Ontario teachers’ assessment practices in mathematics

WHAT IS THIS RESEARCH ABOUT?

In recent years, teachers have been encouraged by academics and professional development experts to further develop their classroom assessment practices to better support student learning. As a response, many teachers have been working toward adopting new assessment strategies that provide students with critical feedback on their learning.

This research used data from The Curriculum Implementation in Intermediate Mathematics (CIIM) project to better understand the assessment practices of mathematics teachers in Ontario.

WHAT YOU NEED TO KNOW

Current approaches to classroom assessment have shifted from a view of assessment as events that objectively measure the acquisition of knowledge toward a view of assessment as an ongoing practice that provides continual insights and information to support student learning. These approaches to assessment match current thinking in mathematics education and suggest that: one test cannot adequately assess the complex nature of students’ mathematical thinking; a variety of types of assessment is required to assess complex processes such as problem solving, justifying or proving solutions, or connecting mathematical representations; and attending to students’ thinking and focusing on assessment are effective ways to improve student learning. Mathematics teachers are encouraged to embed assessment in instruction, focus on listening and responding to student thinking as they share problem-solving solutions, and provide informative feedback on day-to-day classroom work. However, changing assessment practices can be challenging and requires time and support.

This study looks at the practices of mathematics teachers in Ontario to better understand teacher practice and the way that new assessment practices are enacted and supported. The study shows that many mathematics teachers in Ontario are using innovative assessment practices. These practices go beyond traditional testing and include the use of journals, observations, questioning, self-assessment and unique quizzes. These practices not only help teachers provide students with better feedback on their learning, they also provide teachers with insights into direction for their teaching. While changing assessment practices can be challenging, many teachers report receiving support as they collaborate with each other when planning their assessment strategies.
**WHAT DID THE RESEARCHERS DO?**

The CIIM research project was conducted by a research team led by Dr. Christine Suurtamm and Dr. Barbara Graves, both Associate Professors at the University of Ottawa. The research team included many graduate students from the University of Ottawa as well as researchers and graduate students from other universities. This paper, focusing on assessment practices, was the work of Dr. Suurtamm, Dr. Martha Koch, a doctoral student at the time of the research and Ann Arden, a master’s student at the time of the research.

The researchers conducted a multi-faceted study that included a questionnaire, focus group interviews with teachers and with leaders in mathematics education, and 8 case studies in mathematics classrooms throughout the province.

In terms of the questionnaire, the researchers surveyed 1096 grades 7-10 mathematics teachers on their assessment practices from 42 of the 60 English-language school districts in Ontario, Canada. The questionnaire was web-based and had 44 items, many of which had multiple parts. The items gathered general information about teachers such as their background, experience, beliefs and classroom practices. Several of the items provided information about teachers’ assessment practices. The focus group interviews with teachers and leaders of mathematics education provided insights into teacher practices. The 8 video-recorded case studies in mathematics teachers’ classrooms provided further detail and specific examples of innovative classroom assessment practices.

**WHAT DID THE RESEARCHERS FIND**

In addition to a number of case studies of teachers who used unique and effective assessment practices, the researchers had four major findings:

1. Teachers were using a variety of assessment techniques;
2. When assessing students, many teachers focused on understanding the students’ mathematical thinking and designed tools that took the complexity of problem solving into consideration;
3. Teachers used assessment practices as a way to support student learning and to provide feedback about next steps,
4. Teachers shared beliefs that all students can be successful in mathematics, and
5. Teachers collaborated and communicated with each other in developing their teacher practices and were supported by the curriculum materials available.

**HOW CAN YOU USE THIS RESEARCH?**

Teachers are clearly using a variety of assessment practices with the aim of providing constructive feedback to students. The case studies provide examples of teachers using innovative practices such as observation, student conferencing and presentations, interactive or group quizzes, self-assessment, and journals to get a sense of students’ mathematical thinking. While incorporating new assessment ideas can be challenging,
teachers gained support by working together and through consistent messages in professional development and curriculum supports.

ABOUT THE RESEARCHERS

Dr. Christine Suurtamm is Associate Professor of Mathematics Education and teaches in the areas of mathematics education, assessment and qualitative research at the Faculty of Education at the University of Ottawa. Her research focuses on the complexity of teachers’ classroom practice. She is particularly interested in teachers’ formative assessment practices as opportunities of attending and responding to students’ mathematical thinking. suurtamm@uottawa.ca

Dr. Martha Koch is a post-doctoral fellow at the Ontario Institute for Studies in Education at the University of Toronto. Her research focuses on the intersection of classroom and large-scale assessment practice. She is currently conducting a study of teachers’ interpretations of large-scale mathematics assessment results and how including their perspective enriches the validation of those assessments. martha.koch@utoronto.ca

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KEYWORDS

Assessment, mathematics, Ontario, reform

ABOUT THIS SUMMARY

This research snapshot is from the study:


This summary reflects findings from this study only and is not necessarily representative of the broader body of literature on this subject. Please consult the original document for complete details about this research. In case of any disagreement, the original document should be understood as authoritative.