

Measuring Up

Student Assessment in Alberta



DISCUSSION PAPER

Student Assessment in Alberta

The world we live in today has changed dramatically and continues to change quickly. One way Albertans are responding to these changes is by describing the skills our children will need today and beyond as “competencies,” and making competencies central to future curricula. As the curriculum changes, we need to consider whether assessment methods and processes also need to change.

Whenever Albertans have modified or developed new curricula, we have turned to each other to increase our insights and draw upon collective knowledge. It has been, and continues to be, critical to actively discuss how best to prepare our children for the future. Through dialogue we develop a shared understanding of our goals, possible teaching strategies and ideas about assessment.

What is student assessment?

We all remember taking tests in school, and have opinions about tests based on our own experiences. However, many people do not realize that tests are just one of many tools teachers use to assess their students' progress.

Assessment is the process of collecting and interpreting information about students, which is done for two reasons:

1. To inform students and their parents how well the student has progressed in learning the expected knowledge, skills, attitudes and behaviours, most typically by means of report cards.
2. To help various people in the education system make important decisions about matters such as instruction, program placement, yearly promotion, graduation requirements, post-secondary placements, curriculum review and redesign, program planning, policy development and accountability.

The first purpose of assessment noted here is very familiar to all of us; the second less so.

Good assessment is a challenge

Assessment is a challenging undertaking because it is complex. All assessments have three critical elements:

1. Clearly specified, meaningful goals or outcomes to measure
2. A task that permits observation of a student's performance related to these goals
3. A method of interpreting the evidence the student provides; that is, a way of making inferences, judgments and evaluations

The curriculum describes the outcomes (knowledge, skills, attitudes and behaviours) we expect students to attain. All outcomes represent what our society values and believes is important for our children to learn. A well-written curriculum lays the groundwork for well-designed assessments.

The human element

A car has all sorts of gauges and tools to measure what is going on inside it, but no one can see how much knowledge or skill a person has, or what our attitudes are, just by looking at us. To measure knowledge, skills, attitudes and even behaviors effectively, a teacher must develop tasks that let the student demonstrate what is hidden inside.

Each task brings some of these hidden qualities into view, so the teacher can observe, interpret and ultimately judge relative to the standards established for the outcome. A task may be as simple as a question asked in class during a lesson or as complex as writing an essay or performing an athletic skill. A task may take a moment to complete, or weeks.

No single assessment tool is the best one for every situation, and each one has benefits and limitations. The teacher needs to think carefully and make judgments about which assessment tool to use when.

Another complexity involved in assessing human beings is that for any given assessment task a student may not demonstrate all the knowledge, skills or attitudes they actually possess. Since each assessment often provides teachers with only a glimpse of a student's abilities and achievements, teachers need to use many different types of assessment at different times.

The nature of the task

Any assessment task must have two fundamental qualities present to the highest degree possible: 1) the task must measure what it is supposed to, and 2) it must produce consistent results under consistent conditions. When either of these two qualities is not maximized or present at all, there is a serious problem. The teacher's judgments or evaluations may not be accurate, or as defined in educators' assessment terminology, "valid" or "reliable."

Interpreting tasks

The method used to interpret a student's performance can be easy, for example, marking a multiple choice test or the right-or-wrong answer to a simple adding or subtracting question. Marking more complex products such as a science lab report, essay, or athletic, dramatic or artistic performance becomes considerably more difficult. To make sound interpretations in such cases teachers use a combination of rubrics, benchmarks and standards, and individual teachers choose which methodologies or standards to use. As a result, different teachers may have very different interpretations of the same product.

The uses of assessment

In the classroom

Teachers use assessment to make instructional decisions during their students' learning processes. This type of assessment could be compared to the way a chef creates a meal. Both the chef and the teacher know what they want to accomplish – the specific outcomes and standards they are trying to attain. The chef has recipes; the teacher has a curriculum.

Chefs taste the food repeatedly and adjust the spicing relative to the standards being sought. Teacher assess students as they progress through the lessons and

Two examples that illustrate the nature of the task

1. Suppose that the people interviewing for a management job ask the candidates to take a spelling test. Although a spelling test will produce consistent results, it is not a measure of management knowledge or skills. The interviewers will not make very good decisions using this assessment tool for hiring.
2. A bathroom scale measures your weight, so it is a tool that measures what it is supposed to. However, if you step on the scale several times over a period of a few minutes and it gives you a different weight each time, something is wrong. The "assessment tool" is not producing consistent results. So how much do you weigh? You don't know for sure.

activities to get information about how each child is doing. This information helps them decide how best to adjust or alter instruction to better enable each child to successfully progress towards the expected outcome. Teachers also use assessment information to provide comments that guide students and help them adjust their own learning strategies.

At some point chefs determine that the food has met their standards and is ready to be served to customers. The customers then assess the overall presentation and quality of the food. They make judgments and may tell others what they thought.

The teacher engages in a somewhat similar process. Instruction on a particular outcome, topic or unit also comes to an end, for example, when the school term ends. Assessment conducted at such an end point marks the learning accomplished up to that time. These judgments and evaluations are the ones we most frequently see on report cards.

Beyond the classroom

Others beyond the classroom also use assessment, primarily to inform a wide range of people about the achievements of Alberta students. For example, Alberta Education administers provincial achievement tests and diploma examinations, which serve several different purposes:

1. The results, indicating student improvement and achievement, as two of sixteen measures the government reports to the public and to school authorities. This reporting supports the government's obligation to be accountable to taxpayers for the use of public monies.
2. The results provide students and parents with an independent measure of how well students have met provincial standards.
3. The tests support the efforts of schools and school authorities to improve instruction and ultimately student achievement.

Tests made for provincial assessment programs must meet the same requirements for quality as classroom assessments. We know that provincial assessments currently meet or exceed local and international quality standards.

Education Now and in the Future

Rapid shifts on a global scale are having an impact on Albertans. Economies are shifting our focus from manufacturing to knowledge and information. We must be ready to capitalize on the opportunities these changes present – provincially, nationally and internationally. To be successful, Albertans will continue to solve complex challenges by creatively applying knowledge and using strong communication skills as well as collaborative team-based skills. Albertans will need to be adaptable and innovative, and they will need to expand both their knowledge base and their productivity. Dealing with uncertainty will be a daily challenge.

Curriculum and assessment must change to better prepare students to succeed in a complex and dynamic world. Some skills and abilities have always been important for success, but now change is occurring and knowledge is growing much more rapidly than in the past. The tools we used are different and quickly evolving. As well, the majority of people in our society now need sophisticated skill sets, as opposed to just a few.

Many schools, parents and school boards are placing greater emphasis on communication, collaboration and flexible problem solving skills. They are coupling creativity and innovation with teamwork and leadership skills. Students frequently demonstrate sophisticated creative and analytical thinking skills as they engage with difficult problems that they have been involved in defining. Another profound change today is that we now see knowledge development as a community achievement, not just an individual one.

In response to all this change, Alberta is moving towards a curriculum based on 21st century skills called competencies. To this end, Alberta Education has published a document entitled *Framework for Student Learning: Competencies for Engaged Thinkers and Ethical Citizens with an Entrepreneurial Spirit* (<http://education.alberta.ca/media/6581166/framework.pdf>).

The interrelationships between competency-based learning and assessment *In the classroom*

Teachers will continue to use assessment to inform instruction and evaluate students in classrooms, but the types of assessment will most likely change. Most educational researchers and leaders believe that assessments should be much more performance-based. That is, the assessment of students' knowledge, skills and attitudes needs to be more closely linked to tasks performed in the world outside the classroom.

In the future, students will engage in real (and exciting) science activities, as professional scientists do, and their activities will be measured through

For example, in science classes all students traditionally did the same lab activity that a teacher selected to accomplish a specific goal. Increasingly, we will see students collaboratively discuss an idea or situation and then design and conduct a lab activity, collect their findings and present the findings to their peers and others. We are already seeing examples of such student-designed inquiries on the evening news, for example, the elementary classes in Interlake School Division whose experiment is going to the International Space Station next spring.

“performance” or “authentic” assessment. This type of assessment, which will apply to all subject areas, is complex and time-consuming, but it provides excellent information about students’ abilities.

Redesigning curricula to provide a competency focus

Before teachers can develop meaningful tasks to use in assessing competencies, the curriculum must clearly detail explicit learning outcomes to be taught by teachers and learned by students. What will students be expected to know and do? What are we looking for when we assess students?

A shift to competency-based education will require educators to redesign the “what” and “how” of teaching. One key aspect of this redesign is to determine what characterizes the different levels of performance, from novice to expert. This knowledge will help educators develop better tasks, and it especially will help them develop methods and standards for interpreting student performance.

Knowing what we are looking for

We do not have a common or shared understanding of how competencies develop or what their essential components are. Extensive dialogue will be critical to ensuring that the redesigned curricula meet our children’s and society’s needs.

Measuring competencies

To measure a competency we need to:

- understand its component parts
- understand how children might demonstrate their mastery of each of these components
- consider how competencies may appear different in various subject areas or situations

Standards for student performance

Alberta does not currently have an agreed-upon set of benchmarks for all competencies. Benchmarks provide a framework that teachers and others can use to manage the critical third element of assessment - a methodology for interpreting a student’s performance. Teachers and parents need benchmarks to use as tools to support children’s learning.

Alberta schools have taught some competencies for a long time, and have successfully assessed them. These include communication, problem solving, critical thinking and decision making. However, we have not yet built curricula in which these competencies and their interrelationships are the driving force.

For example, one competency worth discussing is creativity. Our society values creativity, and it is a desired 21st century skill. Even so, creativity is not well understood, and we don’t always agree about what it is. We cannot always easily recognize creativity when we see it. We do not know for sure how it develops. Clearly, we need to talk about creativity as a competency and try to determine how best to assess it.

To illustrate, let’s continue examining creativity. How would we measure creativity? We know creativity flourishes when we play with ideas, so a creativity task probably would involve an interactive environment. We know that creativity often occurs over a considerable length of time. Yet, current classroom and large-scale assessments are generally defined within specific time limits (such as a single class period or the time given for a diploma examination). We will need to address some fundamental ideas about assessments, including notions of individual performance and time limits.

Continuing with the creativity example, once a student has provided a response to a creativity task, what creativity benchmarks will the teacher refer to in order to interpret the student's work? We don't have clear, agreed-upon benchmarks for judging creativity.

For example, we know that access to safe drinking water is a major concern around the world. Students might be asked to design a means of providing safe drinking water for a third world village. Such a task would provide opportunities to apply and assess a number of competencies, including problem solving, decision making, leadership, teamwork and communication, while using knowledge from a variety of subject areas. There are many ways to complete this task, and many of those ways might be creative or innovative. As a result, the process may be more important than the final product. Probably, there won't be an absolute "right answer."

Other ways assessment may be different in the future

What has always been taught in schools provides a comforting security: we generally knew the kinds of questions that would be asked, and the expected answers. Now we are faced with developing a curriculum that specifically prepares children for uncertainty and unpredictability. How would we teach such a curriculum? How would we create an assessment process that lets children demonstrate adaptability and deal with unpredictability? In the future, assessments will require students to creatively apply their knowledge through a suite of competencies to situations they may not have had prior experience with.

What about technology?

Classroom teachers will need to use the advances in technology that have driven global shifts to prepare children for the future. Technologies not only provide opportunities to improve learning but also allow educators to transform assessment processes. Electronic delivery may provide powerful interactive forms of assessment that are totally new.

Digital technologies create opportunities for students to engage with multimedia tasks. Students might use multimedia to create their responses, working collaboratively with others around the world. The possibilities, which are to a great extent unknown at this time, are a good topic for discussion.

Is there a role for new provincial assessment programs?

Governments around the world are considering the use of large-scale assessment programs as a tool for measuring the implementation of new competency-based curricula. Many people have described such testing as a tool that:

- conveys a sense of the new curricular standards to the public and education stakeholders (e.g., students, teachers, parents, school and school administrators, school boards, employers, post-secondary educational institutions and government), and
- determines the success of curricula in attaining the desired goals

People everywhere have long debated both the relative merits and problems of large-scale testing. Alberta has experienced arguments for and against its provincial testing programs since their inception 120 years ago. What should Alberta do now?

Dialogue among Albertans about competencies and their assessment will help us determine whether we need provincial assessments and what purpose or purposes they may serve in terms of supporting student learning and/or informing our decision making.

Conclusion

The points made here and the questions raised illustrate that the nature of education is changing to meet the needs of our current and future world. The ideas presented in this discussion paper are not all-encompassing but may provide a stimulus for dialogue. It is an excellent time to engage in a serious public dialogue about all aspects of competency-based education, including assessment. We invite you to participate in this important conversation, and thank you for your interest.

Alberta School Boards Association
Alberta School Councils' Association
College of Alberta School Superintendents

Discussion Questions

Consider the following questions in the context of your knowledge about children, teaching and schools, and your beliefs about what this century has in store for us as Albertans.

1. What information do you need about children's learning?
2. What information do you want about children's learning?
3. What information would you like to have about children's learning?
4. How should schools and the education system communicate information about children's learning?
5. How often do you want reports on children's learning progress?
6. How would a coordinated comprehensive assessment system (one that includes classroom, school, district and provincial assessments) support your needs for information about children's learning?
7. Teachers do not always use the same standards when judging student work. Who should be responsible for addressing this issue?
8. How comfortable are you with the idea of assigning children tasks that do not involve definite right answers?
9. How fair do you think it is to assess children using situations that they may never have experienced?
10. Should teachers assess all the competencies that Alberta Education has identified? Are there competencies or 21st century skills you feel teachers should not even try to assess?
11. What are the roles of the stakeholder organizations, special interest groups and the public at large in determining suitable benchmarks for assessing competencies?
12. Should Alberta Education develop new large-scale assessment programs to assess how successful students are in attaining the desired 21st century skills or competencies?
13. To what degree would you support the allocation of resources to create assessments using electronic formats, given the many other demands on education dollars?
14. What improvements in technology infrastructure are needed to effectively implement competency-based education in Alberta?
15. What roles should the government and each stakeholder organization play in ensuring that schools and teachers keep pace with rapidly evolving technological opportunities?
16. What roles should each stakeholder group play in making sure teachers are well prepared to make the transition to competency-based education?

