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| Title | Guide to NIE projects researching English language and literature teaching from pre-school to pre-university: Completed 2010-2020 |
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Completed 2010-2020

Guide to NIE Projects Researching English Language & Literature Teaching from Pre-School to Pre-University

Prepared by Sally Ann Jones and Loh
Chin Ee

With assistance from Teoh Yong Qin

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READING

OER09/10 RS Comprehending Reading Comprehension: An Intervention in P4 Reading (Intervention, 2010-2014)

Aim

Intervention study collaborating with teachers to integrate Questioning the Author (QtA) and Noticing for Meaning (NfM) strategies into the reading comprehension classroom.

Findings

Teachers were able to change reading strategies over time. Sustained professional development and mentoring focusing on development of people rather than programmes encourage long-term sustainability for intensive interventions. Reading strategies (QtA and NfM) used can improve students' reading comprehension skills.

Professional Articles

- Silver, R. E. (2018, September). What can we learn from our learning? Schoolbased research efforts at teacher professional development and English Language education. OER Knowledge Bites, 7, 8.
- ReEd, Vol. 21, 2017, p. 5, "In Pursuit of Continuous Teacher Development"
- SingTeach, Issue 52, 2015, p. 3, "Sustaining a Teaching Intervention"
- ReEd, Vol. 14, 2014, p. 4, "Sustaining Good Classroom Interventions"
- Knowledge Resource Bank, "Questioning the Author"

Peer Reviewed Articles

- Silver, R. E. & Png, J. (2017). Learning to lead reading comprehension discussion. RELC Journal, 47(1), 71-78.

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READING

OER40/12 RS Reading Discussions and Reading Comprehension: Sustainability in Teacher Development and Opportunities for Student Learning (Intervention, 2013-2016)

Aim

Follow up of OER09/10 RS, working with participating teachers' professional development and tracking sustained use of QtA in first study.

Findings

Students who had gone through more sustained (3 years) reading comprehension intervention (QtA and NfM) showed statistically significant gains compared to students involved in an one-year intervention. Teachers need time to gain mastery over instructional strategies.

Professional Articles

- Silver, R. E. (2018, September). What can we learn from our learning? Schoolbased research efforts at teacher professional development and English Language education. OER Knowledge Bites, 7, 8.
- ReEd, Vol. 21, 2017, p. 5, "In Pursuit of Continuous Teacher Development"
- SingTeach, Issue 52, 2015, p. 3, "Sustaining a Teaching Intervention"
- ReEd, Vol. 14, 2014, p. 4, "Sustaining Good Classroom Interventions"
- Knowledge Resource Bank, "Questioning the Author"

Peer Reviewed Articles

- Silver, R. E. & Png, J. (2017). Learning to lead reading comprehension discussion. RELC Journal, 47(1), 71-78.

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READING

AFR02/14 A Two-Tiered Approach to Supporting Pupils with Reading Difficulties in P3 Mainstream Classrooms (Proof of Concept, 2014-2017)

Aim

Implementation of a class-wide peer tutoring programme known as Peer-Assisted Learning Strategies-Modified (PASL-M) for identifying and supporting P3 students with learning difficulties.

Findings

Use of differentiated questions and negotiation of meaning strategies used in a peer tutoring programme (PALS-M) had a positive impact on students' reading comprehension and can be integrated into primary schools. Primary school teachers will benefit from having knowledge to provide targeted reading support, monitoring progress, and engaging in academic problem-solving.

Professional Articles

- Tan, C.S., O'Brien, B. & Lyna (2018). A Two-Tiered Approach to Supporting Pupils With Reading Difficulties in Primary 3 Mainstream Classrooms. (NIE Research Brief Series No. 18-009). Singapore: National Institute of Education.
- ReEd, Vol. 19, 2016, p. 3, "Providing Support for Weak Readers"

PI Contact

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READING

OER58/12 OBA Early Bilingual Experience and English Literacy Acquisition: An Approach to Phonics Instruction (Intervention, 2013-2015)

Aim

Use of technology-based phonics teaching tool (SeeWord Reading App) to improve bilingual students' literacy outcomes in reading.

Findings

Higher use and exposure to English and Chinese at home were related to better outcomes in English decoding after going through a technology-based phonics intervention. Objective measures of oral language (receptive vocabulary score) did not significantly predict literacy outcomes. Teachers' interaction played a key role and further exploration of goal-based technology use to support children's language learning suggested.

Professional Articles

- ReEd, Vol. 18, 2015, p. 5, "Overcoming the Complexities of Reading in English"

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READING

OER15/14 RB Reading Lives and Practices of Singapore Teachers and the Use of Multicultural Children's Literature to Promote Socio-emotional Learning (Exploratory, 2015-2017)

Aim

Survey study of teachers' reading and use of multicultural literature for socio-emotional learning (SEL) and development of a corpus of quality multicultural children's literature for SEL.

Findings

Majority of teachers surveyed did not seem themselves accountable for developing lifelong readers and believed the role should be left to English teachers. Teachers are familiar with strategies for motivating students to read even though a large percentage (66% out of 146 teachers) identified themselves as non-devoted readers. Devoted readers in the study claim that they read regularly for pleasure.

Professional Publications

- Garces-Bacsal, R. M. & Wong, E. S. (eds.). Take Flight!: An Annotated Bibliography of Bird-themed Picture Books. (2016). Singapore: AFCC Publications.
- Garces-Bacsal (ed.). Bridges, Dragons and Books: Reflections on Asian Children's Literature. (2016). Singapore: AFCC Publications.
- Garces-Bacsal, R. M. & Kaur, S. (2015). Once Upon a Time in Singapore: Local Spin-offs to Foreign Fairy Tales. *The Read Quarterly*.
- Garces-Bacsal, R. M. & Wong, E. S. (eds.). Forest of Stories: An Annotated Bibliography of Tree-themed Picture Books. (2015). Singapore: AFCC Publications.
- Garces-Bacsal, R. M. (ed.) Asia: Land of Perennial Stories, A collection of interviews and papers from AFCC. (2014). Singapore: AFCC Publications.

Peer Reviewed Articles

- Garces-Bacsal, R. M., Tupas, R., Kaur, S., Paculdar, A. M., Baja, E. S. (2018). Reading for pleasure: Whose job is it to build lifelong readers in the classroom. *Literacy*, 52(2), 95-102.
- Garces-Bacsal, R. M., Tupas, R., and Hernandez, J. F. (2015). A Filipino Grandmother Grimm: Subversion of Foreign Fairy Tales through Indigenization and Cultural Appropriation in Mga Kuwento ni Lola Basyang (The Stories of Grandmother Basyang). *Bookbird: A Journal of International Children's Literature* (ISSN 0006 7377).
- Tupas, R. and Garces-Bacsal. (2015). Multicultural Children's Literature and compartmentalized discourses of teachers in Singapore. *Journal of Multicultural Discourses* <http://www.tandfonline.com/10.1080/17447143.2015.1134543>

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READING

OER05/16 LCE Building a Reading Culture: A Nation-wide Study of Reading and School Libraries in Singapore Secondary Schools (Baseline, 2016-2020)

Aim

Baseline study of adolescents reading habits and the role of the school library in developing a reading culture.

Findings

The study found that adolescents report that they enjoy reading but there is a decline from 15 years of age. They prefer to read in print but read more online as they grow older. Disadvantaged students (FAS) have fewer books and role models for reading. School libraries designed to encourage reading, through quality collection and programming, can encourage greater enjoyment of reading and more reading.

Professional Articles

- Loh, C. E. (2020). Design patterns for school libraries: a preliminary report 2019. Singapore: OER, NIE.
- Loh, C. E. (2020). Developing a future-ready school library collection for adolescents. OER Knowledge Bites Volume 11 (p. 6). Singapore: National Institute of Education.
- Loh, C. E. (2019). Envisioning the school library of the future: A twenty-first century framework. Singapore: OER, NIE.
- Loh, C. E. & Sundaray, S. (2019). School library perspectives survey report 2018. Singapore: OER, NIE.
- Loh, C. E. (2017). Creating Reading and Learning Spaces in Our School Libraries. OER Knowledge Bites Volume 3 (p. 5). Singapore: National Institute of Education.

Peer Reviewed Articles

- Loh & Sun. (2020). Cultural capital, habitus and reading futures: Middle-class students' networks for cultivating reading identities. British Journal of Sociology of Education, 41(2), 234-252.

- Loh, C. E., Sun, B. & Majid, S. (2020). Do girls read differently from boys? adolescents and their gendered reading habits and preferences. *English in Education* 54(2), 174-190.
- Loh, C. E. (2019). Mapping images of reading through visual juxtaposition (Invited Contribution, Special Issue: Visualising the City). *Visual Ethnography* 8(1), 31-43.
- Nichols, S. & Loh, C. E. (2019). Challenging the visual discourse of reading: or, do teen readers look like Google Images. *Changing English* 26(2), 150-162.
- Loh, C. E., Heng, T. & Wan, Z. H. (2019). Discipline and desire in spaces of reading. *Cultural Geographies in Practice*, 26(3), 401-408.
- Loh, C. E. & Sun, B., (2019). "I'd still prefer to read the hard copy": Adolescents' print and digital reading habits. *Journal of Adolescent and Adult Literacy* 62(6), 663-672.
- Loh, C. E. (2018). Change and continuity in the Singapore Literature-In-English curriculum. *Changing English* 25(1), 85-96.
- Loh, C. E., Ellis, M., Paculdar, A. & Wan, Z. (2017). Building a successful reading culture through the school library: A case study from Singapore. *IFLA Journal* 43(4), 335-347.
- Loh, C. E., Tam, A. & Okada, D. (2019, OCT). School library perspectives from Asia: Trends, challenges and innovations in Singapore, Hong Kong and Japan. Paper presentation at the International Association of School Libraries Conference, Dubrovnik, Croatia.

Book Chapters

- Loh, C. E. (2019). Cultivating joyful reading in our schools. In R. L. Wong (Ed.) (2019). *Skyscrapers, books and imagination: the evolving children's literature landscape in Singapore*. Singapore Book Council.

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READING

OER04/17 OBA Technology-Based Tools for Teaching Early Literacy Skills (Experimental, 2017-2021)

Aim

Gamified approach to beginning reading using games on tablets with Learning Support Programme (LSP) students to improve their reading skills.

Findings

Gamified technology-based approach with students enrolled in Learning Support Programme (LSP) assisted with word reading, maintained spelling and decoding but reduced fluency relative to peers. English-Chinese bilinguals benefited more from phoneme-level intervention while English-Malay bilinguals benefited more from rime-level intervention. Bilingual language learning required different strategies compared to monolingual learning.

Peer Reviewed Articles

- O'Brien, B.A., Habib, M.B. & Onnis, L. (2019). Technology-based tools for literacy: Examining factors of intervention grain size and individual differences. *Frontiers in Psychology*.

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READING

OER26/15 VV Bilingualism and Biliteracy in Preschoolers: A Longitudinal Home-School Transition Study (Baseline, 2016-2019)

Aim

Document how bilingualism and biliteracy develop in preschoolers from diverse language groups and social classes from K2 to P1 already in the SKIP study. Descriptions of the children's home language environments (HLE) included.

Professional Articles

- Vaish, V. (2019). Challenges and directions in implementing translanguaging pedagogy for low achieving students. Classroom Discourse: Special Issue. Guest Eds. Li Wei & Lin, A. 10 (3-4): 274-289

Peer Reviewed Articles

- Vaish, V. (under review). Linguistic Distance and Translanguaging: Teaching Malay-English bilingual learners. In Asia Pacific Journal of Education (Special Issue). English Language Education & Policy in Singapore Ed. Loh, Jason.

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AWARENESS

OER24/10 ZDB Morphology in Biliteracy Acquisition: An Intervention Study (Intervention, 2011-2013)

Aim

Investigate the effects of instruction in morphological awareness in English on the development of morphological skills, vocabulary knowledge, and literacy abilities in English and Malay among Singaporean bilingual children.

Findings

Post-intervention tests showed significant effects in the non-control group in English except on the fluency task. These effects were also evident in some Malay tasks, showing the benefit of morphological instruction and awareness in general. The findings suggest a possible cross linguistic transfer from English to Malay.

Professional Articles

- Zhang, D. (2016). Morphology in Malay–English biliteracy acquisition: An intervention study. *International Journal of Bilingual Education and Bilingualism*, 19(5), 546-562.

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AWARENESS

OER05/11 LCY A Narrative Inquiry into the Lived Experiences of English Teachers in Singapore Secondary Schools (Exploratory, 2012-2015)

Aim

Explore the experiential, relational, and emotional qualities of teachers' personal practical knowledge (PPK) and its links to pedagogical content knowledge (PCK). To ascertain how Singaporean teachers' PPK compares with that of teachers in the US where there has been more research in the area.

Findings

Teachers' PPK is inextricably linked to their PCK. Pedagogies, e.g., text analysis, text selection, and interacting with students to develop critical thinking is value-laden and involves emotional work. The PPK of English may be different from that of other subjects, as it includes the stresses of culturally responsive teaching involving values and marking essays.

Professional Articles

- Liew, W. M., & Loh, C. E. (2017). What can English teachers tell us about the emotional dimensions of their work? (NIE Research Brief Series No. 16-004). Singapore: National Institute of Education.

Peer Reviewed Articles

- Loh, C. E. & Liew, W. M. (2016). Voices from the ground: The emotional labour of English teachers' work. *Teaching and Teacher Education* 55, 267-278.

PI Contact

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AWARENESS

OER11/12 HHQ Integrating Classroom Discourse Corpus for Reflective Practice and Professional Development (Exploratory, 2012-2015)

Aim

Identify and bridge the gap between teacher beliefs and practice. To intervene by means of strategies developed from the Singapore Corpus of Research in Education (SCoRe). To trial and evaluate the use of authentic classroom data for teachers' professional development.

Findings

Teachers demonstrated good pedagogical content knowledge and alignment of practices with the 2010 syllabus. Authentic exemplars from the SCoRE corpus data were used for teachers' professional development by getting them to critically reflect on their classroom practices in light of the data.

Professional Articles

- Teo, P. (2017). Integrating Classroom Discourse for Reflective Practice and Professional Development. (NIE Research Brief Series No. 16-006). Singapore: National Institute of Education.

Peer Reviewed Articles

- Teo, P. (2017). Professionalizing teaching: A corpus-based approach to the professional development of teachers in Singapore. *Cambridge Journal of Education*, 48(3), 279-300.

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AWARENESS

OER21/15 LCY Investigating the Effectiveness of Language Awareness Approaches to English Language Teaching in Singapore Secondary Schools (Experimental, 2016-2018)

Aim

Investigate language awareness approaches to English teaching, including the use of Singapore Colloquial English, in diverse classes. To examine the effect on students' written language proficiency and attitudes.

Findings

The intervention was deemed unsuccessful because of the dominance of teacher-centred lessons based on IRE exchanges, teacher beliefs that their use of colloquial English would affect students' use of standard English, and department-mandated exam preparation.

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AWARENESS

AFR01/16 SAJ Learning the Language of Mathematics: An Exploration of Children's Experiences of Learning English and Mathematics at School and Elsewhere in Multilingual, Postcolonial Singapore (Exploratory, 2016-2019)

Aim

Explore the efficacy of teaching and learning in English and mathematics from the perspectives of teachers and P1, P3, and P5 pupils. To ascertain whether there is a transfer of academic language from English lessons to mathematics classes. To improve pedagogy and teacher education.

Findings

Teachers and pupils view the curriculum and each subject as segmented which can lead to the use of short-term teaching strategies. Pupils were to some degree metacognitively aware but less metalinguistically so. The capacity to transfer learning within and across subjects may be affected by individuals' bounded views of subjects and degrees of language awareness. Teachers and pupils are concerned with vocabulary and reading more than with talk for teaching, learning, and thinking. Implications for teacher education are to increase all teachers knowledge about the role of language in cognitive and linguistic development.

Professional Articles

- Jones, S. A. (2020). An Exploration of Children's Experiences of Learning English and Mathematics at School and Elsewhere in Multilingual, Postcolonial Singapore (NIE Research Brief Series No. 20-020). Singapore: National Institute of Education.
- Jones, S. A., Yeo, L. R-C., Yeo, K. K. J., Seilhamer, M. F., Loh, M. Y., & Ho, H. L. (2019). Language matters in mathematics: Singaporean primary classrooms booklet 1 [PDF file]. Singapore: National Institute of Education, Nanyang Technological University.
- Jones, S. A., Yeo, L. R-C., Yeo, K. K. J., Seilhamer, M. F., Loh, M. Y., & Ho, H. L. (2019). Dilemmas in English teaching and learning: Singaporean primary classrooms booklet 2. [PDF file]. Singapore: National Institute of Education, Nanyang Technological University.

- Jones, S. A., Yeo, L. R-C., Yeo, K. K. J., Seilhamer, M. F., Loh, M. Y., & Ho, H. L. (2019). Transfer of learning in English and mathematics: Singaporean primary classrooms booklet 3. [PDF file]. Singapore: National Institute of Education, Nanyang Technological University.

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AWARENESS

OER16/16 SLH Fostering Science Teachers' Language Awareness: Exploring Impacts on Teachers' Oral Interactions With Students to Support Science Writing (Intervention, 2017-2019)

Aim

Builds on earlier projects. Investigate teacher language awareness (TLA) and practices regarding the language of science through an inquiry approach. To examine how teachers scaffold and analyse students' writing in science.

Findings

Engaging science teachers in inquiry about the student writing can bring about changes in (i) their language awareness, (ii) teaching practices, (iii) beliefs on the role of language in science teaching and learning, and (iv) assessment practices. The use of metalanguage played an important role in making explicit the language demands of science during instruction. A framework for understanding students' language challenges was also developed as part of this study.

Professional Articles

- Seah, L. H., Adams, J., Tan, A. L., Silver, E. R. and Chin, T. Y. (2017). Fostering Science Teachers' Language Awareness Exploring the Impact on Teachers' Oral Interactions with Students to Support Science Writing. (NIE Research Brief Series No. 20-004). Singapore: National Institute of Education.

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PEDAGOGY

OER16/11 VV Use of First Language in Teaching and Learning English and Chinese (Baseline, 2011-2015)

Aim

To pilot a Mandarin-English Coding Scheme to analyse the use of Mandarin to teach English with 3 groups of low-progress learners (LSP), varied in combinations of languages. To discover which types of Mandarin use in the classroom promote English acquisition to inform future interventions and teacher education.

Findings

When students ‘translanguage,’ or use multiple languages while learning English, there is a change in the amount of talk, questioning patterns and discourse of both teachers and students. There is an increase in amount of talk (measured through Mean Length of Utterance). Pupils ask more questions though these tend to be factual and procedural questions. This approach can be used to teach complex vocabulary (like homophones), grammar (like possessives) and discourse (like story telling).

Peer Reviewed Articles

- Vaish, V. (2018). Translanguaging pedagogy for simultaneous biliterates struggling to read in English. *International Journal of Multilingualism*, 16(3), 286-301.
- Vaish, V. & Subhan, A. (2015). Translanguaging in a reading class. *International Journal of Multilingualism*, 12(3), 338-357.

Books

- Vaish, V. (2020). Translanguaging in Multilingual English Classrooms: An Asian Perspective and Contexts. Singapore: Springer.

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PEDAGOGY

OER04/12 TCS Exploring the Dialogic Space in Teaching: A Study of Pre-university Classroom Talk in Singapore (Baseline, 2012-2014)

Aim

Investigate the process of knowledge construction in General Paper lessons against the principles of dialogic teaching. To examine find how GP teachers teach with a focus on the extent to which and how they encouraged critical thinking and knowledge construction.

Findings

Teachers tend to ask more 'display' than 'exploratory' questions in class. They acknowledge what students say but seldom ask them to clarify or justify. This pattern of teacher talk discourages dialogue, discussion and debate. It stifles students' critical thinking and discourages knowledge co-construction.

Professional Articles

- Teo, P. (2017). A baseline study on the perceptions and practices of General Paper teaching and learning in Singapore: Report on lesson observations. Singapore.

Peer Reviewed Articles

- Teo, P. (2019). Teaching for the 21st century: A case for dialogic pedagogy. Learning, Culture and Social Interaction, 21, 170-178.
- Teo, P. (2016). Exploring the dialogic space in teaching: A study of teacher talk in the pre-university classroom in Singapore. Teaching and Teacher Education, 56, 47-60.

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PEDAGOGY

OER48/12 TKS Developing Disciplinary Literacy Pedagogy in the Sciences (Intervention, 2013-2016)

Aim

Examine physics and chemistry teachers' teaching of literacy in their subjects as a baseline for an intervention. To evaluate the pedagogic strategies of the intervention.

Findings

Baseline observation showed teacher-centred classrooms focusing on vocabulary and explanations. The literacy-focused intervention increased time spent on discussion and writing to support scientific inquiry. Teachers used meta-discoursal strategies to teach thinking and expression. Students' grades for explanations in summative assessments improved.

Peer Reviewed Articles

- Tang, K.S. & Rappa, N.A. (2020). The role of metalanguage in an explicit literacy instruction on scientific explanation. International Journal of Science and Mathematics Education.
- Tang, K.S. (2020). The Use of Epistemic Tools to Facilitate Epistemic Cognition & Metacognition in Developing Scientific Explanation. Cognition & Instruction, 38(4), 474-502.
- Tang, K.S. (2017). Analyzing teachers' use of metadiscourse: The missing analytical focus in classroom discourse analysis. Science Education, 101(4), 548-583.
- Tang, K.S. (2016). Constructing scientific explanations through premise-reasoning-outcome (PRO): An exploratory study to scaffold students in structuring written explanations. International Journal of Science Education, 38(9), 1415-1440.
- Tang, K.S. (2016). How is disciplinary literacy addressed in the science classrooms? A Singaporean case study. Australian Journal of Language and Literacy, 39(3), 220-232.

Books

- Tang, K. S. (2020). Discourse Strategies for Science Teaching & Learning: Research and Practice. New York: Routledge.

Book Chapter

- Tang, K. S., & Putra, G.B.S. (2018). Infusing literacy into an inquiry instructional model to support students' construction of scientific explanations. In K. S. Tang & K. Danielsson (Eds.), *Global developments in literacy research for science education* (pp.281-300). Cham, Switzerland: Springer.
- Putra, G.B.S. & Tang, K. S. (2017). Supporting Scientific Report Writing in a Chemistry Classroom. In J. Yeo, T.W. Teo, & K.S. Tang (Eds.), *Science Education Research and Practice in the Asia-Pacific and Beyond* (pp.53-67). Singapore: Springer.
- Tang, K. S., Ho, C., & Putra, G. B. (2016). Developing Multimodal Communication Competencies: A Case of Disciplinary Literacy Focus in Singapore. In Hand, B., Mcdermott, M. & Prain, V. (Eds.), *Using Multimodal Representations to Support Learning in the Science Classroom* (pp.135-158). Springer.

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PEDAGOGY

OER64/12 JL Literacy Teaching in Singapore: A Study of Teachers' Perceptions and Practices (Case Study, 2013-2015)

Aim

Examine beginning and experienced teachers' perceptions of the English curriculum and their practice in 2 schools (maximum variation sampled). To elicit their recommendations for improvement to inform teacher education and curriculum design.

Findings

Teachers in both schools viewed flexibility in adapting the literacy programme to be essential in creating "buy-in" and developing a sense of ownership. An over-focus on examinations could subvert the national literacy reform initiative. The national literacy initiative needs to be given official sanction and explicit support from a school's management to be successfully implemented.

Peer Reviewed Articles

- Loh, J., Hong, H. & Koh, E. (2017). Transforming teaching through collaborative reflection: A Singaporean case study. Malaysian Journal of ELT Research, 13(1), 1-11
- Loh, J. & Renandya, W. (2015). Exploring adaptations of materials and methods: A case from Singapore. The European Journal of Applied Linguistics and TEFL, 4(2), 93-111.
- Koh, E., Loh, J. & Hong, H. (2013). A snapshot approach of a smartphone-enabled implementation. Research and Practice in Technology Enhanced Learning, 8(1), 91-115.

Book Chapters

- Hong, H., Koh, E., Loh, J., Tan, C.M. & Tan, H.M. (2016). Exploring Parental Involvement in Smartphone-enabled Learning. In Chai, C.S., Lim, C.P, & Tan, C.M. (Eds.), Future Learning in Primary Schools - A Singapore Perspective (pp. 159 - 176). Singapore: Springer.

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PEDAGOGY

OER65/12 SLH Building on Teachers' Knowledge About Students' Language-related Challenges in Science (Intervention, 2013-2015)

Aim

Examine and build science teachers' competence in teaching the language of science from a descriptive baseline to an intervention. To develop teachers' skills in teaching the language of science.

Findings

Teachers saw students' limited vocabulary as a block to understanding and representing science. A content-focused and exam-oriented approach to science teaching was evident. Teachers' awareness of the language demands of science improved with the intervention which each of 3 teachers implemented differently. An implication is to increase science teachers' awareness of the operation of language in teaching and learning science.

Professional Articles

- Seah, L. H. (2017, November). Science reading: The elephant in the science classrooms? In D. Kwek (Ed.), OER Knowledge Bites: Science Education in Singapore: Where to Next?, 5, 9-10.
- Seah, L. H. (2015). Building on teachers' knowledge about students' language-related challenges in science. Singapore.

Peer Reviewed Articles

- Seah, L. H., & Chan, K. K. H. (2021). A case study of a Science teacher's knowledge of students in relation to addressing the language demands of Science. International Journal of Science and Mathematics Education, 19, 267-287.
- Seah, L. H & Yore, L. D. (2017). The roles of teachers' science talk in revealing language demands within diverse elementary school classrooms: A study of teaching heat and temperature in Singapore. International Journal of Science Education, 39, 2, 135-157.
- Seah, L. H. (2016). Elementary teachers' perception of language issues in Science classrooms. International Journal of Science and Mathematics Education, 14(6), 1059-1078.

- Seah, L. H. (2016). Understanding the conceptual and language challenges encountered by grade 4 students when writing scientific explanations. Research in Science Education, 46(3), 413-437.

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PEDAGOGY

OER16/14 SLH Understanding How Teachers Design Lessons in Response to the Language Demands of Science (Intervention, 2015-2017)

Aim

Investigate teachers' perceptions of the language demands of science across a variety of topics. Mount an intervention and examine how teachers carry it out, what they think of it, and how it affects students' learning outcomes.

Findings

Teachers were concerned with four main kinds of language demands in science: technicality, grammar, construction of sentences, and understanding of questions. There were individual variations in how teachers attended to language in their teaching. It is important for teachers to plan for language teaching at strategic points in science lessons.

Professional Articles

- Seah, L. H. Raja, P. Tan, L. C. (2017). Understanding How Teachers Design Lessons In Response To The Language Demands Of Science. Singapore.
- Seah, L. H. (2017). Attending to the Language Demands in Science Classrooms. (NIE Research Brief Series No. 17-023). Singapore: National Institute of Education.

Peer Reviewed Articles

- Seah, L. H. (2020). What student language reveals about the demands of learning the human circulatory system. Research in Science Education.
- Seah, L. H. & Silver, R. E. (2020). Attending to science language demands in multilingual classrooms: a case study. International Journal of Science Education, 42(14), 2453-2471.

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PEDAGOGY

OER20/15 JL Reforming the Language Curriculum: An Implementation Perspective (Evaluation, 2016-2019)

Aim

Continuation of OER 64/12 JL. Examine the implementation of the STELLAR programme in primary schools to judge efficacy. Research in different types of primary schools (government, government-aided [missionary] & government-aided [clan association]). Implications for curriculum reform and implementation.

Findings

All schools studied were refining STELLAR for their local contextual needs. In order for STELLAR to improve student engagement and learning, there needs to be sustained implementation. Teachers can only build expertise in particular instructional strategies over time. It is critical to train teachers not only to use the STELLAR procedures but to acquire theoretical and practical understandings of STELLAR, so that they can make more informed and principled decisions to adapt it. The STELLAR Unit could articulate and communicate the core and peripheral components of STELLAR 2020, and guide schools to adapt STELLAR to fit specific school contexts and particular learning needs of their pupil population.

Professional Articles

- Loh, J. & Lam, S. (2018, April). Implementation of STELLAR®: Current Status, Themes & Recommendations (Preliminary Report, April 2018), 45.

Peer Reviewed Articles

- Loh, J. & Hu, G. (in press). Understanding middle leaders' concerns in curriculum change: A missing perspective. *Asia Pacific Journal of Education*.

Book Chapters

- Loh, J. (2020). Stellar curriculum materials: Supporting teachers and improving teaching practices. In Smart, A. & Sinclair, . (Eds.), *NISSEM Global Briefs Vol. 2: Educating for the social, the emotional and the sustainable: Pedagogy, practice and materials*.(PP. 226-237). N.A. : NISSEM
- Loh, J. & Hu, G. (2018). STELLAR® (Strategies for English Language Learning and Reading). In Lontas, J. (Ed.), *TESOL encyclopedia of English language teaching: Current trends and future directions*(PP. 1-7). Malden, MA: John Wiley & Sons, Inc.

- Loh, J. (2018). Implementing and sustaining language curriculum reform in Singapore primary schools. In Hall, G. E., Gollnick, D. M. & Quinn, L. F. (Eds.), The Wiley Handbook of Teaching and Learning(PP. 151-172).

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21st CENTURY LITERACIES

OER05/12 TKS Harnessing Popular Media for Science Learning and Critical Literacy (Intervention, 2012-2013)

Aim

Exploratory study to understand how JC students make connections between out-of-school media and school curriculum and instruction in physics education. Exploring students' critical media literacy in science.

Findings

Expert students applied what they had learned in physics to new contexts that were relevant to their personal interests to generate new understandings. Juxtaposition of out-of-school media to school curriculum enabled students to critique different social ways of constructing knowledge. Students gained increased meta-language awareness about language consumption and production, and were able to evaluate sources more critically.

Peer Reviewed Articles

- Rappa, N. A., & Tang, K.S. (2017). Student Agency: An analysis of students' networked relations across the informal and formal learning domains. *Research in Science Education*, 47(3), 673-684.

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21st CENTURY LITERACIES

OER50/12 CW Media Literacy in the Teaching of English in Singapore (Exploratory, 2013-2016)

Aim

Survey of students' media literacy knowledge and development of a pedagogical approach to systematically infuse teaching of media literacy in the English language classroom.

Findings

School media literacy education tends to focus on cyber wellness and less on training in technical and production skills. Media literacy training should include creative expression, beyond critical analysis and ethics. Media literacy needs to be taught beyond the English classroom.

Professional Articles

- SingTeach, Issue 51, 2014, "Learning Ethics with Social Media"
- ReEd, Vol. 11, 2013, p. 8, "Are You Media Literate?"

Peer Reviewed Articles

- Weninger, C. (2020). Investigating ideology through framing: a critical discourse analysis of a critical literacy lesson. Classroom Discourse, 11(2), 107-128.
- Weninger, C. (2018). A contextual critique of critical literacy: Freirean 'generative themes' and their impact on pedagogic practice. Discourse: Studies in the Cultural Politics of Education, 39(1), 84-97.
- Weninger, C. (2018). Problematizing the notion of 'authentic school learning': Insights from student perspectives on media/literacy education. Research Papers in Education, 33(2), 239-254.
- Weninger, C. (2017). The 'vernacularisation' of global education policy: Media and digital literacy as 21st century skills in Singapore. Asia Pacific Journal of Education, 37(4), 500-516.
- Weninger, C., Hu, G.W. & Choo, S.S. (2017). The influence of individual and contextual variables on teachers' understanding and classroom practice of media literacy. Teaching and Teacher Education, 67, 429-439.
- Weninger, C., Singh, J. S. & Loi, I. (2015). What does it take to collaborate? Journal of Adolescent and Adult Literacy, 59(6), 631-635.

Books

- Weninger, C. (2018). From Language Skills to Literacy. London: Routledge.

Book Chapters

- Weninger, C. (2017). Media literacy education in Singapore: Connecting theory, policy and practice. In Chan, K., Zhang, K. & A. Lee (Eds.), Multidisciplinary approaches to media literacy (pp. 383-400). Beijing: Communication University of China Press.

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21st CENTURY LITERACIES

OER03/17 RDR Investigating Digital Literacies as 21st Century Competencies among Normal Technical Students (Baseline, 2017-2020)

Aim

Collaborative study with one secondary school to investigate how to infuse 21st century competencies (digital literacies) in the Normal Technical curriculum.

Findings

Unavailable at Present.

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WRITING AND REPRESENTING

OER21/10 GLB Building a Singapore Learner Corpus of English Writing for Pedagogy (Exploratory, 2012-2014)

Aim

Examine students' writing development. Build a learner corpus of English writing at P6, S4, and JC2 to create linguistic profiles which can be assessed against syllabus requirements and provide grounds for practice, policy-making, and theory-building.

Findings

Using SFG, the study found conceptual development at 3 levels related to linguistic choices and writing tasks. At P6 the personal and familiar predominated, at S4 and JC the abstract, systematic, and theoretical. The main differences were in students' use of discourse markers, grammatical metaphor, and nominalizations. Writing teachers should know about writing development and include a focus on discourse markers and the use of grammar to package information effectively in their teaching. The project corpus can be used for teacher education.

Professional Articles

- ReEd, Vol. 06, 2012, p. 6, "[Building a Corpus of English Writing](#)"

Peer Reviewed Articles

- Zhang, R., Guo, L. & Hong, H. (2013). [Building a Singapore Learner Corpus of English Writing for Pedagogy](#). *Boğaziçi University Journal of Education*, 30(1).

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WRITING AND REPRESENTING

OER19/14 TK Fostering Cross-Cultural Communication and Understanding in the English Language Writing (Exploratory, 2014-2017)

Aim

Explore how teachers facilitate 21st century cross-cultural competences in writing and representing. To create principles and instructional strategies based on the data gathered in the project.

Findings

Teachers did not plan to teach cross-cultural aspects of writing because of fear of sensitive issues, exam preparation, and underestimation of students' cognitive abilities. Implications are to provide professional development for teachers in the area, the operationalization of the Culture in PACC, and the connection of cross-cultural skills with English and other curriculum disciplines.

Professional Articles

- Mizusawa, K. (2018). *Mastering Visual Literacy* (PP. 116). Singapore: Star Publishing.

Peer Reviewed Articles

- Mizusawa, K. & Kiss, T. (2020). Connecting multiliteracies and writing pedagogy for 21st century English language classrooms: Key considerations for Singapore and beyond. *Journal of Nusantara Studies*, 5(2), 192-214.
- Tupas, R. & Weninger, C. (2020). Mapping out unequal Englishes in English-medium classrooms. *Journal of Language, Identity & Education*.
- Kiss, T., & Mizusawa, K. (2018). Revisiting the Pedagogy of Multiliteracies: Writing instruction in a multicultural context. *Changing English*, 25(1), 59-68.

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WRITING AND REPRESENTING

OER07/15 CYL A Socio-Cognitive Approach to Teaching English Language Writing: Impact on Primary School Students' Compositions (Exploratory, 2015-2018)

Aim

Investigate differences in current ways of teaching writing compared to a socio-cognitive approach (explicit teaching of thinking processes) for underachieving pupils.

Findings

Underachieving children wrote better with socio-cognitive scaffolding. Scaffolding included explicit outcomes and expectations, schema building, and development of metacognition. 3 experimental groups were delineated by achievement (1=lowest achievement). After intervention, all pupils improved in macro-organization, all wrote longer texts, G2 & G3 improved variety of vocabulary, G1 improved in syntactic complexity, and all made fewer errors in punctuation.

Professional Articles

- Cheung, Y. L., Ng, C. H., & Lim, C. T. D. (2019). Socio-cognitive Approach to Teaching English Language Writing: Impact on Primary School Students' Compositions. (NIE Research Brief Series No. 19-002). Singapore: National Institute of Education.

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SPEAKING

OER10/11 NTTM Input, Output, Interaction and Pragmatics. A Study of the Effects of Adult-Child Interaction on Singaporean Children's Acquisition of Speech Acts (Baseline, 2012-2014)

Aim

Investigate early pragmatic development of bilingual English speaking children through studying their input, output, and interaction with parents. Additionally, to create a typology of speech acts in families who speak the Singaporean variety of English.

Findings

Parents taught children through reactive feedback strategies, which were mainly elicitation, explicit correction, and modelling. Indirect feedback providing clues rather than correct forms was more successful. Older children benefitted from this type of feedback the most. Findings suggest a developmental path of speech acts with some emerging ahead of others. Implications for schools are that teachers could know more about pragmatic competence and teach it alongside other aspects of language.

Peer Reviewed Journals

- Nguyen, M. T. T., & Lwin, M. S. (2014). Effects of parents' corrective feedback on the pragmatic performance of L1 English-speaking Singaporean children. The Asian Journal of Applied Linguistics, 1(2), 129-48.

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SPEAKING

OER13/13 JY Developing a Framework for Assessing Students' Construction of Scientific Explanations in Physics (Exploratory, 2014-2017)

Aim

Develop and test a framework of the features of scientific explanation which can be used for assessment and pedagogy. (A continuation of a small earlier multidisciplinary study.)

Findings

Students used mainly interpretive and causal explanations. The thinking and reasoning behind each is different. The representational framework of scientific explanation which uses SFG includes three aspects that students need to attend to in constructing a scientific explanation: a belief in the nature of science, awareness of function, and of the meta-functions of language. The researchers note that teachers find SFG difficult.

Peer Reviewed Articles

- Yeo, J., & Gilbert, J. K. (2014). Constructing a Scientific Explanation—A Narrative Account. *International Journal of Science Education*, 36(11), 1902-1935.

Book Chapters

- Yeo, J., & Gilbert, J. K. (2017). The role of representations in students' explanations of phenomena in physics. In D. F Treagust, R. Duit, & H. E. Fischer (Eds.), *Multiple representations in physics education* (pp. 255-287). Cham: Springer International Publishing.

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SPEAKING

AFD05/15 SL Teaching and Learning English Pronunciation by Generating the Vocal Tract Shapes from the Frequency Domain Information (Developmental, 2016-2018)

Aim

Develop machine-learning algorithms to represent speech spectrographically and visually. The visual representations to be used to develop a speech app for learners to improve their pronunciation. The app viewed primarily as a tool for self-directed learning.

Findings

Machine learning was applied to speech in phoneme classification, segmentation of phonemes, accent identification, and vowel gesture identification in the creation of the 'Speechie' app. The app can be used as a pronunciation learning and remediation tool by individuals or in classes.

Professional Articles

- Balamurali, B. T., Lin, K. E., Lui, S., Chen, J.-M. & Herremans, D. (2019). Toward Robust Audio Spoofing Detection: A Detailed Comparison of Traditional and Learned Features. IEEE Access, 7, 84229-84241.

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GRAMMAR AND LEXIS

OER47/12 LA Investigating the Development of Grammar in the Writing of Primary School Children in Singapore (Exploratory, 2013-2015)

Aim

To study the development of pupils' grammar over 6 years of primary school through a corpus of essays collected as part of MOE's longitudinal Early Literacy Research Study, conducted from 2007 to 2012. To add to theories of language acquisition.

Findings

Found similar error frequencies over the levels. The most frequent being use of tense and aspect, punctuation, spelling, collocation, and clause structures. This could be due to over teaching grammatical rules and the interplay of the Mother Tongues with English. Additionally, errors in clause structure and punctuation are linked and possibly due to the practice of separating the teaching of punctuation from its function in sentence structure.

Peer Reviewed Articles

- Alsagoff, L. (2016). Interpreting error patterns in a longitudinal primary school corpus of writing. *The Asian Journal of Applied Linguistics*, 3(1), 114-124.

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GRAMMAR AND LEXIS

DEV01/16 CGG Improving Disciplinary Literacy by Developing Vocabulary and Grammatical Profiles (Developmental, 2016-2019)

Aim

To create a corpus of about 28 million words from upper secondary, JC and university textbooks of some of the vocabulary and grammatical patterns of the curricular disciplines. This can inform teaching. (Corpus not to be retained due to copyright).

Findings

Found extensive variation in school language of different disciplines rather than merely a generalized academic vocabulary. Produced a Secondary Vocabulary List and a Secondary Phrase List for a variety of disciplines consisting of content words and lexico-grammatical patterns and phrases.

Professional Articles

- Green, C., & Lambert, J. (2019). Improving Disciplinary Literacy by Developing Vocabulary and Grammatical Profiles (NIE Research Brief Series No. 19-019). Singapore: National Institute of Education.

Peer Reviewed Articles

- Green, C., & Lambert, J. (2019). Position vectors, homologous chromosomes and gamma rays: Promoting disciplinary literacy through secondary phrase lists. English for Specific Purposes, 53, 1-12.
- Green, C. & Lambert, J. (2018). Advancing disciplinary literacy through English for academic purposes: Discipline-specific wordlists, collocations and word families for eight secondary subjects. Journal of English for Academic Purposes, 35, 105-115.

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ASSESSMENTS

OER07/12 CYH Teacher and Student Perceptions of Peer Assessment for English Writing (Intervention, 2012-2014)

Aim

Design of a web-based peer assessment (SWoRD or Scaffolding Writing and Rewriting in the Discipline) to allow secondary school students to revise writing, arguments and idea development, with peer feedback.

Findings

Teachers and students responded well to peer assessment. Peer review tended to focus on ideas and arguments development and teachers tended to focus on grammatical competencies. Students of different epistemological stances view the usefulness of peer comments differently. For example, students who adopt the multiplist stance (i.e., believed that there could be more than one single truth) generally felt more positive about their peers' comments, whereas students with the evaluativist stance (i.e., believed in truths that are backed with evidence) tended to perceive peer comments as being more useful than teacher comments.

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ASSESSMENTS

AFD03/17 VA Cognitive Diagnostic Assessment System (CoDiAS) for Singapore's Secondary Schools: Toward Individualized Learning and Assessment in Language Education (Baseline, 2017-2020)

Aim

Development of an online Cognitive Diagnostic Assessment System (CoDiAS) for individualized learning and formative assessment of English reading comprehension.

Findings

A protocol for the selection of reading comprehension texts and questions was designed. An online reading comprehension test was selected. The pre-test was found to have good measurement qualities. Students (who had the choice to continue with the reading assignments) who continued with the task benefited. Students still needed to be motivated to sustain engagement with online formative reading tasks to improve their reading comprehension.

Professional Articles

- Aryadoust, V. & Loh, C. E. (2020). An Introduction to Cognitive Diagnostic Assessment System. OER Knowledge Bites Volume 12 (p. 8). Singapore: National Institute of Education.

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LITERATURE

OER22/17 CSL Cultivating Cosmopolitan Virtues through Critical, Aesthetic and Ethical Engagements with Literature (Baseline & Intervention, 2017-2020)

Aim

This project encompassed a National Survey of Literature Teachers Beliefs and Practices that provided a contextual overview of Literature education in Singapore which was followed by the design and implementation of Literature units to explore how cosmopolitan dispositions and values can be fostered through critical, aesthetic and ethical engagements with Literature.

Findings

- Values of empathy, openness and persuasion were key values emphasized in the teaching of Literature. Top three objectives of Literature education centered on appreciating the literary elements of texts, encouraging personal response, and fostering a sense of empathy for others.
- Cultivating a sense of national belonging was least prioritized in contrast to developing global awareness and engaging with universal concerns through literature.
- Opportunities to integrate aesthetic questions with critical and ethical questions occurred when units were designed around ethical issues.
- The design and implementation of Literature units related to national belonging, such as explorations of race and identity, raised greater awareness of discrimination although this may not necessarily lead to prosocial behaviour of all students and teachers' facilitation of empathy is crucial.

Professional Articles

- SingTeach, 2021, "[Cultivating Cosmopolitan Virtues through Literature](#)"
- Choo, S. S., Yeo, D., & Chua, B. L. (2021). [A National Survey of Literature Teachers' Beliefs and Practices](#) (NIE Research Brief Series No. 21-006). Singapore: National Institute of Education.
- Choo, S. S., Yeo, D., Chua, B. L., Palaniappan, M., Beevi, I., & Nah, D. (2020). [National Survey of Literature Teachers' Beliefs and Practices](#). Singapore: National Institute of Education.
- [21CC Literature Research Interest Group](#)

Peer-Reviewed Articles

- Choo, S. S., Chua, B. L., & Yeo, D. (2021). The Challenge of Cultivating National and Cosmopolitan Identities Through Literature: Insights From Singapore Schools. *Reading Research Quarterly*, 57(3).
- Choo, S. S. (2020). Developing cosmopolitan habits through dispositional routines. *English Journal*, 109(4), 107-108.
- Choo, S. S. (2020). Examining models of twenty-first century education through the lens of Confucian Cosmopolitanism. *Asia Pacific Journal of Education*, 40(1), 20-34.
- Choo, S. S. (2018). The need for cosmopolitan literacy in a global age: Implications for teaching literature. *Journal of Adolescent and Adult Literacy*, 62(1), 7-12.

Book Chapters

- Choo, S. S. (2020). Cultivating cosmopolitan dispositions through Literature: Examples from Singapore schools. In Alviar-Martin, T. & Baildon, M. C. (Eds.), *Research on Global Citizenship Education in Asia*. Charlotte, NC: Information Age Publishing.
- Choo, S. S. (2019). World-seeing and world-making: The role of aesthetic education in cultivating citizens of the world. In Peterson, A., Stahl, G., & Soong, H. (Eds.), *The Palgrave Handbook of Citizenship and Education*. Cham, Switzerland: Palgrave Macmillan.

Books

- Choo, S. S. (2021). Teaching ethics through Literature: The significance of ethical criticism in a global age. London: Routledge.
- Yeo, D., Ang, A., & Choo, S. S. (Eds.). (2020). *The world, the text and the classroom: Teaching Literature in Singapore secondary schools*. Singapore: Pearson.

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