

## Family chats can help students learn, especially in richer countries, study shows

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Taking the time to talk to your children about current events like the Gulf Oil spill -- and using mathematical terms to do so -- can help students develop better reasoning and math skills and perform better in school, according to a study by a University at Buffalo professor.

"When families chat about societal issues, they often create simple mathematical models of the events," says Ming Ming Chiu, a professor of learning and instruction at UB's Graduate School of Education with extensive experience studying how children from different cultures and countries learn. "Unlike casual chats, these chats about societal issues can both show the real-life value of mathematics to motivate students and improve their number sense."

The findings, published in the current issue of *Social Forces*, an international journal of sociology, was the first international study on how conversations among family members affect students' mathematical aptitude and performance in school. Chiu's findings were based on data from the Organization for [Economic Cooperation](#) and Development; its Program for International Student Assessment collected almost 110,000 science test scores and questionnaires from 15-year-olds from 41 countries, including 3,846 from the U.S.

Interestingly, Chiu found that family chats about society and current events are uncommon, regardless of ethnic background or level of affluence. "They occur less than once a month for 58 percent of the children in the 41 countries," he says. "Students in richer countries,

richer families, or with two parents do not have more family chats about societal issues than other students do."

However, Chiu's findings conclude that the impact of chats and other family involvement is much greater in more affluent countries than those in developing countries. So these discussions often do more good in families within richer countries.

"In rich countries, most students have rulers, books, calculators and other physical resources, but they do not spend much time with their parents (family involvement)," he says, "So family involvement becomes more important to student learning in richer countries."

Chiu, whose previous published research includes how overconfidence can stunt reading skills among teenagers, used the data to make the following recommendations for parents and teachers:

- Chat with children about current social and political events. Chiu suggested creating simple mathematical models of current events ("The BP oil spill leaks 1 ½ million gallons of oil a day for 80 days. Half of 80 is 40, so 1 ½ times 80 is 80 plus 40 or 120 million gallons of oil spilling into the gulf."). These models or meaningful computations allow children to use their basic [math skills](#) in a concrete way that not only gets them to practice their math faculties, but also shows how math can help put the world in a more understandable context.
- Use familiar terms to describe quantities. For example, ask children to estimate how many gallons it would take to fill up their house, apartment or swimming pool.
- Ask for and listen to children's ideas about current events. Chiu

says the research suggests that children's reasoning skills improve when their parents ask them what they would do if they faced a similar situation. ("How would you solve the oil spill?") Can they explain their decisions? ("Does burning the oil help?") Can they compare the real costs of different solutions? ("Does it cost less to burn the oil or use booms to contain it?")

Provided by University at Buffalo

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