

Market for S. Korean Math Texts Remains Elusive for U.S. Educator

Japanese, Singaporean materials already in use

By Sean Cavanagh

Fourteen years ago, an American professor traveled to South Korea on sabbatical and came away so impressed with that country's math textbooks and teaching materials that she decided to have an entire set of them mailed back to the United States.

Since then, Janice Grow-Maienza's relatively modest investment—she paid \$72 in shipping costs—has become a personal, multiyear quest to get Korean lessons into American classrooms.

So far, those efforts have not borne fruit. While math texts and lessons from two similarly high-performing Asian countries, Singapore and Japan, have found a niche in American schools, Korean mathematics remains largely absent from U.S. classrooms, despite the interest of researchers like Ms. Grow-Maienza, a professor of education at Truman State University, in Kirksville, Mo., and those otherwise curious about the curriculum.

In the years since she visited South Korea, Ms. Grow-Maienza, working with a team of native Korean-speakers, says she has translated the entire math curriculum in grades 1-6—120 chapters in all—with accompanying teacher guides. Those books, which like most Asian texts are much thinner than U.S. materials, now sit on a shelf in her office. She's posted a sampling of six chapters, as well as other South Korean math materials, on a Web site she's titled GecKo Mathematics, at <http://koreanmathematics.truman.edu>.

Yet Ms. Grow-Maienza, whose work on the materials has received state and federal support, says she's failed to entice an American publisher to produce her Korean lessons for the U.S. market. She's now exploring the possibility of publishing her complete set of documents online.

"I'm close to retirement age," said Ms. Grow-Maienza, who recently completed her 21st year teaching at Truman State. "I'm getting to an age where I just want it out there."

South Korea's curriculum requires students to delve more deeply into math topics, and master them before moving on, compared to American lessons, Ms. Grow-Maienza argues. It does a better job of using big concepts, such as the number line (a visual depiction of whole numbers, fractions, or decimals on a line) across lessons and grades, and generally presents topics in a more systematic way, in her view. (*See Education Week, April 22, 2009.*)

Crowded Field

American researchers' and policymakers' interest in Asian math curriculum dates back at least to the 1980s, and it appears to have



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picked up again in recent years. That attention stems in large part from various nations' high scores on international tests. On the 2007 Trends in International Mathematics and Science Study, for instance, South Korean 8th graders notched 597 on a 1,000-point scale, well above the U.S. and international averages, and second only to Hong Kong.

Singapore also turns in consistently stellar marks on those exams. Not coincidentally, the Singapore approach to teaching math—characterized by a focus on a relatively small number of important topics, taught in depth and in a well-organized sequence—gained popularity in some U.S. districts in the 1990s and is used in schools across the country today.

Last month, a major publisher, Houghton Mifflin Harcourt, announced the publication of *Math in Focus*, a K-5 curriculum based on the Singapore approach. The Boston-based publisher adapted the textbooks and supplementary materials with the cooperation of the program's Asian publisher, Marshall Cavendish.

Japanese textbooks have been available in the American market for years. The University of Chicago School Mathematics Project, for instance, first published translations of Japanese texts for grades 7-11 in 1983, and other publishers have put forward their own materials from that country.

Professor Janice Grow-Maienza finds the South Korean math materials superior to those of other Asian countries being taught in American schools.

One obvious advantage that Singapore math has in the U.S. market, in contrast to Japanese and Korean texts, is that its materials are originally written in English and thus require little translation, a number of observers said. South Korean texts may also be at a disadvantage, some speculated, simply because Singapore quickly established a good reputation in the United States, lessening publishers' appetites for other Asian math texts.

Ms. Grow-Maienza acknowledges those difficulties. She also says that Korean math bears many similarities to the Japanese and Singaporean approach. While she argues that aspects of the Korean model are superior to the other two, the distinction could be lost on some publishers.

On international tests, Singapore "came out number one, and their materials are distinctly different from ours," said Steven Leinwand of the American Institutes for Research, who has studied Singaporean math. Nonetheless, Mr. Leinwand, a principal research analyst at the Washington-based AIR, said he would be interested to see the Korean materials.

Guide for Teachers?

Ms. Grow-Maienza, after returning from South Korea, summarized many of her observations about primary-grades math in that country in a 2001 article in the *Journal of Educational Psychology*. It was co-written by two researchers from Pusan National University in South Korea.

One of the most captivating features of the Korean model, she found, were lesson guides provided to teachers. Those guides give teachers much clearer direction on how to present math lessons, as well as a fuller explanation of the broader math background behind them.

Ms. Grow-Maienza believes the teacher guides could be tailored to help American teachers struggling with math content, even if those educators were using a different U.S.-based math curricula, not the Korean one.

A common hurdle in getting new math materials into the market is that publishers must gauge not only overall interest among school

officials, but whether the materials meet various state and local academic standards, said Jay Diskey, the executive director of the school division of the Association of American Publishers, in Washington. "It's a market driven by government procurement," he said. "That's what [publishers] have to follow."

Although fewer major publishers of school materials are in business now than a decade ago, Mr. Diskey added, hundreds of smaller publishing houses might be willing to take a chance on an relatively unknown product like Korean math. The Internet also has made it easier for publishers of all sizes to market such materials, he said.

Ms. Grow-Maienza is exploring how she might take that technological step. The professor says she is working with a Web designer and considering how she could publish the full range of South Korean materials on the Internet, while also ensuring that people do not copy the package and call it their own.

On the one hand, she's eager to post more materials. "So much time and effort has gone into this," Ms. Grow-Maienza said. Yet with the Web, "once it's out there, it's out there."

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