

CURRENT TRENDS IN CANADIAN CURRICULUM DESIGN AND EXPECTATIONS

During the late 1980s and well into the 1990s, Canadian jurisdictions undertook a process of reform in curriculum. There was a concerted effort to move from a knowledge-based set of requirements to a performance-based description of what students should be able to do in each subject area. In the process, most jurisdictions established a set of common performance standards that students should be able to meet in subject areas across the curriculum.

General competencies have been a key feature of curriculum development in the past decade in Canada. The terminology differs from jurisdiction to jurisdiction, but the intent is the same, to imbed in the learning process, through all grades, the development of those general skills necessary in working life, in academic pursuits, and in everyday life. For example, Saskatchewan refers to six *Common Essential Learnings*, while Quebec identifies nine *Cross-Curricular Competencies*; Atlantic Canada, six *Essential Graduation Learnings*, and Ontario four *Categories for Achievement*. General competencies provide a common ground for all learners, regardless of the focus on academic or applied learning, and across all subject areas.

Among the generic skills identified by Canadian jurisdictions, there is a particular emphasis on communication and critical thinking. Critical thinking, learning, and the use of language are interactive processes. As Alberta's curriculum documents point out: *Students use language to examine new experiences and knowledge in relation to their prior knowledge, experiences and beliefs. They make connections, anticipate possibilities, reflect upon and evaluate ideas, and determine courses of action. By becoming critical thinkers, students also become self-reliant, successful, and contributing members of society.* This echoes many of the statements regarding expectations for thinking and the use of language in curriculum across the country.

Cognitive scientists and education researchers include at the core of critical thinking such skills as *interpretation, analysis, evaluation, inference, explanation, and self-regulation or metacognition*. By metacognition, the experts mean self-consciously monitoring one's thinking activities, the strategies used in those activities, and the results of the process. This leads to questioning, confirming, or revising one's reasoning and work, a learning activity often referred to as "critical habits of mind."

A further characteristic in curriculum reform, related to thinking and language, therefore, is an emphasis on metacognition, or "thinking about thinking processes" as one engages in learning. Or as the Manitoba curriculum points out, *modelling and encouraging metacognitive strategies helps students to understand, monitor, and direct their learning processes.*

Alberta states that metacognition *enables students to become more consciously aware of their own thinking and learning processes and to gain greater control of these processes. . . . Students who are engaged in metacognition recognize the requirements of the task at hand, reflect on the strategies and skills they may employ, appraise their strengths and weaknesses in the use of these strategies and skills, make modifications, and monitor subsequent strategies.*

Other jurisdictions define many standards and achievement using the language and conception of metacognitive habits of mind. For example, British Columbia speaks of the expectation that students will *describe and assess the strategies they use. . . consciously use strategies that help them sustain concentration. . . compose questions to guide their learning. . . identify and explain connections between [what they are learning] and their personal ideas and beliefs.*

Many jurisdictions talk about students describing thinking and planning strategies, outlining personal goals for each demonstration of learning, reflecting on work completed or being done, keeping learning journals, maintaining portfolios, and using assessment rubrics and the language of assessment to understand their progress in the light of classroom and public expectations. If there is a strong common thread among Canadian jurisdictions with regard to the implementation of curriculum and classroom practices, it is that student activity should encourage self-conscious learning, critical habits of mind, and the connecting of self with the content and skills being learned. This is evident in teacher handbooks, support materials, curriculum expectation statements, implementation guidelines, course profiles and exemplars, and descriptions of standards for assessment.

Recognizing curriculum reform in SAIP 2002

In the light of these reforms in curriculum across Canada and to *remain an innovative program, producing analyses that allow all stakeholders to draw valid and useful conclusions*, SAIP, through the consortium, undertook a second assessment instrument in 2002. This instrument would be a “first step” in recognizing the current trend to focus on indicators of general competencies. It would allow linking reading and writing performances to a study of critical thinking. The assumption was that this instrument would provide data and open the door for further development of assessment of student performance in acts of critical thinking and acts of metacognition, carving out a unique place among large-scale evaluations.³ To this end, developers asked students to read and respond to a short fable linked to the writing task by a common theme. Students were prompted to think about the text carefully, suggest what it meant to them, and explain their ideas thoughtfully. They had just 20 minutes to read and respond. Most students responded at surprising length, considering the time constraints.

RATIONALE FOR THE RESPONSE TO TEXT IN SESSION A

The following statement was provided to principals, teachers, and students in the Handbook for Schools, 2002, for the administration of the assessment.

This part of the assessment requires students to respond to a short, accessible text that has a depth of inferred meaning. It is time-limited: students will have only 20 minutes to read, consider, and respond.

This short thinking/writing exercise serves two purposes:

- To gather evidence of students’ habits of mind when asked to respond to a text in a manner typical of schooling activities. How does student thinking unfold?
- To engage students in reflection on the theme of the *Student Resource Booklet* and the main writing task.

This exercise will allow us to examine the degree to which students move beyond denotation to connotation, beyond explicitness to inferred meaning, beyond concrete references and illustrations to abstraction and application, and beyond observation to critical and aesthetic judgment.

THE CRITERIA AND CODING INSTRUMENT

When prompted to think about a specific text, the student

A Offers meaning

- A1 Expresses tangential comments or focuses on a discrete feature of the text or misconstrues the text.
- A2 Provides only a retelling or summary of information explicit in the text including events, relationships, and/or moral.
- A3 Provides meaning that goes beyond the events, relationships, and/or moral found in the text (application, generalization, illustration).

³R. Forgette-Giroux & M. Simon. 2000. *Evaluation of the Second Cycle of the School Achievement Indicators Program* for the Council of Ministers of Education. Page 46.

B Elaborates

- B1 Provides some reasoning for the understanding expressed.
- B2 Provides extended reasoning for the understanding expressed.

C Evaluates

- C1 Provides some evidence of personal judgment.
- C2 Demonstrates critical thought.
- C3 Reaches judgment by considering aesthetic features of the text.

THE DEVELOPMENT OF THE FRAMEWORK AND INSTRUMENT

A search of the literature and research on the assessment of general competencies and in particular on the assessment of thinking skills was conducted. The decision was made to limit the study to what types of thinking students would bring to a response to a brief text, or how student thinking unfolds when asked to engage a text. The consortium determined to gather evidence of students' habits of mind in a typical school activity. The goal was NOT to determine the effectiveness of student thinking. This would be a much larger and more ambitious goal, more appropriate to future assessments; such an initiative would require as much time on task (rather than the 20 minutes allotted) and as much direction as the main writing exercise. Limited but observable criteria were proposed, focusing on three "habits of mind" or primary traits manifested in what the student did to construct a meaning for the text, in what the student did to develop the response to the text, and in the degree to which the student evaluated or passed personal judgment on the text in terms of meaning and/or craft of the writing. The criteria were provided to the ministries of education twice for review, and the feedback was insightful, helpful, and encouraging. Some were quick to point out that it was indeed just "a small step" to provide further direction for future assessments.

Thinking, Reading, and Writing

Thinking in itself is not an observable behaviour since it is internal mental activity. Reading and writing are skills that engage thinking in acts of making sense of texts and experiences. In the process of reading and writing, we undertake interpretation, analysis, evaluation, inference, explanation, and self-regulation to varying degrees depending on the particular demands of the texts or writing activity.

When we read or write, we apply our preconceptions about reading and writing and our own understanding about our prior knowledge and personal experience. In the process of reading and writing, we review and reshape our thinking; we often work out our thinking by trying to express it in words. A student asked to read or write is expected to engage the cultural expectations (for reading and writing) of learning and of the larger community as part of the process of apprenticing to enter adult society. However, the students also bring to the act their sense of self as part of the process of empowerment through reading and writing. By taking up the demands of reading and writing, we take up the internal activities of thinking and an awareness of both social expectations and personal reflection. The degree to which a student is conscious of such mental activity in learning may determine the effectiveness and strength of the learning process. Considerable research has been done with school-age children by cognitive scientists such as Scardamalia and Bereiter to indicate that self-conscious learning leads to higher-level thinking and more rapid growth in literacy. However, little has been formulated in developing sound assessment of both the teaching and the learning of critical thinking. This may be due to the complexity of acts of reading and writing and our dependence on reading and writing as manifestations of thinking. Of the current research, the majority has been undertaken at the undergraduate level in colleges and universities, particularly in the field of psychology and cognitive science.

There is considerable debate about whether critical thinking is a set of skills at all or whether it is basic commitment to rational inquiry, an attitude that characterizes critical thinking. As Sharon Bailin has pointed out in a paper for the British Columbia Ministry of Education, *learning to think critically is a matter of coming to understand the principles, concepts, and criteria which constitute our critical practices. . . inherent in our traditions of inquiry.*

The SAIP Writing III Secondary Study is unique in that it is designed to take account of the disposition of students toward critical thinking rather than to examine the critical thinking skills and quality of thinking in student work. The descriptors used in the coding instrument reflect the habits of mind that the pan-Canadian curriculum seems to characterize as critical thinking. The coding instrument describes the efforts of students to offer interpretation, explanation or justification, and evaluation. Students were asked to respond to a fable, a form which prompts thinking beyond the explicit information in the text by providing both a simple narrative and a moral, representing a sophisticated theme or issue. As the charts that follow indicate many students offered a meaning, elaborated on it, and passed a judgment either on their own meaning for the text or on the impact of the reading experience.

Coding the Responses

Scorers were asked to treat each of the eight descriptors as independent codes and to identify any codes that were exhibited in the student response. The quality of writing was not to be considered at all significant to the determination of coding. For example, a student response focusing on a single tangential aspect of the text would be coded A1. If that student went on to fully explain the interpretation (tangential or not), the scorer would add code B1 or B2. If that student also offered a judgment of the text or of the interpretation offered, the scorer would add code C1.

A model similar to that used for the main writing task provided training and coding scripts for table leaders. The table leaders in turn trained their team members using a specific script and a set of exemplars for each of the codes being applied to student responses. Each code identifies a thinking behaviour rather than the quality of the thought itself.

Use of the Information

There are many worthy questions raised by such a study. However, a number of questions were specific to the goals of the development team. Is there a direct correlation of critical habits of mind and writing skill? Do critical habits of mind provide a link between quality of reading and quality of writing? How would a successful curriculum implementation of generic skills such as critical thinking be apparent in student demonstrations of learning? In the charts that follow, the percentage of responses identified with a particular code has been clearly linked to the levels of achievement for the writing assessment. As well, there is anticipation that this first step for this type of study will provide CMEC with the initial stage of further work to develop a significant and valid instrument for measuring certain generic skills.

- Table 1 indicates percentages for each code by age.
- Table 2 indicates percentages for each code by gender in 13-year-olds.
- Table 3 indicates percentages for each code by gender in 16-year-olds.
- Table 4 indicates percentages for performances of 13-year-olds at each level of the writing task for each code.
- Table 5 indicates percentages for performances of 16-year-olds at each level of the writing task for each code.

Information for Reading These Tables

- Coding was not applied as if these descriptors were hierarchical. Scorers were asked to assign the codes whose descriptions, in their judgment, applied to the student response in light of the training and the anchors for each code. This was not an accumulative coding. In other words, a response that provided *an extended reasoning for the understanding expressed* was not assumed to have also provided *some reasoning for the understanding expressed*. However, the resulting data should be read hierarchically where such a reading applies. For example, code A3 (provides meaning) is a more effective act of interpretation than a tangential comment (code A1) or a retelling of the explicit text (code A2). In B, *extended reasoning* is a more effective elaboration than *some reasoning*. And in C, *demonstrates critical thought* is a stronger act of evaluation than *some evidence of personal judgment*. On the other hand, *reaches judgment by considering aesthetic features* (code C3) may or may not be a stronger act than *critical thought* but simply a rarer one. The student who practises C3 is a reader who has learned to attend to form as well as content when determining and evaluating meaning. Similarly, one might argue that interpretation, elaboration, and evaluation are a hierarchical sequence; however, it is possible to offer an interpretation and evaluation without elaboration of the interpretation.
- The percentages represent the percentage of responses assigned a particular code. However, the percentages are weighted to provide an estimate of the actual habits of mind students would have demonstrated had all students in the population taken the assessment. This is the same process applied to the primary writing assessment. In addition to the percentages for each single code, the tables provide percentages overall for each of the two domains of elaboration and evaluation.

Table 1: Percentages for Each Code by Age

As expected the 16-year-olds responded more effectively than the 13-year-olds. Nevertheless, one of the assumptions of the developers was that with a de-emphasis on writing quality and a focus on thought, the difference between the younger students and the older students would be less than in evaluations of writing or reading. To some degree, this appears to be borne out in the data. Only a small percentage of both groups provide simply a retelling of the text. There is less than a 10% difference between the two groups in expressing tangential comments. Similarly, there is a little more than a 10% difference between the two age groups in those responses that moved to elaboration (code B) and in those responses that demonstrated evaluation (code C). However, in the most effective habits of mind for each domain, 15% more of the 16-year-olds' responses provided "meaning that goes beyond," 21% more demonstrated "extended reasoning," and 19% more demonstrated "critical thought." At this point, there is no instrument in place to determine what the public or jurisdictional expectation is for student performance in acts of thinking. Some questions worth raising might include the following:

- Almost 70% of 13-year-olds and more than 80% of 16-year-olds, when asked to respond to text, tend to elaborate their thinking (code B). Does this demonstrate "success" in programming for generic skills and habits of mind?
- Does the fact that 60% of younger students and over 70% of older students show a willingness to evaluate either their own thinking or the ideas expressed in a text (code C) demonstrate "success?"
- Does the fact that 20% of 13-year-olds and 40% of 16-year-olds already demonstrate critical thought in response to text seem like a positive discovery?

TABLE 1: PERCENTAGES FOR EACH CODE BY AGE

		AGE	
		13-year-olds	16-year-olds
CODE A	Expresses tangential comments	27.9	18.9
	Provides a retelling or summary	13.1	6.9
	Provides meaning	58.8	74.0
	<i>Overall Code A</i>	<i>99.8</i>	<i>99.8</i>
CODE B	Provides some reasoning	44.9	36.3
	Provides extended reasoning	24.8	45.8
	<i>Overall Code B</i>	<i>69.7</i>	<i>82.1</i>
CODE C	Provides some evidence of judgment	38.5	31.4
	Demonstrates critical thought	20.3	39.1
	Reaches judgment by considering aesthetic features	1.2	1.9
	<i>Overall Code C</i>	<i>60.0</i>	<i>72.4</i>

Table 2: Percentages for Each Code by Gender in 13-Year-Olds

Generally, 13-year-old females demonstrated more effective habits of mind than males in the age group. However, one of the assumptions of the developers was that given the de-emphasis on quality of writing, the differences in habits of mind between males and females would be considerably less than that in other literacy assessments. This assumption seems a valid one. In most of the descriptors, the females exceed the males by about 5%. Where there is a larger difference, it is still only 6% to 8%.

TABLE 2: PERCENTAGES FOR EACH CODE BY GENDER IN 13-YEAR-OLDS

		GENDER	
		Male	Female
CODE A	Expresses tangential comments	30.4	25.8
	Provides a retelling or summary	15.0	11.5
	Provides meaning	54.5	62.6
	<i>Overall Code A</i>	<i>99.9</i>	<i>99.9</i>
CODE B	Provides some reasoning	44.1	45.7
	Provides extended reasoning	21.4	27.8
	<i>Overall Code B</i>	<i>65.5</i>	<i>73.5</i>
CODE C	Provides some evidence of judgment	37.1	39.9
	Demonstrates critical thought	17.2	22.9
	Reaches judgment by considering aesthetic features	1.6	0.9
	<i>Overall Code C</i>	<i>55.9</i>	<i>63.7</i>

Table 3: Percentages for Each Code by Gender in 16-Year-Olds

Generally, differences between male and female 16-year-olds are greater than those between male and female 13-year-olds. There is a 10% difference between responses by males and females in providing meaning that goes beyond the text to a meaningful generalization, and similarly a 13% difference in providing extended reasoning. While the willingness to offer some evidence of personal judgment is virtually identical, there is a 10% difference between the two groups in demonstrating critical thought.

TABLE 3: PERCENTAGES FOR EACH CODE BY GENDER IN 16-YEAR-OLDS

		GENDER	
		Male	Female
CODE A	Expresses tangential comments	22.4	15.5
	Provides a retelling or summary	8.8	5.1
	Provides meaning	68.4	79.3
	<i>Overall Code A</i>	<i>99.6</i>	<i>99.9</i>
CODE B	Provides some reasoning	37.6	34.9
	Provides extended reasoning	39.3	52.2
	<i>Overall Code B</i>	<i>76.9</i>	<i>87.1</i>
CODE C	Provides some evidence of judgment	31.8	31.1
	Demonstrates critical thought	33.8	44.3
	Reaches judgment by considering aesthetic features	2.0	1.7
	<i>Overall Code C</i>	<i>67.6</i>	<i>77.1</i>

Tables 4 and 5: Percentages for Performances of 13-Year-Olds and 16-Year-Olds at Each Level of the Writing Task for Each Code

Offers meaning: Generally, among both age groups, students who offered a meaning for the fable that was tangential or simply a retelling of explicit information performed at the lower levels of the writing assessment. Those students demonstrating a valid interpretation of the fable generally performed at the higher levels of the writing task. While over 50% of all students at level 2 provided a solid interpretation, almost 70% at level 3 and about 80% at levels 4 and 5 demonstrated solid interpretation of the fable. Among 16-year-olds, it appears that providing a valid interpretation is a very present characteristic of those with solid writing practices. Even among those performing at level 2 in writing, almost 70% received code A3 (provides meaning) in the secondary study.

Elaborates: In both age groups, the writing performance levels of those who provide just some reasoning for their interpretation are generally distributed across all five levels of performance. However, of those who provide extended reasoning for their interpretation, the largest percentages are found at levels 4 and 5. Among 16-year-olds writing at levels 4 and 5, proportions of those providing extended reasoning are 17% to 32% higher than 13-year-olds.

Evaluates: The writing performance levels of those who provide some evidence of judgment are generally distributed across all five levels of performance. However, of those who provide critical judgment, proportionally more students demonstrate the higher levels of writing. The percentages of those performing at levels 3, 4, and 5 in writing and who tend to practise critical thought are considerably higher among 16-year-olds than among 13-year-olds. Those who demonstrate aesthetic judgment appear at levels 3 and 4 among 13-year-olds, while among 16-year-olds, they appear primarily at levels 3, 4, and 5.

Box 6

Note: Since the instrument for the secondary study is a broad-stroke instrument, tables 1 to 5 relate the coding of all students regardless of language to the levels of writing performance. The distribution by language will be found in the *SAIP Writing III Technical Report*.

TABLE 4: PERCENTAGES FOR PERFORMANCES OF 13-YEAR-OLDS AT EACH LEVEL OF THE WRITING TASK FOR EACH CODE*

		Below 1	Level 1	Level 2	Level 3	Level 4	Level 5	Total
CODE A	Expresses tangential comments	56.1	39.0	32.3	21.9	13.6	2.8	28.1
	Provides a retelling or summary	26.2	23.5	13.5	10.5	6.9	3.2	13.2
	Provides meaning	17.1	37.3	54.2	67.5	78.9	94.0	58.5
	<i>Overall Code A</i>	<i>99.4</i>	<i>99.8</i>	<i>100.0</i>	<i>99.9</i>	<i>99.4</i>	<i>100.0</i>	<i>99.8</i>
CODE B	Provides some reasoning	32.2	41.1	46.4	47.0	41.9	36.9	45.4
	Provides extended reasoning	18.5	9.7	20.4	29.2	44.5	45.4	24.1
	<i>Overall Code B</i>	<i>50.7</i>	<i>50.8</i>	<i>66.8</i>	<i>76.2</i>	<i>86.4</i>	<i>82.3</i>	<i>69.5</i>
CODE C	Provides some evidence of judgment	29.4	32.9	40.0	40.3	33.8	43.5	38.7
	Demonstrates critical thought	8.4	9.0	15.7	25.2	37.6	37.2	19.9
	Reaches judgment by considering aesthetic features	0.0	0.6	0.9	1.4	2.5	0.5	1.1
	<i>Overall Code C</i>	<i>37.8</i>	<i>42.5</i>	<i>56.6</i>	<i>66.9</i>	<i>73.9</i>	<i>81.2</i>	<i>59.7</i>

*Percentages for tables 4 and 5 include only those students for whom results were available for both writing tasks. For this reason, the total percentages may not match proportions appearing in tables 1 to 3.

TABLE 5: PERCENTAGES FOR PERFORMANCES OF 16-YEAR-OLDS AT EACH LEVEL OF THE WRITING TASK FOR EACH CODE

		<i>Below 1</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Level 3</i>	<i>Level 4</i>	<i>Level 5</i>	<i>Total</i>
CODE A	Expresses tangential comments	43.6	36.7	24.7	15.6	10.6	4.8	18.8
	Provides a retelling or summary	13.4	16.7	9.2	5.6	3.6	1.0	7.0
	Provides meaning	42.9	45.8	65.8	78.5	85.8	94.2	74.0
	<i>Overall Code A</i>	<i>99.9</i>	<i>99.2</i>	<i>99.7</i>	<i>99.7</i>	<i>100.0</i>	<i>100.0</i>	<i>99.8</i>
CODE B	Provides some reasoning	41.2	36.8	45.1	34.7	29.3	16.7	36.1
	Provides extended reasoning	14.6	24.5	31.0	50.5	61.9	76.7	45.8
	<i>Overall Code B</i>	<i>55.8</i>	<i>61.3</i>	<i>76.1</i>	<i>85.2</i>	<i>91.2</i>	<i>93.4</i>	<i>81.9</i>
CODE C	Provides some evidence of judgment	25.4	28.3	35.6	30.4	29.2	21.1	31.1
	Demonstrates critical thought	23.5	20.6	26.7	43.8	51.9	64.1	39.3
	Reaches judgment by considering aesthetic features	0.4	0.5	0.9	1.8	3.5	4.8	1.9
	<i>Overall Code C</i>	<i>49.3</i>	<i>49.4</i>	<i>63.2</i>	<i>76.0</i>	<i>84.6</i>	<i>90.0</i>	<i>72.3</i>