Preschool-age kids in different countries improve academically using self-regulation game

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Children who regularly participated in a Simon Says-type game designed to improve self-regulation - called the Head-Toes-Knees-Shoulders task - may have better math and early literacy scores.

The study found that the higher academic outcomes associated with the game, which emphasizes careful listening and following instructions, does not just benefit students in the United States, but also benefits children tested in Taiwan, China and South Korea.

More than 800 preschool age children ages 3-6 years old in the four countries participated in the study, which was just published in the journal *Psychological Assessment*.

Megan McClelland, an associate professor of human development and family science at Oregon State University, is an expert on self-regulation in children and has published numerous studies showing the importance of self-regulation - or a child's ability to listen, pay attention, follow through on a task and remember instructions - as a key predictor of academic achievement in later school years. McClelland also developed the Head-Toes-Knees-Shoulder task as a measurement tool to assess how well a child is able to self-regulate.

In previous studies, McClelland has already shown that the task can help children with low self-regulation skills become better at self-regulation,

effectively raising their academic achievement.

In this study, McClelland, lead author Shannon Wanless with the University of Pittsburgh, who did the research as part of her dissertation work at OSU, and their colleagues, wanted to find out if the Head-Toes-Knees-Shoulder task would predict academic gains in countries already known to have stronger self-regulation than the U.S.

"Beyond demographic variables or teacher's expectations, we found that the children in all the countries who performed well on the task did significantly better in math, vocabulary and early literacy," McClelland said. "It shows that beyond cultural factors, self-regulation is important for early academic success."

McClelland and Wanless' study showed that preschool and kindergarten-age children who scored higher on the Head-Toes-Knees-Shoulder task were more than three months ahead of their peers in early literacy. Likewise, their peers in Taiwan, China and South Korea showed similar results, with the most dramatic result showing Chinese youngsters who did well on the self-regulation task performing more than four months ahead of their classmates on math.

McClelland said this Asian study is not an anomaly - she and her colleagues have conducted studies in European countries, and have found similar results to this Asian study.

In addition, a new study that McClelland and OSU alumna Shauna Tominey conducted of 65 preschool-age children in Oregon, just published in the journal Early Education and Development, found that children who started the year with low levels of self-regulation saw significant gains in self-regulation as the year went on after doing a variety of "circle-time" games in the classroom. These games are physically-active games that, like the Head-Toes-Knees-Shoulder task,

ask children to obey rules, listen, and demonstrate self-control. Importantly, children participating in the games also made significant gains in early literacy over the school year.

This gave the researchers preliminary evidence that an intervention using these self-regulation games can work, especially with lower-income children who are at higher risk of starting school with poorer self-control. In the fall, McClelland and her research group move on to Salem, Ore. where they will administer the intervention to Head Start preschool classes in the Salem-Keizer school district.

"Educators are intensely interested in a measurement tool that assesses self-regulation, is easy to use, and requires little training or materials," McClelland said.

She said since her work first became publicized, she has heard from teachers all over the country wanting to use the Head-Toes-Knees-Shoulder task. Before that happens on a large scale however, McClelland said she needed to validate and adapt the task for teachers and other practitioners to use.

McClelland has received a $1.6 million grant from the U.S. Department of Education to do a four-year study to measure, evaluate and refine the Head-Toes-Knees-Shoulder task. If successful, the task could be implemented by educators and school districts across the country as a way to measure whether preschool-age children are ready to enter elementary school.

"Although many children enter kindergarten ready to learn, a large number of children start school already behind their peers," McClelland said. "As early as kindergarten, they've become the problem child who can't pay attention, can't focus and doesn't follow instructions. This can lead to becoming a problem in the classroom, which then leads to

negative attention. And by the end of their kindergarten year, they are more likely to disengage and say they don't like school."

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