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What Do Teacher Candidates Know About Large-Scale Assessments? What Should They Know?

As states and provinces develop large-scale assessment programs linked to their curricula, teachers are increasingly expected to interpret the assessment results and to explain them to parents. The challenge for teachers is especially great in Ontario, which began developing an assessment program in 1996 after almost three decades without provincially mandated testing. Three hundred and sixty teacher candidates completed a questionnaire on their knowledge about, exposure to, and opinions of the assessments. Many teacher candidates held strong views, often negative, about the assessments. Even those who had little exposure to or knowledge of the assessments held predominantly negative opinions.

Dans un contexte où les états et les provinces développent des programmes d'évaluation à grande échelle liés à leurs curriculums, on s'attend à ce que les enseignants interprètent les résultats de ces évaluations et qu'ils les expliquent aux parents. Le défi se pose tout particulièrement pour les enseignants en Ontario où l'on a entamé le développement d'un programme d'évaluation en 1996 après presque trente ans d'absence d'évaluations imposées par la province. Trois cent soixante stagiaires ont complété un questionnaire portant sur leurs connaissances et leurs avis des évaluations, ainsi que sur le contact qu'ils avaient eu avec de tels examens. Plusieurs d'entre eux ont exprimé des opinions fermes, et souvent négatives, au sujet des évaluations. Même ceux ayant peu de connaissances ou de contacts liés aux évaluations ont exprimé des avis surtout négatifs.

Across North America and indeed throughout the world, the past two decades have seen increasing emphasis on the assessment and evaluation of elementary and secondary school students. Forty-nine of the 50 United States and five of the 10 Canadian provinces now have centrally mandated testing in the elementary grades (Childs, Jaciw, & Schneid, 2002); even more require testing in the secondary grades. In a survey of 20 countries outside North America, Phelps (2000) found that 18 (among them China, England, Spain, and Sweden) had increased large-scale testing between 1974 and 1999; only Australia and Greece had reduced testing.

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Large-scale assessments typically yield student scores that are reported to parents and to schools. Teachers are increasingly expected to interpret these results, reconcile them with their classroom observations and report card marks, and explain them to parents.

Unfortunately, research has demonstrated repeatedly that teachers' understanding of issues in assessment is often limited (Black, 1994; Gipps, Brown, McCallum, & McAlister, 1995). Teachers need support to understand and work with large-scale assessments. They need sufficient training to be able to assess critically the weaknesses and strengths of the assessments, to adopt appropriate strategies to prepare their students for the assessments, and to understand what interpretations of the results are appropriate. Furthermore, they need to be able to discuss knowledgeably their interpretations and decisions with the parents of their students.

Preparing teachers—and especially teacher candidates—to cope with new large-scale assessments is an important challenge. In this article we discuss what teacher candidates should know and what they do know about Ontario's assessment program. First, however, we describe the context of large-scale assessment in Ontario.

Ontario's Large-Scale Assessment Program

The Education Quality and Accountability Office (EQAO) was established in 1996 by the Ontario government to "assure greater accountability and contribute to the enhancement of the quality of education in Ontario" (from EQAO's mission statement). EQAO develops and administers province-wide assessments in selected grades.

Since 1996 the Ontario Ministry of Education, which funds EQAO, has also implemented a new curriculum for elementary and secondary school students and mandated the use of a new Provincial Report Card. The new report card requires teachers to report separately on (a) achievement of curriculum expectations and (b) development of learning skills (Ontario Ministry of Education and Training, 1998). The information to be reported is, naturally, based on the results of teachers' classroom assessments (ranging from formal tests to informal observations of students). The EQAO assessments and the report cards (reflecting teacher assessments) are aligned to the same reporting categories. The use of common reporting categories between the assessments and the report cards makes it critically important that teachers in Ontario understand the provincial assessments and how they are designed to differ from, but influence classroom assessment.

Currently, Ontario has four large-scale assessments:

- Grade 3 Assessment of Reading, Writing and Mathematics (first administered in April 1997);
- Grade 6 Assessment of Reading, Writing and Mathematics (first administered in May 1999);
- Grade 9 Assessment of Mathematics (first administered in January 2001);
- Ontario Secondary School Literacy Test (first administered in October 2000).

All students in the targeted grades are tested each year.

The assessments in grades 3, 6, and 9 provide results on a 1-4 scale, with 4 indicating the highest level of mastery of the curriculum; 3 is the "provincial

standard." The literacy assessment is a requirement for high school graduation beginning with the 2001-2002 grade 10 class. That assessment is scored pass/fail.

The EQAO assessments include three types of items: multiple choice, short answer, and extended constructed response. In addition, some of the assessments have an investigations component in which students perform more complex activities. The items throughout the assessments for grades 3 and 6 refer to common thematic materials that are provided with the test.

EQAO prints and distributes the assessments, which are administered by teachers in their own classrooms. Teachers are hired to do the marking, which takes place during the summer for most of the assessments. The teachers are trained in the marking procedures and then mark the assessments in two- or three-week shifts.

After the marking is completed, EQAO collects all the information and creates reports for individual students, schools, boards, and for the province as a whole. Based on his or her work on an EQAO assessment, a student is judged to be performing in one of four performance levels (except for the literacy test, which is marked pass/fail).

Although there are similarities between the current provincial assessment and the performance-based, curriculum-linked assessments used in many other jurisdictions, the history of testing in Ontario is different from that in the US and other countries: whereas most jurisdictions have had large-scale testing continually for decades, Ontario has only recently created a new testing program after nearly 30 years without one. This testing history has had an enormous effect on how the public and teachers have received, understood, and viewed the new assessments.

The new testing program is not Ontario's first. Ontario's universal, free and compulsory education system was established in 1871 under the Free Schools Act. The first provincially mandated standardized assessment, a certification test for teachers, also appeared that year. In 1873, an Entrance Examination for high school was mandated. That exam continued until 1949, although starting in 1923 students could enter high school on a principal's recommendation instead of taking the exam.

In 1891 the University Matriculation exams (later called Departmentals) were added. These exams continued as a requirement for university entrance until 1967, when they were finally abandoned because "the rising number of candidates had made it almost impossible to complete marking in time for the universities to assess admission applications adequately" (Gidney, 1999, p. 68). Since 1967 university entrance has been based on teachers' marks.

From 1967 until 1997, except for the Provincial Reviews and other occasional assessments intended to assess curriculum coverage and administered to a sample of students, little large-scale assessment went on in Ontario. The EQAO assessments, therefore, are the first provincial assessments in 30 years with real implications for individual students, teachers, schools, and boards.

The recent changes in testing present challenges for all Ontario teachers, but particularly for new teachers. Most teacher candidates are too young to have any memory of large-scale assessment in Ontario. In addition, most are entering the program directly from undergraduate studies. This means that many of

the students in the teacher education class of 2001 graduated from high school in 1996. Since 1996 Ontario has introduced a new curriculum, a new provincial report card, and the new provincial assessments.¹ For most prospective teachers the educational system they are entering as a teacher is different from what they experienced as a student.

What Should They Know?

As the emphasis on large-scale assessment has increased, it has become clear that teachers must understand such assessments and how best to explain and use the results. This need is reflected in recent recommendations. For example, *The Standards for Teacher Competence in Educational Assessment of Students* (American Federation of Teachers, National Council on Measurement in Education, and National Education Association, 1990), in response to “teachers’ growing roles in education and policy decisions beyond the classroom,” lists essential skills classroom teachers should have. Four of the seven standards are relevant for large-scale assessments:

3. The teacher should be skilled in administering, scoring and interpreting the results of both externally produced and teacher-produced assessment methods.
4. Teachers should be skilled in using assessment results when making decisions about individual students, planning teaching, developing curriculum, and school improvement.
6. Teachers should be skilled in communicating assessment results to students, parents, other lay audiences, and other educators.
7. Teachers should be skilled in recognizing unethical, illegal, and otherwise inappropriate assessment methods and uses of assessment information. (pp. 3-5)

Plake, Impara, and Fager (1993) administered an assessment of knowledge of these areas to a sample of teachers and administrators across the US. Teachers answered correctly an average of almost 4 out of 5 items about administering tests (Standard 3), but only 2.7 out of 5 items about communicating results (Standard 6). Only 53% of teachers felt at least moderately comfortable interpreting information from large-scale assessments.

For teacher education programs, Schafer (1991) recommends the teaching of eight content areas related to student assessment. Six of the eight include aspects related to large-scale assessment:

1. Basic concepts and terminology of assessment;
2. Uses of assessment;
4. Interpretation of assessments;
6. Evaluation ... of assessments;
7. Feedback ...;
8. Ethics of assessment. (pp. 3-6)

Schafer’s recommendations cover many of the areas in the *Standards for Teacher Competence*, but add that teacher candidates must learn to evaluate assessments: that is, to “explain and apply methodology for assessing the quality of measurements” (p. 5).

More recently Brookhart (1999) emphasizes the importance of teaching teacher candidates how to communicate about large-scale assessment results, a

competence also identified in the *Standards for Teacher Competence* and in Schafer's (1991) work. Brookhart points out that competence in communication is particularly important because "the classroom teacher is likely to be the first one called if parents have a question" (p. 12) and because some of the information may be useful for classroom decisions. However, the content of such training will depend on the type of large-scale assessment: for example, instruction on how to interpret percentile scores is relevant only for norm-referenced tests, and standards-based tests present different interpretation challenges. Brookhart (2000) also recommends that test developers find out what teachers need to know about student learning and then create reports that fit those needs. This recommendation has implications for teacher education as well: What information will new teachers need to glean from large-scale assessment results and, further, what must they know in order to understand this information?

Maguire (1992) worries that

there is a widespread feeling of powerlessness among teachers when it comes to dealing with measurement issues in general or with externally imposed assessments in particular ... we need to do something to empower teachers beginning within our teacher education programs. (pp. 86-87)

Further, he argues that teaching the technology of educational measurement is not enough: Beginning teachers need operational philosophies of education on which to base their assessment activities, whether developing classroom assessments or responding to external testing results.

Although much of the literature is not directly concerned with the education of teacher candidates about large-scale assessment, it is possible to extract several themes that are relevant in this context.

1. Teacher candidates need to understand the purpose or purposes of the tests and the tests' relationship to other initiatives in the education system. This may also involve exploring whether they agree with the various purposes.
2. Teacher candidates need to understand the content and format of large-scale assessments so that they can appropriately prepare their students to take the tests.
3. Teacher candidates need to understand assessment terminology and basic principles such as the reasons that tests may be more or less reliable or valid (i.e., how to evaluate a test) and why certain uses of some tests may be inappropriate or unethical.
4. Teacher candidates need to understand how to use the results of large-scale assessments and how to communicate about them with students and parents.

These four themes can be summarized as simply: *Why? What?/How? How well? and What can we say?*

What Do They Know?

In addition to the research by Plake et al. (1993) described above, other studies of what teachers know about large-scale assessment have been conducted. For example, Wise, Lukin, and Roos (1991), in a survey of teachers in Nebraska, found that 85% rated their abilities to administer standardized tests to students as good or very good; the percentages who rated their abilities to interpret

scores from such tests and to explain scores to others as good or very good were 77% and 82% respectively. In England and Wales, Cooper and Davies (1993) found that teachers implementing a new testing program initially felt confident of their ability to “speak with authority” about the consequences of the assessments based on their previous experience with a different testing program. Because of that previous experience, they also had a largely negative view of the new tests; eventually they refused to administer the tests. Cooper and Davies suggest that, had teachers had more time to learn about and prepare for the new tests, some of them would have been able and willing to participate. In Alberta a recent survey of teachers and school administrators showed that most participants were confident that they had the assessment expertise to interpret results from Alberta’s diploma examinations; however, some were quite uninformed about the testing program although it had been in place since 1984 (McDonald, 2002).

Studies such as these illustrate the range of attitudes and knowledge among teachers. To further complicate things, as large-scale assessment approaches evolve—for example, from norm-referenced tests to standards-based assessments—the specific knowledge required changes. Additional challenges exist in jurisdictions such as Ontario that do not have a recent history of testing. We believe there is a wide discrepancy between the knowledge of many teachers—in particular new teachers—and the requirements of working effectively with large-scale assessments. In order to better understand the gap between what teacher candidates know about assessment and what they need to know, we surveyed teacher candidates about their exposure to information about the provincial assessment program and their knowledge and attitudes about it.

Method

Instrument

We developed a questionnaire with three sections—The Sources (exposure), The Facts (knowledge), and What’s Your Opinion? (attitudes)—based on the literature on what teachers need to know and on a content analysis of teacher candidates’ e-mail messages in an on-line discussion about the provincial assessments. The questionnaire took five to 10 minutes to complete.

Sample

Approximately 1,200 teacher candidates attended the University of Toronto’s one-year postbachelor Initial Teacher Education Program in 2000-2001. During the seventh and eighth months of the program one of the authors presented workshops on large-scale assessment to classes of teacher candidates. The workshops were presented at the invitation of the class instructors; instructors for approximately 450 of the teacher candidates requested the workshop. Three hundred and sixty of these teacher candidates (215 elementary and 145 secondary; about 80% response) responded to the questionnaire that was administered at the beginning of the workshops. Response was voluntary.

Results

Exposure

When the questionnaire was administered to the teacher candidates, they had completed at least 16 weeks of coursework on campus and eight weeks of in-school practicums. About four weeks of coursework and a five-week intern-

ship remained before the completion of the program. Our expectation was that the teacher candidates would by this point have some familiarity with Ontario's large-scale assessments. In fact the tests had featured prominently in the news during the preceding two months, making no exposure even less likely.

As Table 1 shows, about three quarters of teacher candidates reported having read or heard news reports about the provincial assessments. The percentages were similar for elementary and secondary candidates (76.3% and 72.4%), although most of the news coverage had concerned the literacy test.

Almost 60% (59.5%) of elementary, but less than a quarter (24.8%) of secondary teacher candidates reported having seen sample items from the tests; this is not surprising as items for the grade 9 and literacy tests were just becoming available. Many more elementary candidates (73.5%) than secondary candidates (44.8%) had talked about the provincial assessments with their associate teacher during one of their two practicums. Similarly, 67.9% of elementary and 37.2% of secondary teacher candidates had talked about it in the teacher education program.

Overall, 96.7% of elementary candidates and 82.8% of secondary candidates reported some exposure to information about the provincial assessments. However, only 65.6% of elementary and 33.1% of secondary candidates reported having seen any materials (printed materials, sample items, student reports, or Web pages) produced by the provincial testing agency EQAO. The remainder of those with some exposure had engaged in discussions about the assessments, but had not seen any official materials. At both levels of exposure the proportion of elementary candidates is significantly larger than the proportion of secondary candidates, $\chi^2(1, N=360)=20.91, p<.001$ and $\chi^2(1, N=360)=36.63, p<.001$ respectively.

Table 1
Teacher Candidates' Exposure to the Provincial Assessments

<i>Source of Exposure</i>	<i>Elementary (n=215)</i>	<i>Secondary (n=145)</i>
Read, heard, or saw news accounts about the EQAO tests	76.3%	72.4%
Read any of EQAO's printed materials for teachers or parents	40.0%	16.6%
Visited EQAO's Web site	14.0%	6.9%
Saw sample test items	59.5%	24.8%
Saw an EQAO report for an individual student	23.7%	6.9%
Saw a school or board report that includes EQAO results	49.8%	23.4%
Was in a classroom when a teacher was talking to students about the tests	51.6%	24.1%
Talked about the EQAO tests with associate teacher(s)	73.5%	44.8%
Attended a workshop or discussion about EQAO	21.4%	6.2%
Discussed EQAO in any of your teacher education courses	67.9%	37.2%
Worked for EQAO as a marker or developer	0.9%	0.7%
Any of the above sources	96.7%	82.8%
EQAO sources (Web site, printed materials, or sample items)	65.6%	33.1%

Knowledge

As summarized in Table 2, when asked which two elementary school grades participated in a provincial assessment in reading, writing, and mathematics, 97.2% and 97.7% of elementary teacher candidates correctly identified grades 3 and 6 respectively. Only 65.5% of the secondary teacher candidates correctly identified grade 3, and 52.4% correctly identified grade 6.

When asked which secondary grade had a mathematics assessment, 42.3% of elementary candidates and 43.4% of secondary candidates correctly identified grade 9. Similar percentages of elementary candidates (74.9%) and secondary candidates (80.0%) correctly identified the grade in which the literacy test is first administered as grade 10.

Attitudes

Items in the last section of the questionnaire probed teacher candidates' attitudes toward the tests. Table 3 summarizes the responses related to the *Why? What?/How? How well?* and *What can we say?* of the tests. Attitudes about the effects of the assessment program on the classroom, school, and broader educational system were also investigated. Table 4 summarizes the responses regarding effects. In each table the percentages agreeing and disagreeing are presented for the elementary and secondary panels separately. Where the percentage agreeing and the percentage disagreeing do not add to 100%, the remaining teacher candidates either selected the *Don't Know* option or left the item blank. Rates for selecting *Don't Know* or providing no response did not follow a clear pattern with item position. For example, the sixth item, "The EQAO tests are measuring what they are intended to measure," elicited a response of agree or disagree from only 50.8% of the teacher candidates overall; no other item elicited agree or disagree responses from so few candidates. In contrast, the 22nd item, "Schools whose students do not perform well on the EQAO tests should lose funding," elicited agree or disagree responses from 82.8% of the candidates.

Why? More than two thirds (67.9%) of elementary teacher candidates and 47.6% of secondary teacher candidates believed they understood the reasons for the assessments; however, only 37.2% of elementary and 40.0% of secondary candidates believed the reasons were important.

What?/How? Only about a quarter (23.7%) of elementary candidates believed that the content of the tests was important and a similar percentage

Table 2
Teacher Candidates' Knowledge About the Provincial Assessments

Fact	Elementary (n=215)	Secondary (n=145)
EQAO currently administers an assessment in reading, writing, and mathematics in grade 3.	97.2%	65.5%
EQAO currently administers an assessment in reading, writing, and mathematics in grade 6.	97.7%	52.4%
EQAO administers a mathematics assessment in grade 9.	42.3%	43.4%
EQAO administers a literacy assessment in grade 10.	74.9%	80.0%

Table 3
 Teacher Candidates' Attitudes Toward the Provincial Assessments by Panel:
Why? What?/How? How Well? and What Can We Say?

Opinion	Elementary (n=215)		Secondary (n=145)	
	Agree	Disagree	Agree	Disagree
<i>Why?</i>				
I think I understand the reason(s) the EQAO tests are administered.	67.9%	20.9%	47.6%	23.4%
The reason(s) the EQAO tests are administered are important.	37.2%	40.9%	40.0%	30.3%
<i>What?/How?</i>				
The content of the tests is appropriate.	23.7%	38.6%	11.7%	29.7%
The types of items on the test are appropriate.	26.0%	36.7%	11.1%	26.9%
<i>How well?</i>				
The items on the EQAO tests are good examples for teachers to use as models for their classroom assessments.	28.4%	35.8%	11.0%	35.2%
The EQAO tests are measuring what they are intended to measure.	8.4%	49.3%	11.0%	29.7%
The EQAO test items are fair to students from all cultural groups.	4.7%	68.8%	4.1%	48.3%
The EQAO tests provide accurate results for individual students.	8.4%	55.3%	5.5%	42.1%
The EQAO tests provide accurate results for schools and boards.	7.4%	58.1%	8.3%	42.8%
<i>What can we say?</i>				
The EQAO results provide different information than do teachers' grades.	55.8%	9.8%	44.8%	5.5%
The EQAO results provide better information than do teachers' grades.	3.3%	66.5%	4.8%	52.4%
If a student fails an EQAO test, the student should be held back.	3.3%	80.0%	6.9%	58.6%

(26.0%) believed that the types of items were appropriate. Fewer secondary candidates endorsed these items.

How well? Only 28.4% of elementary candidates and 11.0% of secondary candidates believed that the EQAO test items should be used as models by classroom teachers (the tests have been developed by the EQAO with that use as a goal). Only 8.4% of elementary and 11.0% of secondary candidates thought that the tests "are measuring what they are intended to measure" (i.e., that the tests are valid). Even fewer (4.7% and 4.1% of elementary and secondary candidates respectively) believed that the test items "are fair to students from all cultural groups" (i.e., that the tests are not culturally biased). Similarly, fewer than 10% of teacher candidates believed that the tests provided accurate results for individual students, schools, or boards (an aspect of reliability).

What can we say? Although 55.8% of elementary and 44.8% of secondary teacher candidates believed that the EQAO tests provide different information

Table 4
Teacher Candidates' Attitudes Toward the Provincial Assessments by Panel:
Impacts

<i>Opinion</i>	<i>Elementary (n=215)</i>		<i>Secondary (n=145)</i>	
	<i>Agree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Disagree</i>
<i>Effects on Classrooms</i>				
Having to take an EQAO test makes some students very anxious.	82.8%	2.8%	70.3%	2.8%
Having his or her class take an EQAO test makes some teachers very anxious.	85.6%	1.9%	62.8%	0.7%
Teachers should prepare students by practicing test taking skills.	72.0%	10.3%	53.8%	21.4%
Teachers should put items similar in format to the EQAO items on classroom tests.	65.1%	14.0%	50.3%	22.1%
The EQAO tests encourage competition among students.	34.0%	29.3%	33.8%	24.1%
The EQAO tests encourage teachers to teach the curriculum.	25.1%	44.7%	20.0%	37.9%
A teacher who is teaching the curriculum doesn't need to worry about the EQAO tests.	10.7%	64.7%	10.3%	49.7%
<i>Effects on Schools</i>				
Parents should consider moving their children to schools with good EQAO results.	5.1%	71.6%	6.9%	65.5%
Schools whose students do not perform well on the EQAO tests should lose funding.	2.8%	84.2%	1.4%	75.2%
<i>Effects on the Broader Educational System</i>				
The Ministry is putting too much emphasis on the EQAO tests.	77.7%	5.1%	55.9%	8.3%
Some boards are putting too much emphasis on the EQAO tests.	70.2%	4.2%	43.4%	7.6%
The media is putting too much emphasis on the EQAO tests.	72.6%	7.0%	58.6%	9.7%
The EQAO should develop tests in all subject areas.	19.1%	49.3%	18.6%	49.0%
The EQAO should develop tests at all grade levels.	11.2%	61.9%	16.6%	49.0%
Even if the EQAO tests aren't perfect, it's good for Ontario to have a testing program.	37.7%	27.9%	29.0%	33.8%

than do teachers' grades, fewer than 5% believed that they provide better information. Only 3.3% of elementary and 6.9% of secondary teacher candidates believed that a student failing the EQAO tests should not be promoted to the next grade (this is not currently a consequence of the EQAO tests).

Effect on classrooms. A majority of the teacher candidates (82.8% of elementary and 70.3% of secondary) believed that taking an EQAO test made some students very anxious. Similarly, 85.6% of elementary and 62.8% of secondary candidates believed that having his or her class take an EQAO test made some teachers very anxious. Seventy-two percent of elementary and 53.8% of second-

dary candidates believed that teachers should prepare students by practicing test-taking skills. Although less than a quarter of teacher candidates thought the EQAO items were good examples for teachers, 65.1% of elementary and 50.3% of secondary candidates believed that teachers should put items similar in format to the EQAO items on classroom tests.

About a third (34.0% of elementary and 33.8% of secondary candidates) believed that the EQAO tests encouraged competition among students. Only 25.1% of elementary and 20.0% of secondary students believed that the tests "encourage teachers to teach the curriculum." Even fewer (10.7% of elementary and 10.3% of secondary candidates) agreed that "A teacher who is teaching the curriculum doesn't need to worry about the EQAO tests."

Effect on schools. Few teacher candidates believed that parents should consider moving their children to schools with good test results (5.1% and 6.9% of elementary and secondary candidates respectively). Just 2.8% of elementary and 1.4% of secondary agreed that schools with poor results should lose funding.

Effect on the broader educational system. Overall, about two thirds (77.7% of elementary and 55.9% of secondary candidates) thought that the Ministry of Education put too much emphasis on the test results. Similar percentages believed that some school boards and the media were putting too much emphasis on the results. Almost 20% (19.1% of elementary and 18.6% of secondary candidates) thought that tests should be developed in all subject areas; 11.2% and 16.6% thought tests should be developed for all grade levels. About a third (37.7% and 29.0% of elementary and secondary candidates respectively) believed it was good for Ontario to have a testing program; almost as many (27.9% and 33.8%) believed it was bad.

Exposure and Attitudes

Were attitudes about the provincial testing program related to exposure to the program? Endorsement rates differed significantly across exposure levels for many of the items. However, on further examination it became clear that the real differences were not in endorsement rate, but in rate of responding with a clear opinion. The teacher candidates with the least exposure to the testing program were most likely to provide no response or select *Don't Know*. Those with exposure to materials produced by EQAO were most likely to express an opinion (i.e., were most likely to agree or disagree). Those with some exposure to the testing program, but no exposure to EQAO-produced materials, were somewhere in between.

Table 5 summarizes the responses to the questions about *Why? What?/How? How well? and What can we say?* by exposure level, instead of elementary or secondary panel. The first item, "I think I understand the reason(s) the EQAO tests are administered," was endorsed by 21.9% of candidates who reported no exposure to the testing program; by 55.4% of those with some exposure, but not to EQAO materials; and by 69.3% of those with exposure, including to EQAO materials. This pattern is not surprising: We would expect those with the most exposure to be most confident that they understand the tests' purposes. Results for other items are also reassuring: For example, of those who expressed an opinion about whether the test items were good models for teachers to use,

Table 5
Teacher Candidates' Attitudes Toward the Provincial Assessments by
Exposure: *Why? What?/How? How Well? and What Can We Say?*

<i>Opinion</i>	<i>No Exposure (n=32)</i>		<i>Exposure, No EQAO Materials (n=139)</i>		<i>Exposure, Including EQAO Materials (n=189)</i>	
	<i>Agree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Disagree</i>
<i>Why?</i>						
I think I understand the reason(s) the EQAO tests are administered.	21.9%	21.9%	55.4%	23.7%	69.3%	20.6%
The reason(s) the EQAO tests are administered are important.	18.8%	28.1%	33.8%	36.0%	45.0%	38.6%
<i>What?/How?</i>						
The content of the tests is appropriate.	12.5%	15.6%	13.7%	25.2%	23.8%	45.4%
The types of items on the test are appropriate.	12.5%	21.9%	11.5%	20.1%	27.5%	43.9%
<i>How well?</i>						
The items on the EQAO tests are good examples for teachers to use as models for their classroom assessments.	0.0%	25.0%	11.5%	30.2%	32.3%	41.3%
The EQAO tests are measuring what they are intended to measure.	0.0%	25.0%	10.1%	30.2%	10.6%	52.4%
The EQAO test items are fair to students from all cultural groups.	0.0%	40.6%	3.6%	46.8%	5.8%	74.1%
<i>What can we say?</i>						
The EQAO tests provide accurate results for individual students.	0.0%	37.5%	5.8%	40.3%	9.5%	59.3%
The EQAO tests provide accurate results for schools and boards.	3.1%	37.5%	6.5%	43.2%	9.5%	60.8%
The EQAO results provide different information than do teachers' grades.	31.3%	3.1%	40.3%	7.9%	63.0%	9.0%
The EQAO results provide better information than do teachers' grades.	0.0%	43.8%	5.0%	47.5%	3.7%	73.5%
If a student fails an EQAO test, the student should be held back.	6.3%	53.1%	4.3%	61.2%	4.8%	82.0%

those with more exposure were significantly more likely to agree that the items were good models, $\chi^2(2, N=205)=9.64, p<.01$.

The number of teacher candidates who reported no exposure and yet reported strong beliefs about the test is surprising. For example, 40.6% of those with no exposure disagreed that the test is fair to students from all cultural groups. Although none of the students in the *no exposure* group reported having read or heard any media reports about the tests, 43.8% agreed that the media is putting too much emphasis on the tests. Although one possible explanation could be that these candidates did not respond to the question asking about that source of exposure, in fact all 32 of the candidates in the *no exposure* group circled *No* in response to "Read, heard, or saw news accounts about the EQAO tests." It may be that the attitudes expressed by those candidates who said they had no information about the tests are based on experiences or information about other tests that may have no relation to the current provincial testing program.

Discussion and Conclusions

Limitations

This study has limitations. The teacher candidates who completed the questionnaire were not a random sample of the approximately 1,200 teacher candidates studying at OISE/UT during the 2000-2001 academic year. It may be that their instructors may have talked less about the provincial assessments because the workshop was upcoming. Alternatively, it may be that the classes in the sample had instructors who were more interested in the assessments and so talked about them more. In addition, the teacher candidates at OISE/UT are not necessarily comparable to those in other teacher education programs across Ontario.

Implications

These questionnaire results suggested that both those teacher candidates with and those without information about the provincial assessment program generally held strong views, many of them negative, about the purpose and worth of the assessments. If Ontario continues to require teachers to implement and interpret the large-scale assessments, then teachers must have practical instruction about the assessments. As teachers are now expected to administer the tests, modify their programs in response to the results, and sometimes interpret the results for parents, instruction in large-scale assessment should occur both before entry into the profession and as continuing professional development. Prospective and practicing teachers need to have access to the theory, research, and vocabulary of measurement in order to assess critically the assessments and assessment results, rather than, as Maguire (1992) fears, succumbing to powerlessness.

These findings also have implications for testing programs beyond Ontario. Given the widespread use of large-scale assessments and the reliance of testing programs on teachers to prepare students for, administer, and interpret the results of tests, the need to prepare teachers and to engage them in the testing process cannot be ignored. In addition, how to support teacher candidates and teachers as testing programs are introduced or change is a recurring concern for jurisdictions.

Note

1. In addition, grade 13, which for a century was a bridge to university (those students not university-bound usually graduated after grade 12), has been phased out. The university preparation courses have been compressed from five years into four.

Acknowledgments

This research was supported in part by a small-scale grant from the Social Sciences and Humanities Research Council. The framework was refined in workshops with teachers and with teacher candidates; thank you to all those who attended the workshops and suggested how the materials could be improved.

References

- American Federation of Teachers, National Council on Measurement in Education, and National Education Association. (1990). *Standards for teacher competence in educational assessment of students*. Washington, DC: National Council on Measurement in Education.
- Black, P. (1994). Performance assessment and accountability: The experience in England and Wales. *Educational Evaluation and Policy Analysis*, 16, 191-203.
- Brookhart, S.M. (1999). Teaching about communicating assessment results and grading. *Educational Measurement: Issues and Practice*, 18(1), 5-13.
- Brookhart, S.M. (2000, June). *What will teachers know about assessment and how will that improve instruction?* Paper presented at the conference Assessment in Educational Reform: Both Means and Ends, University of Maryland, College Park, MD.
- Childs, R.A., Jaciw, A.P., & Schneid, A. (2002, June). *Department of Education Web sites as educator resources: What student testing information do and should they provide?* Paper presented at the Council of Chief State School Officers' National conference on Large-Scale Assessment, Desert Springs, CA.
- Cooper, P., & Davies, C. (1993). The impact of national curriculum assessment arrangements on English teachers' thinking and classroom practice in English secondary schools. *Teaching and Teacher Education*, 9, 559-569.
- Gidney, R.D. (1999). *From Hope to Harris: The reshaping of Ontario's schools*. Toronto, ON: University of Toronto Press.
- Gipps, C., Brown, M., McCallum, B., & McAlister, S. (1995). *Intuition or evidence? Teachers and national assessment of seven-year-olds*. Milton Keynes, UK: Open University Press.
- Maguire, T.O. (1992). Grounded authentic assessment and teacher education. In D.J. Bateson (Ed.), *Classroom testing in Canada* (pp. 82-90). Vancouver, BC: University of British Columbia, Centre for Applied Studies in Evaluation.
- McDonald, M. (2002). The perceived role of diploma examinations in Alberta, Canada. *Journal of Educational Research*, 96, 21-36.
- Ontario Ministry of Education and Training. (1998). *Guide to the Provincial Report Card, grades 1-8*. Toronto, ON: Author.
- Phelps, R.P. (2000). Trends in large-scale testing outside the United States. *Educational Measurement: Issues and Practice*, 19(1), 11-21.
- Plake, B.S., Impara, J.C., & Fager, J.J. (1993). Assessment competencies of teachers: A national survey. *Educational Measurement: Issues and Practice*, 12(4), 10-12, 39.
- Schafer, W.D. (1991). Essential assessment skills in professional education of teachers. *Educational Measurement: Issues and Practice*, 10(1), 3-6, 12.
- Wise, S.L., Lukin, L.E., & Roos, L.L. (1991). Teacher beliefs about training in testing and measurement. *Journal of Teacher Education*, 42, 37-42.