Studies	74.0

N= 13 (from three schools)

### Q1. English Language Arts & Social Studies Courses

Course	Sample Grade	Provincial Average
Geography 3202	70.7	70.9
Writing 2203	58.5	66.7

### Q1. Math Courses

Course	Sample Grade	Provincial Average
Math 1204	53.7	66.2
Math 2204	45.0	61.6
Math 3103	50.0	67.7
Math 3204	39.0	64.5

### Q1. Science Courses

Course	Sample Grade	Provincial Average
Biology 2201	62.0	66.0
Biology 3201	52.0	67.0
Chemistry 2202	70.5	71.8
Physics 3204	56.0	73.8
Science 1206	53.5	67.0

### Q1. Elective Courses

Course	Sample Grade	Provincial Average
Design 2212	83.0	74.6
Music 2200	96.0	74.7
IS 1205	66.0	73.0
Comm Tech 2104	91.0	74.3

### Q2. English (2007-08)

	Province	Labrador	CDLI Total	CDLI (w/o convenience)
L1 Basic	21.1	60	12.3	47.1
L1 Academic	78.9	40	87.7	52.9
L2 Basic	23.9	34.5	26.1	25.6
L2 Academic	76.1	65.5	73.9	74.4
L3 Basic	26.7	29.5	22.8	22.0
L3 Academic	73.3	70.5	77.2	78.0
Total Basic	23.8	31.5	20.8	27.7
Total Academic	76.2	68.5	79.2	72.3

### Q2. English (2006-07)

	Province	Labrador	CDLI Total	CDLI (w/o convenience)
L1 Basic	22.6	-	-	-
L1 Academic	77.4	-	-	-
L2 Basic	24.5	66.7	9.7	33.3
L2 Academic	75.5	33.3	90.3	66.7
L3 Basic	23.9	56.0	13.4	35.6
L3 Academic	76.1	44.0	86.6	64.4
Total Basic	23.7	58.1	11.7	35.1
Total Academic	76.3	41.9	88.3	64.9

### Q2. Mathematics (2007-08)

	Province	Labrador	CDLI Total	CDLI (w/o convenience)
L1 Basic	25.0	25.0	18.1	20.7
L1 Academic	75.0	75.0	81.9	79.3
L2 Basic	21.8	38.5	25.4	34.7
L2 Academic	50.6	61.5	50.4	52.3
L2 Advanced	27.6	0	24.2	13.0
L3 Basic	23.5	17.4	23.8	26.1
L3 Academic	43.7	54.9	45.3	38.2
L3 Advanced	32.7	27.8	30.9	35.7
Total Basic	23.5	19.5	23.2	28.6
Total Academic	56.4	56.8	54.3	43.8
Total Advanced	20.1	23.7	22.6	27.6

### Q2. Mathematics (2006-07)

	Province	Labrador	CDLI Total	CDLI (w/o convenience)
L1 Basic	24.8	77.0	35.9	67.5
L1 Academic	75.2	23.1	64.1	32.5
L2 Basic	22.9	57.9	25.0	33.7
L2 Academic	48.4	42.1	52.2	45.2
L2 Advanced	28.7	0	22.8	21.1
L3 Basic	22.4	33.3	19.3	30.0
L3 Academic	43.7	50.0	46.2	46.0
L3 Advanced	33.9	16.7	34.5	24.0
Total Basic	23.3	42.9	21.8	32.3
Total Academic	55.5	36.5	48.9	45.3
Total Advanced	21.2	4.8	29.2	22.4

### Question 2 Trends

- Percentage of students taking basic English was higher in the CDLI schools in Labrador and the province for both 2006-07 and 2007-08
- Percentage of students taking basic math was generally higher in CDLI schools in Labrador and the province in both years
- Percentage of students taking advanced math was generally lower in CDLI schools in Labrador in both years, but mixed in the province

### Your Questions and Comments





**Michael K. Barbour**

Assistant Professor  
Wayne State University, USA  
mkbarbour@gmail.com  
<http://www.michaelbarbour.com>