
▲ TURNING PROBLEM SOLVING UPSIDE DOWN – BOOK REVIEW OF: *THE ANIE*

(Bird, K., & Savage, K. (2014). *The ANIE: A math assessment tool that reveals learning and informs teaching*. Markham, ON: Pembroke Publishers.)

TIM SIBBALD
E-MAIL: timothys@nipissingu.ca



Tim is an assistant professor at the Schulich School of Education at Nipissing University and a vice-president of OAME.

ANIE is an acronym for Assessment of Numeracy In Education. It is essentially a scaffolded approach to problem solving that has many tangential benefits. Among those benefits is increased insight into student thinking, a structured approach to formative assessment, opportunity for mathematical creativity, and cross-curricular support for language arts.

The book itself is a straightforward read and is not overly long (about 80 pages). The authors are school administrators from British Columbia, who clearly appreciate the reality of teachers being busy. It is a practical book that could be readily implemented using the supplied blackline masters. The focus is on elementary grades, but extensions to higher grades are clearly feasible.

The overall structure of the assessment is the provision of a knowledge-based question that is followed by a scaffold sequence of tasks related to the question. Students have to estimate the answer, calculate, sketch, explain the sketch, provide a real-life example that could lead to the question, and finally, reflect on their thinking. While there are several interesting features to this approach, a key element is that the students are being led toward making their own word problems through the real-life example. The authors aptly point out that this has the benefit of allowing students to generate the context, rather than have a context imposed on them.

They also point out that students are not trying to decipher someone else's text; rather, they are using their own words to construct the scenario.

The blackline masters are provided with an area for assessment information. This has not been designed specifically for Ontario, but the generic version could be adapted easily. An explanation of the use of the assessment area is provided in detail. The only component of the blackline masters that is a cause for concern is that the problem has to fit into one or two text lines. Modification would be necessary for geometry questions, for example.

While I think the approach presented in this book is worthy of exploration, there is potential that routine use could cause monotony that might hinder some students. There is no doubt that the scaffold will help many students. The question is whether it should be used as is for the students who do not need as much scaffold. That said, the structure of the scaffold provides a clear way for

teachers to see student reasoning and a good format for formative feedback. Through its use, a teacher would recognize the students who need less scaffold and be able to provide them with a less structured version.

The evaluation of the ANIE approach that is provided in the book is limited. Two examples are provided, where schools had increased scores on a provincial assessment. However, the evidence does not demonstrate whether ANIE improved student comprehension or simply taught students how to work

with a structured format. In the same way that completing multiple IQ tests increases one's IQ score, the evidence does not rule out the possibility that ANIE is having an impact for unanticipated reasons. The second example provided as evidence introduced ANIE at the same time as JUMP math and a literacy program. While the evidence shows a positive impact, it is unclear how much was due specifically to the use of ANIE.

Overall, this book is practical, food for thought, and worthwhile for the price tag of approximately \$25. It has a practical base and immediate utility. While, as a researcher, I take issue with the evidence, I confess to a professional sense that the approach will have benefits.

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