

# Teaching Mathematics as Storytelling

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*“The story form is a cultural universal; everyone, everywhere enjoys stories. The story, then, is not just some casual entertainment; it reflects a basic and powerful form in which we make sense of the world and experience” (Egan, 1988, p. 2).*

The mathematics presented in the textbooks usually focus on abstract symbols and definitions, with so-called “real-world application”, proceeding in a linear, orderly manner, and step-by-step explanations based on deductive logic. Students are often asked to solve many separate problems on the worksheets/textbooks, each of which usually has only one method and one correct answer. Extra exercises are provided to let students practise the algorithms or clarify the concepts, with occasional use of manipulatives. Yet, many CLD students still have difficulties in understanding the mathematical concepts even with the help of manipulatives/diagrams in the “real-world context”.

The use of story as resource to teach mathematics starts in the late eighties, and “many children’s books present interesting problems and illustrate how other children solve them. Through these books, students see mathematics in a different context while they use reading as a form of communication” (National Council of Teachers of Mathematics, 1989, p.27). Goral and Gnadinger (2006) recommend that storytelling can be used to introduce abstract/difficult concepts and deepen students’ understanding in primary classrooms. In fact, stories and storytelling have a far more important role within students’ lives and their cultures than simply as springboard for mathematical ideas/exploration/investigation, which contextualize theoretical mathematics. Storytelling is a powerful tool that brings rich, vibrant, meaningful and lasting images to students, where important learning first takes place through listening and talking. It allows teachers to cater for different linguistic levels at which students think and communicate, making mathematics more accessible.

Story appeals to students’ imaginations and emotions. By connecting it to their early language and cultural experience, story makes learning more meaningful/interesting; facilitates/enhances students’ ability to learn school mathematics; and to express/communicate their mathematical ideas/thinking. When students listen to stories, there is a coming together, a total concentration and absorption of the spoken word, in which students construct meaning out of their encounters with their world and that gives meaning to their lives. Story places mathematics in the real-world/familiar context, which caters for learner diversity (cultural, linguistic, religious, social class, diversity of every kind imaginable). It makes sense to students and allows them to see solving problems as an integral part of their everyday experiences. Hence, knowledge is constructed through personal involvement with contextualized and culturally-based everyday experiences (Schirot & Lawson, 2004). Through listening to a story and solving problems related to the story, students develop multiple skill sets, such as problem-solving, reasoning and communication. It improves mathematics learning through language especially for students who are learning the instructional language (English/Cantonese). By scaffolding students’ learning using creative drawings/illustrations to accompany problem solving and posing, and by repetitive phases and actions as part of storytelling, students are supported in acquiring Chinese/English as a second/third language in particular.

Teachers can make classrooms multicultural by using children's literature from different parts of the world, and share with students different culture's ways of thinking mathematically and using mathematics (Zaslavsky, 1996). Multicultural children's literature offers a context in which students can learn different culture's ways of thinking mathematically and using mathematics. Story is a medium for embracing cultural traditions and mathematical thinking. Storytelling as an instructional strategy bridges between students' home/community cultures and school mathematics, and help students to transit from their home culture to the highly literate culture of school mathematics. Vygotsky's sociocultural theory (1978) states how cognitive development relies on people learning to employ cultural tools for literacy and mathematical thinking through the help of the others with more experiences. Story plays a role in supporting students' cognitive development, which caters for implementing a culturally and linguistically responsive mathematics curriculum (teaching strategies, language of instructions, material resources). The intention of learning modules is to encourage teachers to guide students' mathematical development in multicultural settings through storytelling.

## References

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