

## **Research Assessment Exercise 2020**

### **Impact Case Study**

**University:** The Chinese University of Hong Kong

**Unit of Assessment:** 24 psychology

**Title of case study:** *Screening, training, and teaching for children's school success*

#### **(1) Summary of the impact**

Millions of children worldwide fail to learn basic literacy and mathematics skills. Children's low educational attainment is associated with greater illness, more poverty, and, ultimately, lower wages. MCBRIDE's research facilitates optimal early learning in literacy and mathematics: Her preschool screening tool resulted in earlier identification and intervention for over 3,700 Hong Kong children at-risk for dyslexia. Her parent training program promoting children's early mathematics improved children's school achievement and enhanced parent-child bonding in thousands of Filipino families. Her MOOC on teaching struggling readers attracted over 7,500 teachers and parents across 99 countries to make literacy learning easier and more fun for their students.

#### **(2) Underpinning research**

MCBRIDE focuses on early indicators of literacy and mathematics in children. She has published fundamental research demonstrating that children's oral language skills are important for reading success. For example, her morphological awareness task has been used in many studies across Chinese society; one [R6] has been cited more than 400 times in Google Scholar. In studies on early predictors of early Chinese reading, MCBRIDE's team [R5] found a strong relationship between morphological awareness and reading among children who manifested developmental dyslexia in Chinese two years later. The idea here is simple: Children who understand the structure of the meaning units (morphemes) of their language read better. This work relies on asking children to analyze their native language in new ways. For example, when we ask a child, "What do you call a monster that eats iron?" and she answers "iron-eating monster," rather than "iron monster" or "monster iron" (less precise answers), she is likely to be a better reader, especially in Chinese, where knowledge of how to form compound words facilitates early reading.

While measurement and identification are important, so are remediation and training; all contribute to improving children's learning outcomes. MCBRIDE's lab has explored the extent to which parents can be taught to foster literacy and mathematics skills at home through dialogic reading, which encourages active parent-child interactions around storybooks, and number card game play, in addition to morphological awareness training. Her team [R2] demonstrated that teaching Hong Kong parents how to read with their children using dialogic reading techniques and morphological awareness helped to improve children's vocabulary learning after 12 weeks. This study has been cited over 180 times. Such programs hold promise in low-income contexts. She also [R1] demonstrated that teaching Filipino parents to play mathematics games with children improved their early number sense (e.g., counting, identifying numbers). In a larger-scale implementation incorporating both dialogic reading and mathematics games, such interventions were found effective among low-income Filipino families; both approaches to intervention (e.g., language, mathematics) had specific benefits to beneficiaries of the programs [R3].

With a substantial record of basic research on mechanisms underlying the development of literacy and mathematics, MCBRIDE has expanded to measurement and identification of children with learning difficulties and then to remediation and training to ameliorate such difficulties. Her books on children's literacy development (2016), dyslexia [R4], and early literacy education around the world (co-edited, 2017), respectively, in addition to her empirical articles, formed the basis for the

massive open online course (MOOC) on struggling readers, created and administered by her lab in collaboration with World Learning, a global NGO dedicated to education and development in 2019. MCBRIDE's research on early screening and teaching of literacy and mathematics skills, cited over 15,700 times in Google Scholar, has been supported by over sixteen million Hong Kong dollars in funding since 2013. This work continuously seeks to improve screening and training for optimal early educational attainment globally.

### (3) References to the research

- [R1] Cheung, S. K., & McBride-Chang, C. (2015). Evaluation of a parent training program for promoting Filipino young children's number sense with number card games. *Child Studies in Asia-Pacific Contexts*, 5(1), 39-49. <http://dx.doi.org/10.5723/csac.2015.5.1.039>
- [R2] Chow, B. W. Y., McBride-Chang, C., Cheung, H., & Chow, C. S. L. (2008). Dialogic reading and morphology training in Chinese children: Effects on language and literacy. *Developmental Psychology*, 44(1), 233-244. <https://doi.org/10.1037/0012-1649.44.1.233>
- [R3] Dulay, K. M., Cheung, S. K., Reyes, P., & McBride, C. (2018). Effects of parent coaching on Filipino children's numeracy, language, and literacy skills. *Journal of Educational Psychology*, 111(4), 641-662. <http://dx.doi.org/10.1037/edu0000315>
- [R4] McBride, C. (2019). *Coping with dyslexia, dysgraphia, and ADHD: A global perspective*. London: Routledge. <https://doi.org/10.4324/9781315115566>
- [R5] McBride-Chang, C., Lam, F., Lam, C., Chan, B., Fong, C. Y. C., Wong, T. T. Y., & Wong, S. W. L. (2011). Early predictors of dyslexia in Chinese children: Familial history of dyslexia, language delay, and cognitive profiles. *Journal of Child Psychology and Psychiatry*, 52(2), 204-211. <https://doi.org/10.1111/j.1469-7610.2010.02299.x>
- [R6] McBride-Chang, C., Shu, H., Zhou, A., Wat, C. P., & Wagner, R. K. (2003). Morphological awareness uniquely predicts young children's Chinese character recognition. *Journal of Educational Psychology*, 95(4), 743-751. <http://dx.doi.org/10.1037/0022-0663.95.4.743>

### (4) Details of the impact

MCBRIDE's research has had direct societal impact in the following three ways:

#### 4.1. Early literacy screening and instruction needs in Hong Kong

This research directly resulted in the development of the **Hong Kong Dyslexia Early Screening Scale (HKDESS)**, a standardized screening tool for reading difficulties [C1]. This screening tool was created together with the **Child Assessment Service (CAS)** of the Department of Health of the HKSAR Government based on MCBRIDE's work on early indicators of Chinese reading difficulties among both Hong Kong and Mainland Chinese children. This was the first preschool dyslexia risk screening tool available to CAS [C1]. Before this tool was created, there were no cognitive-linguistic tests available for diagnosis in kindergartners [C2]. Because reading instruction begins very early in Hong Kong, this tool is essential for early diagnosis for potential difficulties. With it, children at-risk for reading problems can be identified up to two years earlier than they had been previously. Early identification enables earlier remediation and better outcomes for children.

According to Dr. M. Y. F. Lee, Consultant Pediatrician of the CAS, pediatricians and clinical psychologists in the CAS have used the HKDESS to identify over 3,700 preschool children who are at-risk for dyslexia since 2016 [C2]. CAS then gave these children appropriate remediation and

follow-up. Altogether, around 300 pediatricians, educational psychologists, and clinical psychologists have been trained in using this tool since 2017 [C2].

The website of the **Early Literacy for Chinese Children** (<http://ww5.psy.cuhk.edu.hk/chineseearlyliteracy>) was developed by MCBRIDE's team to disseminate research-based recommendations for early literacy learning to the general Chinese-speaking public. This website has been featured in newspapers and has been visited thousands of times since 2014 [C3] (website count of more than 22,000 as at August 2019). The CAS finds this website helpful both for practitioners and parents [C2]; it lists the website as an online community resource in leaflets given to parents when they visit for dyslexia screening and other services.

#### 4.2. Early parent education training needs of poor families in the Philippines

MCBRIDE's research was also the basis for initial and follow-up implementations of parent coaching programs by **Arcanys Early Learning Foundation (AELF)**, an NGO in Cebu City, the Philippines. Since 2012, AELF has delivered parent coaching to approximately 4,400 families and has trained around 90-100 teachers on methods to encourage home learning activities among low-income Filipino families [C4]. Those teachers, in turn, help low-income parents to teach their children, aged 3-6, basic mathematics concepts at home. MCBRIDE's team developed various games involving number cards designed to facilitate children's early number sense skills. Evaluation results of the training among low-income families in the Philippines helped AELF to secure funding to continue this work from the UBS Optimus Foundation in 2014 [C5]. AELF found that the program improved children's grades, confidence, social skills, and even bonding [C5]. One parent said that, as a result of this program, "*Niko...got the Superstar Kid, Budding Mathematician, and Enthusiastic awards. He also finished the year with honors.*" Another stated, "*My children and I have a much closer relationship now. All my kids love learning math with the game cards. They also love school.*" [C5]. AELF also noted that many of the parents enrolled in the program had become more positive in interactions with their children and felt better able to help their children in their learning [C5].

As the scaled-up intervention was implemented, members of the **International Care Ministries (ICM)** NGO observed AELF's programs as a potential model for their own community-based early education program in their beneficiary communities in the Philippines [C5]. ICM adapted AELF's number card games and took recommendations for a literacy component as well. Since 2016 when ICM launched the Family Academy program, it has reached almost 5,000 families in the Philippines, including many remote and very poor regions in the Philippines [C4; C5; C6]. One parent in that program stated, "*What I have learned is that if your child does something good, you should tell him that he did well. So now they are eager to learn. But before I didn't know that.*" [C6]. ICM has found that, with this program, 83% of parents felt more confident as parents as well [C7].

#### 4.3 Literacy training needs for parents and teachers worldwide

Much of MCBRIDE's research is featured in a MOOC entitled "Teaching Struggling Readers around the World" offered by **World Learning**. This MOOC was designed using the framework for early literacy presented in MCBRIDE's books on global literacy. Over 7,500 individuals from 99 countries signed up for the course [C8; C9]. In total, 2,960 teachers and parents from 76 countries completed the free 5-week course launched in March 2019 [C8; C9]. Of those who completed it, 481 particularly noted the evidence-based knowledge they are incorporating into their current teaching of reading, 1,576 emphasized the importance of the practical skills they gained for teaching literacy in the future, and 243 used the practical skills and resources in their classrooms during the course [C9]. The nearly 40% completion rate (typical completion for a MOOC is 5% to 15%) shows that most participants found the course useful for practical training tips with their children [C8]. Among the participants, one said, "*...This course provided a helpful, understandable platform for me to access that knowledge...I felt more empowered to help out with situations of struggling readers in my community.*" Another said, "*One very specific example of how this course has helped me, happened today, while I was helping a child understand a text he was having a hard time understanding, and I used the technique we learned here ... the PEER Sequence- and it worked; he was having a much*

*easier time understanding the text after... ”. The course also received favorable feedback from George Georgiou, Professor of Educational Psychology and a supervisor of teacher training from the University of Alberta, who said, “...*(the MOOC) was an amazing course because it helped (teachers) improve their own instruction in class... I have also heard from 5 school principals that they missed the deadline for signing up for the course and they are wondering when it will run again. I can see this course becoming a great resource for our teachers in Edmonton” [C10]. Given the success of this MOOC, it is, thus, “back by popular demand,” via World Learning with over 1,550 students currently signed up and a lot of positive buzz on Twitter so far for the course as of October 7 (final figures available in December of 2019); the course officially runs from October 7 to November 24, 2019, with new students being allowed to sign up anytime in the first 3-4 weeks of the course.**

*To summarize, MCBRIDE’s work has facilitated a new screening measure for early risk for dyslexia in Hong Kong children, a training program to help poor parents in the Philippines to facilitate their children’s early learning, and a MOOC for parents and teachers worldwide to help to teach early reading better. MCBRIDE’s devotion to early education via screening, training, and teaching globally has its roots in her journal publications and books and has helped educators and parents around the world to optimize early literacy and mathematics learning based on solid research findings.*

#### **(5) Sources to corroborate the impact**

- [C1] Child Assessment Service website. “The Hong Kong Dyslexia Early Screening Scale (HKDESS)”. <https://www.dhcas.gov.hk/en/dess.html>
- [C2] Letter from Dr. LEE Mun-Yau Florence, Consultant Pediatrician, Child Assessment Service (CAS), Department of Health, Government of the Hong Kong Special Administrative Region. *[Appended]*
- [C3] Sing Tao Daily. “Chinese University website teaches young children to learn Chinese better”. *[Appended]*
- [C4] Letter from Mr. Alan Debonneville, Founder, Arcanys Early Learning Foundation, Cebu, Philippines. *[Appended]*
- [C5] Arcanys Early Learning Foundation website. <https://www.arcanysfoundation.org/>
- [C6] ICM Family Academy Data (FY 2017-2018). Extracted from the ICM database upon request (c/o Anna Alegre, Director of Education of ICM). Summary video about ICM Family Academy: <https://youtu.be/MNBwb8GlfO8>
- [C7] ICM Family Academy– Learning for all. <https://www.caremin.com/2017/04/family-academy-learning-for-all>
- [C8] World Learning. “How a New Tool Could Help Children Everywhere Learn to Read.” <https://medium.com/@WorldLearning/how-a-new-tool-could-help-children-everywhere-learn-to-read-18e20fbb351e>
- [C9] MOOC report from World Learning. [https://www.worldlearning.org/wp-content/uploads/2019/09/WL-19-050-Struggling-Readers-MOOC-Report\\_Final.pdf](https://www.worldlearning.org/wp-content/uploads/2019/09/WL-19-050-Struggling-Readers-MOOC-Report_Final.pdf) *[Also Appended]*
- [C10] Letter from Professor George Georgiou, Department of Educational Psychology, University of Alberta, Canada. *[Appended]*