

THE EDUCATION UNIVERSITY OF HONG KONG
FACULTY OF LIBERAL ARTS AND SOCIAL SCIENCES

Research Output/Impact/Knowledge Transfer Prize
for the Dean's Research Fund 2020-21

Brief Introduction of Awardee's
Research/KT Publication/Study/Output and Future Research/KT Development

Awardee (Dept):	<u>Dr Zhang Qiaoping, Assistant Professor (MIT)</u>
Publication Title/KT project:	<u>Design of Picture Books in Learning Mathematics in Primary Mathematics Classrooms</u>

A. Briefly introduce your research/KT publication/study/output for which you have received the prize.

Reading to Learn has been adopted as one of the Key Tasks since the curriculum reform in 2001 in Hong Kong. Recently, schools are encouraged to extend Reading to Learn to Reading across the Curriculum (RAC) and Language across the Curriculum (LAC) to broaden students' knowledge base and connect their learning experiences in different subjects to meet the objectives of the new curriculum. The project team has designed a series of picture books in mathematics for primary mathematics teaching and learning. These picture books present situations related to different mathematics topics, which aims to be illustrated by teachers to teach mathematical concepts and skills. Lesson worksheets with extended questions have also been attached in each picture book which serves to reinforce the learning objectives in picture books and facilitate self-directed learning among students.

To expand the impact of our Knowledge Transfer work, we shared our designing and teaching experience in picture books at local and overseas activities, which include international conferences, the Learning and Teaching Expo 2018, workshops, symposium, teacher professional development in university and local schools, as well as journal articles. It is hoped that the implication of picture books in teaching mathematics can provide Hong Kong primary students with more opportunities to learn from reading in mathematics. The related publications and disseminations were listed as follows:

- 1) Yeung, W. Y., Cheung, S. P., & Zhang, Q. (2020). Understanding Inclusive Relationships among Quadrilaterals by School-based Picture Book. *Paper presented at World Association of Lesson Study (WALS) 2020 online International Conference, 2 -4 Dec, California, U.S.A.*
- 2) 楊詠盈、張僑平 (2020)。數學繪本網上教學的實踐探索，《香港數理教育學會會刊》，36，25-31。
- 3) 張僑平、陳燕虹 (2019)。在數學閱讀教學中「閱讀」孩子。《當代教育家》，8，53。
- 4) 張淑冰、楊詠盈、張僑平 (2019)。運用繪本教學提升學生的 4C 能力。載黃家樂、李玉潔、丘瓊媛、王嘉慧 (編)，《香港數學教育會議 2019 論文集——讓教與學和數學世界接軌》(頁 171-176)。香港：香港數學教育學會。
- 5) 張僑平 (2019)。「聯結課堂內外：在閱讀中學習數學」。中華基督教會基慈小學，5 月 20 日，香港。

- 6) 張僑平 (2019)。「數學繪本課堂教學的實踐與反思：以香港教學數學閱讀課為例」。第一屆上海悅遠「數學繪本」課程與教學工作坊。5月18-19日，上海。
- 7) Yeung, W. Y., Cheung, S. P., Chen, Y. H., & Zhang, Q. P.(2018, December). *Using picture books in mathematics lessons*. The Learning & Teaching Expo, 13-14 December, Hong Kong.
- 8) Zhang, Q. P., & Chen, Y. H. (2018, October). *Theory and practice of picture books in primary school mathematics: Cases from Hong Kong and Guilin* (小學數學繪本閱讀的理論和實踐——以香港、桂林兩地的教學為例). The 3rd Chinese Congress on Mathematics Education (CCME-3), 26-28 October, Shanghai, China.
- 9)

B. How you used/will use your prize and perhaps its usefulness to your research/KT development?

The prize will mainly be used in hire a research assistant or student helpers to continue with writing proposals for future funding applications, extend current study to use digital picture books to teaching mathematics, and disseminate project outcomes as newsletters, conference papers or journal articles.

C. Expected research/KT outcomes/outputs/impacts arising from this prize.

A public seminar sharing has been conducted in April in 2021 organized by RDO at EdUHK. (<https://www.eduhk.hk/rdo/KnowledgeTransfer/eng/ktpage.php?id=149>), which provides basic information for other interested teachers and researchers about the KT project;

Even though Hong Kong students have outperformed in mathematics in international assessments, while it was also found their affects in mathematics teaching tended to be negative. Low-SES students need more support to enhance their motivation to learn. With the support from this prize, I will plan to apply for the Public Policy Research grant to promote Reading in Mathematics for low-SES students' learning. I will continue to work with school teachers to implement the project of Reading in Mathematics to develop effective teaching strategies and materials for teachers' professional development. The dissemination of good practice will be expected to be published as conference papers or journal articles.