

Benchmarking Course Completion Rates: A Method with an Example from the British Columbia Open University

Louis Giguère

Abstract

We report findings on the methodological phase of a research project designed to assess the progress of the British Columbia Open University (BCOU) toward a 1997 goal of increasing distance education course completion rates to British Columbia system levels by adapting existing 'off-line' courses for online delivery (a virtualization strategy). The method consists of identifying benchmarking factors statistically through the regression of 15 institutional factors on course completion rate data, and using these factors to establish 'off-line' course completion rate benchmarks. Off-line courses are print-based independent study courses providing instructional support through mail, e-mail, and telephone. The second phase of the project will benchmark BCOU online courses against their off-line counterparts. The 'off-line' completion rates data comprise 137 courses and 23,709 course enrolments and represent a three-year period. Stepwise linear regression includes eight factors and accounts for a significant amount of total variation (46.8%). The regression organizes benchmarks effectively along three Course Level and Subject Matter classification factors. We set BCOU benchmarks accordingly and compare them to the BC system. We highlight some unexpected results, including off-line completion rate benchmarks increasing over time. This suggests that BCOU's off-line courses are making their own contribution toward BCOU's goal of increasing distance education course completion rates to British Columbia system levels.

Resumé

Cet article rapporte les résultats de la phase méthodologique d'un projet de recherche conçu pour évaluer les progrès de la British Columbia Open University (BCOU) vers son objectif d'augmenter les taux de complétion des cours à distance en regard des niveaux du système universitaire de la Colombie Britannique, en adaptant les cours hors ligne pour en faire des cours en ligne (stratégie de virtualisation). La méthode consiste à identifier les facteurs d'étalonnage de façon statistique grâce à une régression sur quinze facteurs institutionnels à partir des données de complétion des cours, et en utilisant ces facteurs pour établir un étalonnage des taux de complétion de cours hors ligne. Les cours hors ligne sont sur support imprimé et de type auto-apprentissage avec encadrement par la poste, par courriel et par téléphone. La deuxième phase du projet étalonnera les cours en ligne de la BCOU en opposition à leurs contreparties hors ligne. Les données de taux de complétion hors ligne proviennent de 137 cours et de 23 709

inscriptions sur une période de trois ans. La régression linéaire comprend huit facteurs et rend compte d'un pourcentage significatif de la variation totale (46,8%). La régression organise l'étalonnage selon trois facteurs « Niveau de cours » et trois facteurs « Matière ». Nous avons établi l'étalonnage en conséquence et l'avons comparé à celui du système universitaire de la Colombie Britannique. Nous mettons en exergue des résultats inattendus, comme l'augmentation dans le temps de l'étalonnage des taux de complétion des cours hors ligne. Ceci suggère que les cours hors ligne de la BCOU apportent leur propre contribution au but d'atteindre les niveaux du système universitaire de la Colombie Britannique pour les taux de complétion des cours.

Introduction

Historically, distance education courses have exhibited low course completion rates relative to 'traditional' face-to-face education (Beatty-Guenter 2001, Carr 2000, Holmberg 1995, Howell et al., 2004, Keegan 1986, Munro 1991, Paul 1986, 1990, Zajkowski 1997). Ten years ago the British Columbia Open University (BCOU) resolved to close the completion rates 'gap' by upgrading its distance education platform and adapting its off-line courses for online delivery. BCOU off-line courses are print-based independent study courses that provide instructional support through mail, e-mail, and telephone. Research in the late 1990s suggested high completion rates for on-line courses, including claims of 'equivalency' with face-to-face course delivery (Card and Horton 1998, Eliesen and Black 1997, 1998a, 1998b, Fredda 2000a, 2000b, 2000c, McDonald and Gibson 1998, Rosberg 1997, Sener 1996). In 1997 the Open Learning Agency (OLA), the BCOU's parent institution, resolved to put together a comprehensive on-line distance education platform to increase course completion rates to provincial standards, with the proviso that it would do so without additional resources or without sacrificing access and flexibility. The OLA and BCOU stated goal was to increase completion rates "by an amount sufficient to ensure that within two years (i.e., by March 1999) they meet or exceed the minimum as established by the other institutions in the BC College, Institute and Agency system (controlling for program area and using system-wide key performance indicators)." Open Learning Agency, p. 3, (1997).

This paper reports on the first phase of a research project designed to assess BCOU's progress toward that stated goal. Here we develop a benchmarking method by regressing 15 institutional factors on successful course completion rates and we benchmark course completion rates for BCOU's off-line distance education courses accordingly. We compare these benchmarks to BC system statistics. The second phase of the project will benchmark BCOU's online distance education against their off-line

counterparts, and will examine the impact of online course delivery on course completion rates. Benchmarking is a necessary step to course completion rate comparisons since intra-institutional course completion rates are highly variable (Howell et al., 2004.)

The British Columbia Open University

In Canada, education is a provincial or territorial jurisdiction. At the beginning of the millennium, the Province of British Columbia's Ministry of Advanced Education funded and supported 25 postsecondary institutions of which the BCOU was a constituent member. At that time, BCOU's course enrolment ranged between 20-25,000 and it served 12-14,000 students annually before it ceased to operate on March 31, 2005; its operations were then taken over by Thompson Rivers University (TRU).

In its final days, the BCOU was a comparable institution to TéléUniversité (Québec) and Athabasca University (Alberta). It was a single mode distance education institution offering flexible learning opportunities through credit banking and distance education. BCOU's course enrolment was slightly less than TéléUniversité and significantly less than Athabasca University (by a factor of about two and a half).

The British Columbia Open University Off-line Independent Study Courses

BCOU off-line independent study courses rely extensively on print, audio, and video instructional materials as well as textbooks. Students are given the choice of contacting a tutor via mail, telephone, or e-mail. Telephone calls are received primarily during scheduled twice-weekly tutor office hours. Tutors are required to respond to student e-mails within two working days as well as to return assignments submitted via e-mail within three working days. Though some students still participate in BCOU courses in the traditional fashion (i.e., without e-mail support), e-mail communication has become more and more prevalent in student-tutor and student-staff interactions. Administrative support is available by phone during business hours (usually from 8:30 AM till 4:30 PM from Monday to Friday).

Methods

Course completion rates were calculated for unique course, course delivery method, and tutor combinations. Regression analysis was used to identify which ones of 15 institutional factors (independent variables) were most strongly associated with course completion (dependent variable). Course completion rate benchmarks were then established according to regression factors that were found to be statistically significant, rather than choosing them subjectively.

Data

The target population was students in academic areas (Arts, Science, and Business) who completed an off-line independent study distance education course in the fiscal years 2002/03, 2003/04, and 2004/05 (this excludes laboratory courses.) During that period, the BCOU offered 70 online courses and 137 off-line courses, a balance that will enable us to compare online courses to off-line courses in the second phase of this project. The analysis comprises 548 data based on 23,709 course registrations. A datum represents a unique course and tutor combination comprising 6 or more enrolments.

Defining Completion Rates

Though 'traditional' institutions and 'open and distance education' institutions use distinctive grading scales and course completion statistics especially with regard to the definition of incomplete grades and withdrawal grades, the two systems can be linked through the concept of stable enrolment, viz., students who demonstrably started a course. Whereas most BC institutions identify 'starters' using a time-dependent approach (a cut-off date chosen so as to ensure that statistics are based on students who clearly made an attempt to start a course), Open Universities such as the BCOU identify starters with respect to outcome, viz., the fact that a student has completed some graded academic work, regardless of date. Through the concept of stable enrolment, the successful completion rate of "starters" links the grading systems of 'open and distance education' institutions and of 'traditional' institutions and their comparative performance (Woodley and Parlett 1983, Paul 1990, Howell et. al, 2004).

BCOU's successful completion rates (SCR) were therefore calculated as follows:

The total number of students who obtained a passing grade on an ABCD scale, divided by the total number of students who started (i.e., the number of students who obtained a passing grade on the ABCD scale plus those who received an Incomplete or a Fail grade) times 100.

This course completion rate statistic excludes "W" grades as defined by 'open and distance education' institutions like the BCOU, i.e., a grade given to students who did not complete any graded academic work.

Analysis

Stepwise linear regression was used to analyze the data and only those factors associated with SCRs at a 0.05 level of statistical significance are reported here.

The Institutional Factors

The institutional factors consist of course factors and tutor factors. The course factors are: Level, Subject Matter, Number of Credits, Year of Delivery as well as a unique number for each course (Course Number). They are coded as follows:

<i>Course Factors</i>	<i>Regression Coding</i>
Level (3 subfactors)	Subfactor 1: Non-credit (ABE*) = 0 and Credit = 1 Subfactor 2: ABE = 0, and 1 to 4 for university from 100-level to 400-level (year 1 to year 4) Subfactor 3: Introductory course = 1 Other courses = 0 (Introductory means first of a pair of first or second year courses, such as Introduction to Physics 1 and Introduction to Physics 2)
Subject Matter	1 to 5, see below
No. of Credits	Typically 3 credits (actuals)
Year of Delivery	By fiscal year, 1 = 2002/03, 2 = 2003/04, 3 = 2004/05
Course Number	1 to 177 (assigned according to alphanumeric order)

* ABE = Adult Basic Education

The Subject Matter is coded as follows: Applied Academic areas (Business Administration and Business computer courses) are coded as 1. Liberal Arts subject matters are coded from 2 to 4 according to perceived level of quantitative difficulty.

<i>Subject Matter</i>	<i>Course Code</i>	<i>Regression Coding</i>
Business	ADMN, BUSM, WKPL	1
Humanities	ENGL, FREN, HIST, HUMN, SPAN	2
Social Sciences	ECON, GEOG, GEOL, POLI, PSYC, SOCI	3
Science and Mathematics	BISC, ENST, ENVS, CHEM, MATH, PHYS	4

The tutor factors are: Course Load (the number of courses supported by a tutor for that year), Student Load (the number of students supported by a tutor for that year), Tutor Age (in 2002), Years of Service at OLA, Gender, Place of Residence, Academic Qualifications, as well as a unique number for each tutor (Tutor Number). They are coded as follows:

<i>Tutor Factors</i>	<i>Regression Coding</i>
Course Load for Tutor in that Year	1 to 9 courses (actuals)
Student Load for Tutor in that Year	5 to 688 students (actuals)
Age in 2002	In days (actuals)
Years of Service in that Year	In days since date of hire (actuals)
Gender	Female = 0 Male = 1
Place of Residence in 2002/03	1 = Metropolitan: Greater Vancouver and Greater Victoria 2 = Urban: Kelowna, Kamloops, Nanaimo, Prince George 3 = Rural: all other locations
Academic Qualifications	1 = PhD 2 = Master's 3 = Bachelor's or below
Tutor Number	1 to 130 (assigned according to alphabetical order)

Results

Identifying Benchmarking Factors from Among Institutional Factors

The regression is summarized in Table 1. Eight steps account for 46.8% of the variation. This is a relatively high percentage considering that the data range widely (minimum 6.7% and maximum 100%). Previous attempts to regress factors on SCRs have accounted for 16.2% (Ostman and Wagner, 1987) and 32% of the variation (Sweet, 1986; for Open Learning Institute, the precursor institution to the OLA and the BCOU).

Table 1: Linear Regression of Institutional Factors on SCRs

<i>Regression Step</i>	<i>Factors</i>	<i>F to Enter</i>	<i>R² % of variation accounted for by regression</i>
1	Course Level: Subfactor 2 ABE to 400-level	235.2	0.302
2	Subject Matter	156.0	0.365
3	Course Level: Subfactor 1 Credit vs Non-credit	123.6	0.406
4	Tutor Course Load	102.7	0.432
5	Course Level: Subfactor 3 Introductory or Not	86.2	0.444
6	Course Number	74.7	0.454
7	Year of Delivery	65.9	0.461
8	Tutor Gender	59.1	0.468

Since Course Level and Subject Matter factors account for 40.6% of the variation before tutor specific or course specific factors are loaded, they represent good prospects for benchmarking.

Step 3 of the linear regression can be used to predict SCR benchmarks according to the general formula for regression:

$$Y = a + (b \cdot X1) + (c \cdot X2) + (d \cdot X3) \quad \text{Equation 1}$$

where X1 represents Course Level: Subfactor 2 codes, X2 the Subject Matter codes, and X3 Course Level: Subfactor 1 codes. The regression coefficients are shown in Table 2.

Table 2: Linear Model for Predicting BCOU SCR Benchmarks Based on Course Level and Subject Matter factors (from Step 3 of regression)

<i>Factors</i>	<i>R²</i>	<i>Coefficient/Slope</i>
Intercept		a = 61.93
Level (ABE to 400-level)	0.302	b = 4.81
Subject Matter	0.365	c = -3.73
Level (Credit or Non-credit)	0.406	d = 11.73

This model generates the following equation and the following SCR benchmarks (shown in Table 3 against actuals):

$$\text{SCR} = 61.93 + (4.81 \cdot X1) + (-3.73 \cdot X2) + (11.73 \cdot X3) \quad \text{Equation 2}$$

Table 3: BCOU SCR Benchmarks*: Benchmarks over Actuals (sample size in parenthesis). (Benchmarks based on linear model described in Equation 2.)

SUBJECT MATTER	<i>Successful Completion Rates (%), by Level</i>				
	Non-Credit Courses	Credit Courses			
		ABE	100-Level	200-Level	300-Level
BUSINESS		74.7	79.6	84.4	89.2
		70.6 (51)	74.5 (16)	83.6 (28)	87.2 (18)
HUMANITIES	54.5	71.0	75.8	80.6	85.4
	52.8 (30)	74.3 (87)	80.2 (13)	83.7 (2)	85.7 (21)
SOCIAL SCIENCES	50.7	67.3	72.1	76.9	81.7
	55.2 (7)	74.1 (37)	73.0 (46)	80.9 (26)	81.4 (9)
SCIENCE AND MATH	47.0	63.6	68.4	73.2	
	46.9 (66)	59.5 (74)	59.2 (12)	74.4(5)	

* Off-line independent study academic courses with mail, e-mail, and telephone support

The fit between the linear regression model and actuals is within a few percentage points for each pair. Two instances exceed 5 percentage points: first year Social Sciences actuals are 6.8 percentage points higher than prediction, and second year Science and Mathematics courses actuals are 9.2 percentage points below prediction. This suggests a possible course design concern for BCOU's second year Science and Mathematics courses.

Note that actuals shown in Table 3 are based on the same data used to generate the linear model itself. Thus they do not represent an independent test of the linear model. The fact that the two sets of data show remarkable linear congruence across five course level and four subject matter categories does however strongly support a benchmarking framework based on Course Level and Subject Matter classification. Note also that we could have successfully tested the 2002/03 data against independent 2003/04 or 2004/05 data.

Other Significant Regression Factors

Besides the three factors deemed to be effective in establishing BCOU's SCR benchmarks, five additional factors account for a statistically significant amount of SCR variation. They are Tutor Course Load and Introductory Course Factors (steps 4 and 5; an additional 3.8% of the variation accounted for), and Course Number, Year of Delivery, and Tutor Gender. These factors make a contribution to the regression over and above the contribution already attributed to the Course Level and Subject Matter benchmarking factors.

Discussion

Benchmarking Method

This study set out to identify course completion rate benchmarks for BCOU off-line academic independent study courses through the regression of 15 available institutional factors against three years of successful completion rate data (SCR) computed for each unique individual course and tutor combination (for each datum comprising six or more enrolments). The multiple linear regression method used in this study has produced two significant findings:

- (1) It accounted for a large portion of the course completion rate variation (46.8%), and
- (2) It identified three appropriate benchmarking factors for two reasons:
 - (a) The first three factors loading in the regression account for 40.6% of the variation (Table 2) and are generic or institution-wide (Course Level and Subject Matter), whereas tutor specific and course specific factors enter in later steps of the regression; and

- (b) Actuals and benchmarks organized congruently across five Course Level and four Subject Matter classification factors, with little or no interaction between them ($t = 0.975$, $p > 0.38$).

These results come with two provisos. First, because institutional factors subsume student characteristics, institutional and student factors are confounded. For example, SCRs may be high in upper-level courses because upper-level students are on average more mature than first year university students, more educationally 'seasoned', more likely to have had prior distance education experience, or are 'survivors' of an academic attrition process. However, since the BCOU student population has been relatively stable over a period of nearly fifteen years (Black 1992, 1993, 1995a, 1995b, 1995c, 1996, Black et. al. 1994, Giguère 2002, Open Learning Agency 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995), the results presented here are robust. Second, a subject matter classification based on perceived level of quantitative difficulty explains a considerable amount of variation for BCOU academic courses. This may not be the case for a different mix of subject matter or applied and academic programming combinations. Nevertheless Table 3 benchmarks illustrate the effectiveness of the BCOU independent study course design across course level and disciplinary audiences and appear adequate to compare BCOU's performance to the BC system, across similar audiences.

Unexpected Results: SCR Benchmarks Increase Over Time

On average, SCR benchmarks increased by 1.8 to 1.9 percentage points per year from 2002/03 to 2004/05. This suggests that BCOU's off-line course are making their own contribution toward BCOU's 1997 goal of increasing distance education course completion rates to BC system levels. Given that at that time BCOU course offerings were stable and the demographic characteristics of students comparable, what could have caused this increase? We believe that e-mail communication played a significant role in this regard. By providing e-mail support options for students in off-line courses, the BCOU provided the opportunity for increasing immediacy of feedback, a factor that is known to have a positive effect on completion rates (Rekkedal 1985, Chang 2004, Gibson 1997, Holmberg 1995, Howell et. al. 2004, Kember 1990, Mehrotra et. al. 2001, Roberts 1984, Sweet 1986, Zajkowski 1997). BCOU student surveys support this interpretation. Student satisfaction with tutor contact frequency (rated on a scale of 1 to 4) averaged 2.74 in 1999 (out of 1,203 responses) and of 3.28 in 2004/05 (out of 3,887 responses). This suggests that as more and more students become computer and e-mail savvy and/or the institution develops more comprehensive virtual services (e.g., online library, registration, financial aid, etc.), BCOU's off-line

courses will keep growing a virtual identity and BCOU's SCRs should continue to improve. In retrospect, it appears that BCOU's virtualization strategy comprises two components: the gradual virtualization of its off-line print-based independent study courses, and the adaptation of its off-line courses for online delivery.

Other Unexpected Results

To our knowledge, a negative association between SCRs and introductory courses (coefficient = -5.67, $t = -3.47$, $p < 0.05$) and a positive association between SCRs and Tutor Course Load (coefficient = 1.47, $t = 4.90$, $p < 0.05$) or Female Gender (coefficient = 3.16, $t = 2.62$, $p < 0.05$) have not been reported before. Because these results were unexpected and are somewhat counterintuitive, they provide useful intelligence from an institutional perspective:

- A. With regard to introductory courses, we expected SCRs to be greater than or equal to other courses at the same level, because introductory courses are high enrolment courses that are maintained and updated frequently. One possible explanation for low SCRs in introductory courses is that they may have disproportionately high numbers of first-time students (the implication being that a first time distance education experience may be less successful). Data show however that first-time BCOU students take the same proportion of introductory courses (30.4%, 4,613 students) as second-time BCOU students (30.7%, 1,595 students.) Failing an adequate understanding as to why introductory courses exhibit low completion rates, 'Best Practices' could be used to address low completion rates in BCOU/Thompson Rivers University-Open Learning introductory courses. Relevant best practices range from additional face-to-face contact, assignment structure, mentoring, counseling, liaison, peer contact, residency, community building, financial reward, and interactive on-line delivery (Chang 2004, Gibson 1997, Howell et. al. 2004, Kember 1990, Mehrotra et. al. 2001, Roberts 1984, Sweet 1986, Zajkowski 1997).
- B. With regard to Tutor Course Load, our 'naïve' expectation was that Course Load and/or Student Load would have a negative effect on SCRs. The finding that Tutor Course Load is positively associated with SCRs surprised us. The linear contribution is 1.44 SCR percentage point per course, i.e., an additional SCR contribution of up to 13 percentage points for a tutor supporting 11 courses. Since Tutor Years of Experience did not significantly contribute to the regression, the results suggest that tutors carrying a broad course

portfolio increase SCRs by a significant amount. The institution needs to weigh this positive contribution against the benefits of developing a more diverse tutor body (e.g., providing to students with a richer academic experience, increasing tutor availability to address leave substitution, etc.)

- C. With regard to Tutor Gender, the data indicate that SCRs are 3.16 percentage points higher for female tutors than for their male counterparts. Since we had no prior expectation at the onset of this project and are not aware of papers addressing this issue, we plan to re-visit it in phase two of this project where both off-line and online course data is available.

BCOU's Performance Relative to BC System

The purpose of this research project is to assess BCOU's progress toward the stated goal of increasing course completion rates to BC system levels by adapting existing off-line courses for online delivery. The first phase was designed to establish course completion rate benchmarks for off-line courses. Results show that BCOU off-line courses are making a small contribution toward BCOU's 1997 goal of increasing completion rates since off-line course SCRs are increasing by close to 2% per year.

BCOU's off-line courses SCRs compare as follows (Table 4) to BC system statistics published near the time the BCOU set its goal to increase course completion rates to BC system levels (British Columbia 2000a, 2000b).

BCOU's SCR benchmarks are 23% below 1998 BC system level for off-line ABE courses whereas they are 10% below 1998 BC system level for off-line credit courses. These results set the stage to assess BCOU's progress toward its goal of increasing course completion rates to British Columbia system levels through online course delivery.

Table 4: SCRs for the BC College, Institute and Agency System and BCOU

	<i>ABE</i>	<i>Lower Level</i>	<i>Upper Level</i>
BC College, Institute and Agency System, 1998	72	79	93
BCOU Off-line Course Benchmarks, 2002/03	49	70	83
Difference:	23	9	10

Acknowledgements

Susan Power, Mike Looney, Mary Ann King, and John Marasigan kindly reviewed earlier drafts of this document. Lisa Whitehead and Carey Johnston helped with the data collection.

References

- Beatty-Guenter, P. (2001). *Distance education: Does access override success?* Canadian Institutional Research and Planning Association 2001 Conference, Victoria.
- Black, D. (1992). *Lifelong learners: An overview of distance students at the Open Learning Agency 1990-1991*. Open Learning Agency, Burnaby.
- Black, D. (1993). *An overview of the OLA's university students and graduates*. Open Learning Agency, Burnaby.
- Black, D. (1995a). *A scan of the BC environment 1991-94 and the implications for the OLA*. Open Learning Agency, Burnaby.
- Black, D. (1995b). *Consortium student survey*. Open Learning Agency, Burnaby.
- Black, D. (1995c). *Environmental scan*. Open Learning Agency, Burnaby.
- Black, D. (1996). *Student services' quality of telephone service survey 1996*. Open Learning Agency, Burnaby.
- Black, D., Bischoff, P., & Bates, A. W. (1994). *Further information on independent distance learners at the OLA: Results from the 1994 omnibus survey*. Open Learning Agency, Burnaby.
- British Columbia. (2000a). *1998 Performance report, British Columbia's college, institute and agency system*. Ministry of Advanced Education, Training and Technology, Victoria.
- British Columbia. (2000b). *Open Learning Agency 1998 performance report, British Columbia's college, institute and agency system*. Ministry of Advanced Education, Training and Technology, Victoria.
- Card, K.A., & L. Horton. (1998). *Fostering collaborative learning among students taking higher education administrative courses using CMC*. ASHE Annual Meeting Paper, South Dakota.
- Carr, S. (2000). "As distance education comes of age, the challenge is keeping the students". *Chronicle of Higher Education*, 46(23).
- Chang, S. L. (2004). "On-line Learning Communities with On-line Mentors (OLCOM)". *The Quarterly Review of Distance Education*, 5: 75-88.
- Eliesen, S., & D. Black. (1997). *OU/OC completion rate study*. Open Learning Agency, Burnaby.
- Eliesen, S., & D. Black. (1998a). *A comparison of course completion rates*. Open Learning Agency, Burnaby.
- Eliesen, S., & D. Black. (1998b). *A comparison of on-line and offline course completion rates at the Open University and Open College*. Open Learning Agency, Burnaby.
- Fredda, J. V. (2000a). *Comparison of selected student outcomes for internet- and campus-based instruction*. Nova Southeastern University, Fort Lauderdale.
- Fredda, J. V. (2000b). *Comparison of selected student outcomes for internet- and campus-based instruction at the Wayne Huizenga Graduate School of Business and Entrepreneurship*. Nova Southeastern University, Fort Lauderdale.
- Fredda, J. V. (2000c). *Comparison of selected student outcomes for internet- and campus-based instruction at the Fischlet Graduate School of Education and Human Services*. Nova Southeastern University, Fort Lauderdale.
- Gibson, J. (1997). *Evaluation of a trial of internet teaching in TAFE NSW*. Third Australian World Wide Web Conference, Southern Cross University.

- Giguère, L. (2002). *Profile of BC transfer students registered with the B.C. Open University*. B.C. Council on Admissions and Transfer: Vancouver.
- Holmberg, B. (1995). *Theory and practice of distance education*. Routledge, London.
- Howell, S. L., R. D. Laws, & N. K. Lindsay. (2004). "Reevaluating Course Completion in Distance education". *The Quarterly Review of Distance Education*, 5: 243-252.
- Keegan, D. (1986). *The foundations of distance education*. Croom Helm, London.
- Kember, D. (1990). "The Use of a Model to Derive Interventions Which Might Reduce Drop-out from Distance Education Courses". *Higher Education*, 20: 11-24.
- McDonald, J., & C.C. Gibson. (1998). "Interpersonal Dynamics and Group Development in Computer Conferencing". *American Journal of Distance Education*, 12(1): 7-25.
- Mehrotra, C.M., Hollister, C. D., & L. McGahey. (2001). *Distance learning: Principles for effective design, delivery, and evaluation*. Chapter 8: Ensuring High Completion Rates. Sage, London.
- Munro, P.J. (1991). *Presence at a distance*. Ph. D. Thesis, University of British Columbia, Vancouver.
- Open Learning Agency. (1988). *Quick facts annual report*. Open Learning Agency, Burnaby.
- Open Learning Agency. (1989). *Quick facts annual report*. Open Learning Agency, Burnaby.
- Open Learning Agency. (1990). *Quick facts annual report*. Open Learning Agency, Burnaby.
- Open Learning Agency. (1991). *Decade at a glance: Quick facts*. Open Learning Agency, Burnaby.
- Open Learning Agency. (1992). *New directions: Quick facts*. Open Learning Agency, Burnaby.
- Open Learning Agency. (1993). *Flexibility in education: Quick facts*. Open Learning Agency, Burnaby.
- Open Learning Agency. (1994). *Meeting the challenge: Quick facts*. Open Learning Agency, Burnaby.
- Open Learning Agency. (1995). *Quick facts*. Open Learning Agency, Burnaby.
- Open Learning Agency. (1997). *Ends policies: 1997 to 2000*. Open Learning Agency, Burnaby.
- Ostman, R.E., & G. A. Wagner. (1987). "New Zealand management students' perception of communication technologies in correspondence education". *Distance Education*, 8(1): 47-63.
- Paul, R.H. (1986). "Access to Failure? The Challenge of Open Education at Athabasca University". *Community Services CATALYST*, 16: 18-22.
- Paul, R.H. (1990). *Open learning and open management*. Kogan Page, New York.
- Rekkedal, T. (1985). *Introducing the personal tutor/counselor in the system of distance education*. Project Report 2, NKI-skolen, Stabekk.
- Roberts, D. (1984). "Ways and Means of Reducing Early Student Drop-out Rates". *Distance Education*, 5: 50-71.
- Rosberg, W.H. (1997). *American government: An introduction using MicroCase with distance learners*. Kirkwood Community College, Cedar Rapids.
- Sener, J. (1996). *Delivering an A. S. Engineering degree program through home study distance education*. Northern Virginia Community College, Annandale.
- Sweet, R. (1986). "Student Dropout in Distance Education: An Application of Tinto's Model". *Distance Education*, 7(2): 201-213.
- Woodley, A., & M. Parlett. (1983). "Student Dropout". *Teaching at a Distance*, 24: 2-23.
- Zajkowski, M.E. (1997). "Price and Persistence in Distance Education". *The Journal of Open and Distance Learning*, 12: 12-23.

Dr. Louis Giguère can be reached at louisgiguere@shaw.ca
