

I Ling Hsiung's Fulbright Experience in Singapore

How similar/different have you found Singapore students to be when compared to yours back home?

Students in Singapore are just as curious, friendly, and hardworking as my students back home. Younger primary students invited me to their hands-on learning activities, such as playing ukuleles and reading stories during library hour. I also enjoyed visiting my older primary students at Character and Citizenship Education Camp in Jalan Bahtera and accompanying them to their art learning journey at the National Gallery Singapore.



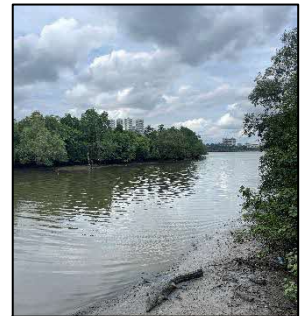
CCE Camp and Learning Journey with Oasis Primary School



Chinese New Year Celebration with AST

What was the most unexpected thing about Singapore schools/teachers/students for you?

Singapore schools are extremely purposeful in sharing ownership of their rich heritage and culture. I got to partake in many cultural festivals and school events, from Chinese New Year to Total Defense Day to Hari Raya Haji. I enjoyed celebrating togetherness with the teachers and students in the joyous tradition of Lo Hei and showcasing Malay dance moves to wish the school Eid Mubarak.



Sungei Buloh Wetland Reserve with CPDD Sciences Branch

What are ideas you got from your attachment to Singapore schools/the Singapore Fulbright experience that you wish to take back home to seed and/or implement?

My first host school, Oasis Primary School, practiced Place-Based Learning (PBE), a pedagogical approach that leverages students' physical space beyond the walls of their school to create exploratory and immersive learning experiences and activities. This is something I intend to bring back to my school in the United States because I saw how rich the learning journeys and service projects were for students immersed in their local heritage, culture, landscapes, and environment. I want my students to have community pride in the world around them, whether it is celebrating unsung heroes in their community or becoming proactive environmental stewards. I also believe PBE will establish a stronger community-school relationship where students will be able to act on issues important to their local areas and deepen their knowledge of cultural histories.



Pinnacles at Duxton's Rooftop Skybridge

Share with us an experience that resonated strongly with you in the course of your professional development journey in Singapore.

My first few weeks in Singapore with the Academy of Singapore Teachers (AST) were incredibly memorable because I was able to experience Singapore’s natural rhythm and culture through the eyes of locals. I learned about the importance of embedded community spaces for residents of all ages, such as the park connector network (PCN) and purposeful HDB playgrounds and void decks. I bonded with friends in hawker centers and wet markets over new foods (i.e., hokkien prawn mee, rojak, black carrot cake, and durian shaved ice). I explored the visual arts around me, such as the murals in Chinatown and the artifacts in the National Museum of Singapore. I visited the Istana with its lush gardens and incredible architecture. All these experiences really grounded me and empowered me to design culturally relevant lessons for students at my host



Marina Bay Sands

schools. Understanding my students’ lived experiences allowed me to make connections to their different cultural backgrounds, interests, and needs.

What was it that you were exposed to in Singapore that culminated in the content presented in TCEF 2023?

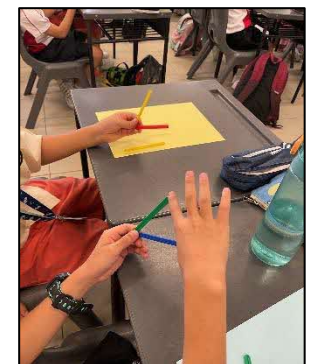
My inquiry project focuses on using the Concrete-Pictorial-Abstract (C-P-A) pedagogical approach to develop deep and sustainable understanding of mathematics in students. It builds on students’ existing understanding and is based on concrete learning experiences through different forms of activities, situations in real-life context, or through the use of manipulatives. Zoltán Pál Dienes (1960) proposed the idea that students whose mathematical learning includes physical resources/manipulative experiences will be more



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likely to bridge the gap between the world in which they live and the abstract world of mathematics. Through my Fulbright attachment, I was able to partake in many lessons with the C-P-A approach embedded, and work firsthand with the various teaching materials provided by the Ministry’s Curriculum Planning and Development Division (CPDD). I was also able to conduct experimental lessons at my host schools that used the Concrete-Virtual and Virtual-Pictorial-Abstract (C-V and V-P-A) approach to expose students to high-quality

math activities through virtual manipulatives. The C-V and V-P-A approach encouraged students to use another external representation to promote conceptual understanding and narrow the cognitive gap between the concrete and pictorial representation. Through my research, virtual manipulatives were found to be engaging (dynamic), efficient (time-saving), and effective (immediate feedback). Virtual manipulatives scaffolded the learning process by disallowing incorrect moves, encouraged creativity and student-choice, and personalized learning so students could challenge themselves and expand their knowledge. Overall, I shared with the fraternity that using concrete and virtual manipulatives **together** created the **most successful and metacognitive learning experience** (with the most significant academic gains) for students instead of utilizing either approach individually.



Students using Concrete Manipulatives (AngLegs)



Students using Virtual Manipulatives (Unification Cubes to Construct Bar Graphs)