

Endnotes for Results Analysis

Endnote A: Notes on Surveys

Public/Client Surveys

Alberta Learning regularly commissions telephone surveys of random samples of the Alberta public and key client groups. The purpose of these surveys is to obtain perceptions of how the learning system is performing in meeting learners' and society's needs and expectations. Professional survey research firms are contracted to conduct the surveys using trained interviewers and the Computer-Assisted Telephone Interviewing (CATI) system. Survey results are compiled by the survey research firms and provided to Alberta Learning.

The following table provides sampling information about the surveys of Albertans conducted for Alberta Learning in recent years that are reported in this Annual Report. The information includes the respondent groups surveyed, corresponding sample sizes and the confidence intervals for each survey. Results are considered accurate within the confidence interval 19 times out of 20 (i.e. a confidence level of 95%).

Alberta Learning Public/Client Surveys: Sample Sizes and Confidence Intervals

Survey		1997/98	1998/99	1999/00 ⁴	2000/01	2001/02 ⁵
Public (re ECS – 12 system)	Sample	800 ¹	802 ²	2,008	2,154	1,171
	Confidence interval	±3.5%	±3.5%	±2.2%	±2.2%	±2.9%
Public (re adult learning system)	Sample	--	2,000 ²	3,000	3,001	1,171
	Confidence interval	--	±2.2%	±1.8%	±1.8%	±2.9%
Adult Learners ³	Sample	--	1,000	992	998	420
	Confidence interval	--	±3.1%	±3.2%	±3.1%	±4.8%
Graduates of Apprenticeship Programs	Sample	--	3,141	--	2,948	--
	Confidence interval	--	±1.7%	--	±1.8%	--

Notes:

¹ The 1997/98 survey of the public was commissioned by the former Ministry of Education (Alberta Education).

² In 1998/99 two separate surveys were conducted to obtain public opinions. The Alberta Education survey asked a random sample of the general public about the ECS - 12 system. The other survey was conducted for the former Ministry of Advanced Education and Career Development and asked a random sample of the general public about the adult learning system.

³ Adult learners are a subset of the public. Adult learners are defined as those Albertans aged 17 and over who have participated in a credit or non-credit course in Alberta in the last 12 months prior to the survey.

⁴ In 1999/2000 and subsequent years Alberta Learning commissioned a survey of the public that captured opinions on both the ECS – 12 and adult learning systems. The general public was over sampled in 1999/2000 and 2000/01 (increasing the number of respondents providing opinions on the ECS – 12 system and the adult learning system) to obtain the desired sample of adult learners.

⁵ In 2001/02 the general public was not over sampled. Due to the teachers' job action the survey was not in the field long enough to enable over sampling.

The public/adult learner survey is conducted annually. The survey instrument uses four-point response scales (“Very satisfied/Satisfied/Dissatisfied/Very dissatisfied” or “Strongly Agree/ Agree/ Disagree/ Strongly Disagree”), depending on the question, and provides a “Don’t Know” option. Results presented are the percentages of respondents who were “very satisfied/satisfied” or who “strongly agreed/agreed”. Survey results are available online at <http://www.learning.gov.ab.ca/pubstats/research.asp>

The survey of apprenticeship graduates is conducted every other year. Graduates are surveyed between six and eighteen months after completing their program. The survey instrument uses a four-point response scale (“Very satisfied/Somewhat satisfied/Somewhat dissatisfied/Very dissatisfied”), and provides a “Don’t Know” option. Results presented are the percentages of respondents who were “very satisfied/somewhat satisfied”. For information on the results of the apprenticeship graduates survey, contact the Apprenticeship and Industry Training Division at 427-8768.

Alberta Learning Surveys of Partners and Stakeholders

Each year, Alberta Learning commissions telephone surveys of partners and stakeholders. For the purpose of these surveys, partners are representatives of other Alberta government ministries that have worked with Alberta Learning on specific projects during the last 12 months, and stakeholders are representatives of learning system organizations. Some of these organizations are specifically established by legislation, and all have as their mandate a broad and dedicated interest in the learning system.

These surveys use a judgment sampling method and are conducted with partner and stakeholder representatives to obtain perceptions about their working relationships with Alberta Learning staff. The partner and stakeholder surveys capture all major projects in which partners in other ministries worked with Alberta Learning staff and all major stakeholder organizations that have an on-going relationship with the Ministry. Respondents were selected with broad input from senior Ministry staff. Stakeholder selection identified individuals in senior positions in their organizations who have a broad understanding of the learning system and were in the best position to provide meaningful responses. Samples included representatives of the largest post-secondary institutions and school jurisdictions because of their impact on significant numbers of learners. The table below indicates the number of partner and stakeholder representatives surveyed each year.

Partner and Stakeholder Surveys: Sample Sizes

Year	Partners	Stakeholders	Total
1999/2000	38	14	52
2000/01	33	28	61
2001/02	35	28	63

The survey instrument used a five-point response scale with responses of “Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree”. Results presented are the percentages of total respondents who “strongly agreed/agreed” to the survey question, i.e., the weighted average. Results of the 2001/02 surveys are available online at <http://www.learning.gov.ab.ca/pubstats/research.asp>.

Core Human Resource Measures Survey

Data are collected through The *Government of Alberta Core Human Resources Measures Survey*, coordinated by the Alberta Personnel Administration Office (PAO). Random sampling is used to interview both management and non-management staff. Telephone interviews are conducted using the Computer Assisted Telephone (CATI) system. The survey instrument uses five-point response scales, e.g. “Strongly Agree/Agree/Neither Agree nor Agree/Disagree/Strongly Disagree”. The percentages of respondents who “Strongly Agreed/Agreed” are reported. Additional information is available at <http://www.gov.ab.ca/pao/corporate/corehr/core-hr-measures-project.htm>.

Sample sizes and confidence intervals for each year are provided in the table below. Results are considered accurate within the confidence interval at the 95% confidence level, i.e., 19 times out of 20. Information for 1998/99 represents the weighted average results for the former Ministries of Education and of Advanced Education and Career Development (AECD).

Employee Surveys: Sample Sizes and Confidence Intervals

Survey Year	Respondent Group	Sample Size	Confidence Interval
1998/99	Alberta Government	2,312	$\pm 2.0\%$
	Alberta Education	103	$\pm 8.5\%$
	AECD	116	$\pm 8.5\%$
	Former ministries combined	219	$\pm 5.9\%$
1999/00	Alberta Government	3,585	$\pm 2.0\%$
	Alberta Learning	499	$\pm 4.0\%$
2000/01	Alberta Government	4,408	$\pm 2.0\%$
	Alberta Learning	418	$\pm 3.4\%$
2001/02	Alberta Government	4,318	$\pm 2.0\%$
	Alberta Learning	411	$\pm 3.4\%$

Use of Confidence Intervals in Alberta Learning’s Annual Report

A confidence interval is expressed as a percentage above and below an obtained result. A confidence interval indicates how much variation from the obtained results one might expect as a consequence of sampling and diversity among respondents.

Alberta Learning uses confidence intervals to determine:

- whether differences in results over time are merely the result of sampling variations or represent actual change, and
- whether differences across similar questions or among respondent groups to the same question are merely the result of sampling variations or represent actual differences.

When comparing results of survey questions over time or among respondent groups there is an actual difference between two survey results if there is no overlap between the confidence intervals of the two observed values. When the difference falls outside the confidence intervals, it is acknowledged in the text

with such descriptors as increase, change, significant difference. When the results do not fall outside the confidence interval the text indicates that results are similar or stable over time.

The following hypothetical examples illustrate:

- a) two survey results where the confidence intervals overlap and, consequently, there is no real difference between the two survey results, and
- b) two survey results where the confidence intervals do not overlap and, consequently, there is a real difference between the two survey results.

a) If two survey results are 76% and 80%, both with a confidence interval of 2.5%, the upper limit of the confidence interval for the “76%” result is 78.5%, and the lower limit of the confidence interval of the “80%” result is 77.5%. Since the confidence intervals “overlap”, it cannot be concluded that there is a real difference between the two survey results, as the observed difference could be due to sampling variation.

b) If the two survey results are 74% (with a confidence interval of 2.5%) and 80% (also with a confidence interval of 2.5%), the upper limit of the confidence interval for the “74%” result is 76.5%, and the lower limit of the confidence interval of the “80%” result is 77.5%. Since the confidence intervals “do not overlap”, it can be concluded that there is a real difference between the two survey results, as sampling variation alone does not account for the observed difference.

Endnote B: Technical Note on Targets and Trendlines

Targets

Performance on a measure is considered to have met the target if the result is at or above 95% of the target value. For example if result is 77% on a measure with a target of 80%, then the target has been met since the performance (77%) represents 96.3% of the target. As another example, if the result on the same measure is 75%, then the target has not been met since 75% represents only 93.8% of the target. This method of assessing performance represents a high level of achievement in relation to the target, i.e. clearing a hurdle. The 95% rule acknowledges the variability in data as well as the complexities of the learning system. In such an environment, targets are general objectives rather than specific values, and achieving 95% of the target value indicates results are “in the ball park”.

The 95% rule is not used to assess achievement of targets for provincial achievement tests which are administered to students in grades 3,6 and 9. It does not apply to the results for students who wrote as that set of results represents the achievement of the students who took the test and there is negligible variability. The rule also does not apply to the results for all students in grade as those results are the minimum possible and under-represent the true results for the population had all students in the grade taken the test.

Trendlines

Linear trendlines are an aid to interpreting the results for measures reported in the Annual Report. Trendlines augment data interpretation techniques already in use such as the calculation of margins of error, which is used to determine the significance of a change between two data points. Trendlines provide a useful method of understanding the year-to-year fluctuations over the longer term, since most measures have data spanning three or more years. Trendlines move the focus from smaller year-to-year changes to information about the longer-term direction of the data and whether or not it is tracking towards the performance target for the measures with targets.

Comments in the text on results having more than three data points are supported by linear trendline analysis. The calculation below provides a best-fit straight trendline based on the least amount of aggregate variance between the actual data points (reported values e.g. % satisfaction) and the estimated value points that compose the trendline, using the least squares method:

$Y=mx+b$ where m is the slope and b is the y-intercept.

Endnote C: Methodology for Performance Measures

Post-Secondary Graduates' Satisfaction

Satisfaction surveys of graduating post-secondary students are conducted every other year by publicly funded post-secondary institutions. Students are surveyed prior to graduation to increase the response rate and minimize the effect final marks may have on satisfaction results. Most institutions used a census survey method, which attempts to obtain responses from all graduating students. The University of Alberta and the University of Calgary surveys used a quota sampling method which targeted achieving a response rate of 50% in the earlier year and of 60% in the more recent year, and included over sampling of students in smaller faculties in each year. The response rates (weighted averages) for each sector and the system overall are provided in the table below:

Year	Colleges	Technical Institutes	Universities	Private University Colleges	System Total
1998/99	69%	73%	51%	83%	63%
2000/01	73%	73%	55%	78%	65%

The survey instrument is in the *Key Performance Indicators Reporting Manual for Alberta's Post-Secondary Institutions* (October 2001), pp.37-41, available online at www.aecd.gov.ab.ca/software/. The question is the same each year. Appendix A of the manual provides the guidelines for conducting the satisfaction survey. The most recent data were collected by the publicly funded post-secondary institutions in spring of 2000 and submitted in 2000/01 to the Ministry's Key Performance Indicators Reporting System (KPIRS). Results reported are the combined percentages of respondents who were "fully satisfied" or "somewhat satisfied." "No Responses" were excluded. For the 2000/01 graduating student satisfaction survey, all institutions used a five-point scale (fully satisfied, somewhat satisfied, neutral, somewhat dissatisfied, and very dissatisfied categories). For the 1998/99 survey, a few colleges had not made the transition from the three-point to the five-point scale. In order to have some comparability among the colleges and technical institutes, the responses to "somewhat satisfied" for those using the three-point scale were apportioned among the "somewhat satisfied" and "neutral" categories in the five-point scale in the same ratio as the distribution of responses to these categories among the institutions using the five-point scale. Results do not include apprenticeship graduates. These graduates are surveyed separately, and apprentice graduate satisfaction results are reported on page 18.

Average Financial Assistance Award

Data are from the Students Finance System, Learner Funding Branch. The average post-secondary student assistance award is the annual average combined federal and provincial financial assistance (including both loans and non-repayable grants and bursaries) provided to academically qualified adult learners so that they can pursue a post-secondary education when financial need has been identified. It is calculated by dividing the total student financial assistance amount by the total number of students receiving assistance and commencing studies between April 1 and March 31 each year. The calculation does not include loan remission for eligible students.

Provincial Achievement Tests

Students in grades 3, 6 and 9 write provincial achievement tests annually in language arts and mathematics while grade 6 and 9 students also write tests in science and social studies. The achievement test results for grades 3, 6 and 9 provide information on how well students are meeting provincial standards in the core academic subjects. Tests are developed and administered by educators and are based on expectations in the provincial curriculum. Results are reported in relation to the acceptable standard and the standard of excellence. A student achieving the acceptable standard in a specific grade shows an adequate understanding of the core knowledge and adequate basic skills essential to that course. A student achieving the standard of excellence consistently shows a deeper understanding of the concepts of the course – an ability to integrate information and evaluate it from various points of view. For each achievement test, the cut scores for the acceptable standard and the standard of excellence are set initially by a standard setting committee of about 20 teachers using the Modified Angoff Standard Setting Procedure. This procedure uses teachers' judgment to determine how many items a student must answer correctly to achieve each standard. In subsequent years, the cut scores for each test are adjusted through test equating. This ensures that the standards remain constant even if test difficulty varies slightly from year to year. Whenever curriculum is revised, the standard setting process is done again.

Results on provincial achievement tests are calculated and presented in two ways:

- on the basis of student writing the achievement tests in grades 3, 6 and 9 who achieved the standards, and
- on the basis of total enrolment in each grade who demonstrated the standards.

Not all students write the provincial achievement tests. Achievement test results are not available for students who were absent, who were excused from writing by the superintendent (because participation would be harmful to the student, or the student could not respond to the test instrument), who wrote but whose results were withheld, or who wrote only one part of a language arts test. It is possible that some of these students, under different circumstances, could have demonstrated achievement of standards on the test. Participation rates are calculated by dividing the number of students who wrote the test by the sum of total enrolment in grade plus the ungraded students who are in the corresponding year of schooling.

Provincial combined results present the un-weighted averages based on percentages achieving standards as the populations are relatively stable from year to year and grade to grade. Test results and participation are recorded and aggregated in Ministry systems. Provincial, school authority and school results are available on Alberta Learning's website at: http://www.learning.gov.ab.ca/k_12/testing/default.asp.

Diploma Examinations

Examinations are administered in all diploma exam courses in January, June and August each year. Exams are administered in three courses in both November and April, for a total of six courses. Results on diploma examinations show how well students are meeting provincial expectations as outlined in the Programs of Study. Exam items are developed and cut scores established by committees of teachers. The exam design is vetted through committees of stakeholders, and by a standard-setting committee of teachers.

Results are reported in relation to the acceptable standard and the standard of excellence. A student achieving the acceptable standard demonstrates that s/he has met the basic requirements of the course. A mark of 50 per cent on the examination represents the acceptable standard in a diploma examination course. A mark of 80 per cent on the examination represents the standard of excellence and indicates that the student has demonstrated performance significantly beyond the minimum requirements of the course.

For results reported, the diploma exam mark is worth 50 per cent of the final mark in a course, the school-awarded mark contributes the other 50 per cent, and the course enrolment is representative of the group of students who typically take the course. When a new exam is phased in, the exam mark only counts 20% and results for those courses are not included in this report. As Mathematics 30 and Mathematics 33 are being phased out, the groups of students taking these courses are limited and uncharacteristic (not representative). Results for these courses are not reported.

The table “Percentages of Grade 12 Students Completing Grade 12 Diploma Examination Courses” shows the percentage of grade 12 students who received a final mark in each diploma examination course for the last five years. The proportion of grade 12 students completing diploma examination courses varies from year to year and from school to school depending on course enrolments and student success in achieving course requirements.

Diploma examination results and participation in diploma exam courses are recorded and aggregated in ministry systems. The provincial reports (*The Diploma Examination Multiyear Reports 1998-2002*) are available online at: http://www.learning.gov.ab.ca/k_12/testing/multipublic/dip/. These multi-year reports contain five years’ of data extracted each year from live systems, which are updated regularly. Prior years’ results in the 1998-2002 multi-year report differ slightly from those published in this and previous Alberta Learning Annual Reports.

High School Completion Rate

The high school completion rate reports the percentages of Alberta students who, within three and five years of entering grade 10:

- received a high school diploma, equivalency diploma (GED) or Integrated Occupational Program (IOP) certificate, or
- entered an Alberta post-secondary institution or an apprenticeship program, or
- earned credits in five grade 12 courses, including one language arts diploma exam course and three other diploma exam courses.

The tracking of grade 10 students excludes some groups of students, such as a few categories of severe special needs and students whose education is not the responsibility of the provincial government. Data for this measure are from Alberta Learning systems, adjusted for attrition using data from Statistics Canada’s *Annual Demographic Statistics, 2001* (CD-ROM). A detailed description of the methodology and high school completion rates for Alberta school jurisdictions are available online at http://www.learning.gov.ab.ca/k_12/completion/.

Educational Attainment

The Labour Force Survey is a monthly Canada-wide survey of a representative sample of households. Data are collected about all members of the household who are 15 years of age or older. Excluded from

the Labour Force Survey are persons living on Indian reserves, inmates of prisons and members of the military. These groups represent about 2% of the population age 15+. The high school and post-secondary completion rates for 25-34 year-olds are presented as they represent recent outputs of Alberta's learning system. The Canadian sample size for the monthly Labour Force Survey was about 54,000 households over the reporting period. Alberta's sample size corresponds to its share of the Canadian population. In 2001, the number of Alberta households surveyed averaged 4,130 per month, gathering information on about 8,200 individuals per month. The educational attainment rates presented are annual aggregates for the calendar year. The coefficient of variation, or CV (the standard error as a percentage of the reported result), is 2.2 for the Alberta data and 1.1 for the Canadian total. Additional information on the Labour Force Survey methodology and interpreting CVs is available on pages 16-22 of *Guide to the Labour Force Survey*, Catalogue no. 71-543-GIE (Revised, February 2002), available on-line from Statistics Canada (www.statscan.ca). Interprovincial rankings are published in the Government of Alberta's Annual Reports, available online at www.gov.ab.ca/home/publications/.

Participation in Early Childhood Services (ECS) Programs

The participation rate in ECS programs is the percentage of all Alberta grade 1 students in the current school year who had an Alberta ECS registration in any prior school year. The calculation is adjusted to account for grade 1 students who entered Alberta from another province or country in the previous year, and thus would not have attended ECS in Alberta. In-migration data include the estimated number of immigrants and of inter-provincial in-migrants aged 5 as of July 1st of the calendar year. The grade 1 and ECS registration data are from the Corporate Data Warehouse maintained by Information Services, Alberta Learning. The in-migration data are from Statistics Canada, *Annual Demographic Statistics, 2001* (CD-ROM).

Employment Rate of Post-Secondary Graduates

The employment rate calculation used by Alberta Learning is the percentage of post-secondary graduates in the labour force who are employed. In prior years the employment status of post-secondary graduates was reported, i.e. the percentages of graduates employed, unemployed, and not in the labour force. Every second year, graduates who have completed post-secondary parchment, preparatory and basic upgrading programs in the publicly funded post-secondary institutions are surveyed. Most institutions used a census survey method, which attempts to obtain responses from all graduating students. The University of Alberta and the University of Calgary surveys used a quota sampling method which targeted achieving a response rate of 50% in the earlier year and of 60% in the more recent year, and included over sampling of students in smaller faculties in each year. The response rates (weighted averages) for each sector and the system overall are provided in the table below:

Year	Colleges	Technical Institutes	Universities	Private University Colleges	System Total
1997/98	72%	85%	51%	37%	64%
1999/2000	57%	75%	59%	56%	62%

The survey instrument contained the same questions as in the *Key Performance Indicators Reporting Manual for Alberta Post-secondary Institutions*, (June, 2002), pp 26-31, available online at: www.aecd.gov.ab.ca/software/. Appendix A of the manual provides the guidelines for conducting institution employment surveys. The most recent data were collected by the publicly funded post-secondary institutions in 1999/2000 and submitted in 2000/01 where it is maintained in the Ministry's Key Performance Indicators Reporting System (KPIRS). For universities and private university colleges, the survey is conducted two years after graduation. For colleges and technical institutes, surveys are conducted 6-9 months after graduation. Response categories on the colleges and technical institutes surveys for the earlier year of results used a three-point scale: "very related", "somewhat related" and "not at all related". For the most recent year of results, most of those institutions had implemented a five-point scale ranging from "very related" to "not at all related". The universities and university colleges survey used a four-point scale with specific responses of "very related", "somewhat related", "not very related" and "not at all related". For all scales, the percentages reported for employed in related work include all responses except "not at all related".

Results do not include apprenticeship graduates. These graduates are surveyed separately, with employment rates of apprenticeship graduates available online at www.tradesecrets.org/forms_publications/board_annual_report/pdf/board_ann_rep01-02.pdf.

Spending on Ministry Functions

Spending on ministry functions is comprised of Ministry Support Services and Program Delivery Support, excluding Field Services. The sum of Ministry Support Services and Program Delivery Support is divided by the sum of Total Ministry Expense and Property Tax support to opted-out school boards, less Teachers' Pension Valuation Adjustments. Data are from the Ministry Audited Financial Statements and IMAGIS, a government-wide finance and human resources system maintained by the Alberta Corporate Service Centre.