



Curriculum Vitae

Khajornsak Buaraphan, Ph.D.

Associate Professor in Education

Date of Birth: August 5, 1975

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UKPSF Level: Senior Fellow (Reference No. PR301601)

Date awarded: 6 February 2025



Education:

2001-2006

Ph.D. in Science Education (International Program)

Kasetsart University, Bangkok, Thailand

(Scholarship from the Institute for the Promotion of Teaching Science and Technology, Thailand)

Ph.D. thesis entitled "The Development and Exploration of Preservice Physics Teachers' Pedagogical Content Knowledge: From a Methods Course to Teaching Practice" (won the 2007 Thesis Award (Education) from the National Research Council of Thailand)

2003 - 2004

Exchange doctoral student, the Centre for Science and Technology Education Research (CSTER), University of Waikato, Hamilton, New Zealand

1993 -1997

B.Ed. (1st Class Honor) (Physics)

Rajabhat University Chiang Rai, Chiang Rai, Thailand

(Scholarship from the Ministry of Education, Thailand)

Work Experience:

2018-2020

Program Director

Institute for Innovative Learning, Mahidol University, Nakorn Phatom, Thailand

2014- Present

Associate Professor in Education

Institute for Innovative Learning, Mahidol University, Nakorn Phatom, Thailand

2011- 2014

Assistant Professor in Education
 Assistant Director of Academic Service
 Institute for Innovative Learning, Mahidol University, Nakorn Phatom, Thailand
 2008 – 2010
 Lecturer
 Institute for Innovative Learning, Mahidol University, Nakorn Phatom, Thailand
 2006 - 2008
 Lecturer
 Faculty of Education, Kasetsart University, Bangkok, Thailand
 1997 – 2000
 Science Teacher
 Doi Ngam Wittayakom Secondary School, Chiang Rai, Thailand

Graduate Student Supervision Experience:

As Major Advisor

2023 Phuong Huy Lam	Ph.D. Science and Technology Education
2022 Yanathip Kongnukool	Ph.D. Science and Technology Education
2019 Jarah Gertrudes Mallillin Espiritu	Ph.D. Science and Technology Education
2017 Soonthareeya Sanium	Ph.D. Science and Technology Education
2017 Ong Dee Jean	Ph.D. Science and Technology Education
2014 Chanonya Chaiwongroj	Ph.D. Science and Technology Education
2014 Ziaul Abedin Forhad	Ph.D. Science and Technology Education
2014 Kitphajon Matmuang	Ph.D. Educational Administration
2014 Tshewang Namgyel	M.Sc. Science and Technology Education
2013 Choojit Sarapak	Ph.D. Science and Technology Education
2010 Tongta Somchaipeng	Ph.D. Science and Technology Education

As Co-advisor

2019 Sasipim Poompimol	Ph.D. Science and Technology Education
2018 Chanayuth Changpetch	Ph.D. Science and Technology Education
2018 Arinchaya Threekunprapa	Ph.D. Science and Technology Education
2018 Santhanat Punyasettro	Ph.D. Science and Technology Education
2017 Andang Adi Fitria Hananto	M.Sc. Science and Technology Edu
2016 Chulaluk Yimdee	Ph.D. Science and Technology Education
2016 Narisra Komalawardhana	Ph.D. Science and Technology Education
2016 Mustakeen Che-Leah	M.Sc. Science and Technology Education
2016 Suchot Sinthsirimana	Ph.D. Science and Technology Education
2016 Apinya Dhatsuwan	Ph.D. Science and Technology Education
2015 Jampel Choda	M.Sc. Science and Technology Education
2015 Dumcho Wangdi	M.Sc. Science and Technology Education
2014 Brian Phillips	Ph.D. Science and Technology Education
2007 Pinitnan Nuangchakoun	M.Ed. Science Teaching
2007 Weeraphan Chareonlikitkawin	M.Ed. Science Teaching

Research Interests:

- Entrepreneurship Education (EE)
- Community-Based Economy
- Technological Pedagogical and Content Knowledge (TPACK)
- Pedagogical Content Knowledge (PCK)
- Nature of Science (NOS)
- PCK for NOS
- Science teacher professional development

- Physics teaching and learning
- Multigrade teaching (MGT)
- Context-based, integrated curriculum
- STEM Education
- STEAM Education
- Flipped classroom
- Metacognition
- Scientific argumentation
- Assessment in Education

Publications:

Journals

1. Somboontanont, W., **Buaraphan, K.**, Amnatsatsue, K., Kaewboonchoo, O., & Kerdmongkol, P. (2026). Enhancing gerontological nurse practitioner trainees' diagnostic and health screening competencies through competency case-based learning (CCBL). *Thai Journal of Public Health*, 56(2), 2309–2332. (SJR Q4 & TCI Tier 1)
2. Sanium, S. & **Buaraphan, K.** (2026). Designing a method course for developing pre-service science teachers' metacognition and pedagogical content knowledge for teaching with metacognition. *AIP Conference Proceeding*, 3423, 020003. (SJR = Q4) <https://doi.org/10.1063/5.0337794>
3. Sorntachoti, K., & **Buaraphan, K.** (2026). The development of inquiry with induction and deduction learning model for teaching mathematics for enhancing Grade 10 students' mathematical skills and processes and attitudes toward learning mathematics. *Journal of Education and Human Development Sciences*, 10(2), 38–85. (TCI2)
4. Wachirapathummut, P. & **Buaraphan, K.** (2026). Integrating Community Economy Context-Based Learning and Entrepreneurship Education to Enhance Entrepreneurial Language Skills. *Sustainability*, 18(3), 1537.
5. Srichana, P., & **Buaraphan, K.** (2025). Developing and validating an EE–SEP administration model for Thai primary schools. *Education Sciences*, 15(9), 1178. (JCR Impact Factor = 2.6, SJR = Q1) <https://doi.org/10.3390/educsci15091178>
6. Sorntachoti, K. & **Buaraphan, K.** (2025). Development of inductive–deductive inquiry model for teaching conic sections in grade 10 mathematics. *Journal of Innovative Learning*, 1(2), 12–30.
7. Prompat, W. & **Buaraphan, K.** (2025). Designing an empowerment-based supervision model emphasizing lesson study: Insights from Kalasin Primary Education. *Journal of Innovative Learning*, 1(2), 73–96.
8. Julkaew, T. & **Buaraphan, K.** (2025). The development of STREAM teaching unit for enhancing students' creative and engineering design process skills in the Motion topic. *Anatolian Journal of Education*, 10(1), 117–126. (Indexed: ERIC)
9. Espiritu, J G. M. & **Buaraphan, K.** (2024). Innovative approach to teaching EFL through a game-based speaking mobile application. *International Journal of Information and Education Technology*, 14(10), 1422–1434. (Indexed: SCOPUS)
10. Utmeemang, R. & **Buaraphan, K.** (2024). Effects of small-scale chemistry STEM integrated with local contexts for enhancing grade 11 students' learning achievement and learning and innovation skills. *Ecletica Quimica*, 49, e-1561. <https://doi.org/10.26850/1678-4618.eq.v49.2024.e1561> (Indexed: SCOPUS)

11. Pookduang, P. & **Buaraphan, K.** (2024). The development of a science, technology and society phenomenon-based learning model for promoting grade 12 students' problem-solving in geohazard. *Asian Journal of Education and Training*, 10(3), 141-145. <https://doi.org/10.20448/edu.v10i3.5859>. (Indexed: ERIC)
12. Sorntachoti, K. & **Buaraphan, K.** (2024). The development of situational problem-based learning model integrated with technological pedagogical and content knowledge in teaching mathematics for grade 10 students. *AIP Conference Proceedings*, 3024(1), 050045-1–050045-9.
13. Wongsas, S. & **Buaraphan, K.** (2024). The development of TPACK-STEAM model for teaching volume and surface area of sphere in mathematics for grade 9 students. *AIP Conference Proceedings*, 3024(1), 050046-1–050046-6.
14. Thongkum, S. & **Buaraphan, K.** (2024). Integrating technological pedagogical and content knowledge (TPACK) with experiential learning: A challenges in teaching mathematics in COVID-19 pandemic situation. *AIP Conference Proceedings*, 3024(1), 050043-1–050043-9.
15. Nansha, S. & **Buaraphan, K.** (2024). The development of contextual situation-based learning for developing grade 10 students' learning achievement and problem-solving skills in the set topic in mathematics. *AIP Conference Proceedings*, 3024(1), 050044-1–050044-8.
16. Poompimol, S., Panjaburee, P., Yasri, P., & **Buaraphan, K.** (2023). Effects of board game with different debriefing preferences on cyberbullying prevention. *IAFOR Journal of Education: Studies in Education*, 1(3), 207-234. (Q3)
17. Sanium, S. & **Buaraphan, K.** (2022). Developing a coding scheme for exploring preservice science teachers' metacognition in a method course. *Sustainability*, 14: 1-16. (JCR Impact Factor = 3.251, SJR = Q1)
18. Sanium, S. & **Buaraphan, K.** (2021). Ninth-grade students' metacognitive experience from learning with the metacognitive experience learning box in the equilibrium of moments. *The International Journal of Science, Mathematics and Technology Learning* 28 (1): 41-59. (Scopus, SJR = Q4)
19. Ong, D. J., **Buaraphan, K.**, Laosinchai, P., Nokkaew, A. (2020). Calorie Counter: A board game for teaching nutrition to Grade six students. *The International Journal of Science, Mathematics, and Technology Learning*, 27(1), 1-12. (Scopus, SJR = Q4)
20. Chaiwongroj, C. and **Buaraphan, K.** (2020). Development and effectiveness assessment of a sex education learning unit for Thai primary students. *Journal of Health Research*, 34(3), 183-193. (Scopus, SJR = Q4)
21. Chaiwongroj, C. and **Buaraphan, K.** (2020). Development and effectiveness assessment of a sex education learning unit for Thai primary students. *Journal of Health Research*, 34(4), x-xx. (Scopus, SJR = Q4)
22. Pimvichai, J., **Buaraphan, K.**, Yuenyong, C., & Ruangsawan, C. (2019). Development and implementation of the science-technology-society learning unit to enhance grade 10 student's scientific argumentation. *Asia-Pacific Forum on Science Learning and Teaching*, 20(1), 1-7. (Scopus, SJR = Q3)
23. Pimvichai, J. & **Buaraphan, K.** (2019). A case study of helping in-service science teacher to teach with the science-technology-society approach and its influence on students' scientific argumentation. *International Journal of Education and Practice*, 7(4), 391-403. (Scopus, SJR = Q3)
24. Pimvichai, J., Yuenyong, C., & **Buaraphan, K.** (2019). Development of Grade 10 Students' Scientific Argumentation through The Science-Technology-Society Learning Unit on Work and Energy. *Journal of Technology and Science Education*, 9(3), 428-441. (Indexed: Scopus)
25. Jedaman, P., **Buaraphan, K.**, Pimvichai, J., Yuenyong, C., & Jeerasombat S. (2019). Educational management in transition of science: Policies and

- strategic leaders for sustainable education 4.0 in the 21st century science classroom. *AIP Conference Proceedings* 2081, 030022, 1-11. (Indexed: SCOPUS)
26. Pimvichai, J., Yuenyong, C., & **Buaraphan, K.** (2019). Development of grade 10 students' scientific argumentation through the science-technology-society learning unit on work and energy. *Journal of Technology and Science Education*, 9(3), 428-441. (Scopus, SJR = Q3)
 27. Pimvichai, J., Sanium, S. & **Buaraphan, K.** (2019). Exploration of students' metacognitive experience in physics classroom. *Journal of Physics: Conference Series*, 1340(012076), 1-10. (Scopus, SJR = Q3)
 28. Sanium, S. & **Buaraphan, K.** (2019). Research about metacognition in science education: a case of basic education in Thailand. *Journal of Physics: Conference Series*, 1340(012014), 1-10. (Scopus, SJR = Q3)
 29. Jedaman, P., **Buaraphan, K.**, Pimvichai, J., Yuenyong, C., & Jeerasombat S. (2019). Educational management in transition of science: Policies and strategic leaders for sustainable education 4.0 in the 21st century science classroom. *AIP Conference Proceedings* 2081(030022), 1-11. (Scopus)
 30. **Buaraphan, K.** (2018). Current Policy and Practice Concerning Multigrade Teaching in Thailand. *Kasetsart Journal (Social Sciences)*, 39(3), 496-501. (SCOPUS)
 31. **Buaraphan, K.** (2018). The prior conceptions about force and motion held by grade 8 students in educational opportunity expansion schools of Thailand. *AIP Conference Proceedings* 1923 030006, 1-11.
 32. Jedaman, P., **Buaraphan, K.**, Yuenyong, C. Suksup, C., & Kraisiwattana, B. (2018). Development strategies for science learning management to transition in the 21st century of Thailand 4.0. *AIP Conference Proceedings* 1923 030073, 1-6.
 33. Jedaman, P., **Buaraphan, K.**, Pimdee, P. Yuenyong, C., Sukkamart. A., & Suksup, C. (2018). Analysis of sustainable leadership for science learning management in the 21st century under education Thailand 4.0 framework. *AIP Conference Proceedings* 1923 030062, 1-11.
 34. Namgyel, S. & **Buaraphan, K.** (2017). The development of simulation and game in 5E learning cycle to teach photoelectric effect for grade 12 students. *Asia-Pacific Forum on Science Learning and Teaching*, 18(2), 1-7. (SCOPUS)
 35. **Buaraphan, K.** (2017). The prior concepts about properties of matters held by Grade 7 students in educational opportunity expansion schools of Thailand. *The International Journal of Science, Mathematics, and Technology Learning*, 24(3), 1-17. (SCOPUS)
 36. **Buaraphan, K.** (2016). The development of qualitative classroom action research workshop for in-service science teachers. *Asia-Pacific Forum on Science Learning and Teaching*, 17(1), 1-11. (SCOPUS)
 37. **Buaraphan, K.** (2015). Grades 1-12 Thai students' learning styles according to Kolb's model. *Asian Social Science*, 11(10), 186-201.
 38. **Buaraphan, K.** & Forhad, Z. A. (2014). Thai and Bangladeshi in-service science teachers' conceptions of nature of science: a comparative study. *Asia-Pacific Forum on Science Learning and Teaching*, 15(1). 1-26. (SCOPUS)
 39. Kruea-In, N., & **Buaraphan, K.** (2014). Enhancing lower secondary school science teachers' science process skills and laboratory lesson preparation through a social constructivist-based professional development workshop. *The International Journal of Science, Mathematics, and Technology Learning*, 20, 43-56. (SCOPUS)
 40. **Buaraphan, K.** (2013). Educational quality of small schools in Thailand. *European Journal of Social Sciences*, 41(1), 130-147. (SCOPUS)

41. **Buaraphan, K.** (2013). In-service science teachers' common understanding of nature of science. *OIDA International Journal of Sustainable Development*, 6(5), 17-37. (EBSCO)
42. Forhad, Z. A., & **Buaraphan, K.** (2013). The development of Bangladeshi science teachers' conceptions of the nature of science. *The International Journal of Science, Mathematics, and Technology Learning*, 19(3), 13-32. (SCOPUS)
43. Duangpane, J., & **Buaraphan, K.** (2012). The promotion of science teachers' understanding about nature of scientific knowledge through explicit-reflective workshop. *The International Journal of Learning*, 18(10), 203-216. (SCOPUS)
44. **Buaraphan, K.** (2012). Educational supervisors' metaphorical roots of beliefs about teaching and learning. *Educational Research and Review*, 7(12), 282-291. (SCOPUS)
45. **Buaraphan, K.** (2012). Embedding nature of science in teaching about astronomy and space. *Journal of Science Education and Technology*, 21(3), 353-369. (Impact Factor 2012 = 0.940) (SSCI, EBSCO, SCOPUS, ERIC, ERA, ERIH)
46. **Buaraphan, K.** (2012). Multiple perspectives on desirable characteristics of science teachers for educational reform, *Asia-Pacific Education Researcher*, 21(2), 384-393. (Impact factor 2012 = 0.933). (SSCI, SCOPUS)
47. **Buaraphan, K.** (2011). Metaphorical roots of beliefs about teaching and learning science and their modifications in the standard-based science teacher preparation programme. *International Journal of Science Education*, 33(11), 1571–1595. (Impact Factor 2011 = 1.232) (SSCI, EBSCO, SCOPUS, ERIC, ERA)
48. **Buaraphan, K.** (2011). The impact of the standard-based science teacher preparation program on pre-service science teachers' attitudes toward science teaching. *Journal of Turkish Science Education*, 8(1), 61-78. (EBSCO, ERA, SCOPUS)
49. **Buaraphan, K.** (2011). Pre-service physics teachers' conceptions of nature of science. *US-China Education Review*, 8(2), 137-148. (EBSCO, ERIC)
50. **Buaraphan, K.** (2010). Pre-service and in-service science teachers' conceptions of the nature of science. *Science Educator*, 19(2), 35-47. (EBSCO, ERIC)
51. **Buaraphan, K.** (2009). Thai inservice science teachers' conceptions of the nature of science. *Journal of Science and Mathematics Education in Southeast Asia*, 32(2), 188-217. (EBSCO, ERIC)
52. **Buaraphan, K.** (2009). Pre-service and in-service science teachers' responses and reasoning about the nature of science. *Educational Research and Review*, 4(11), 561-581. (ERIC, SCOPUS)
53. **Buaraphan, K.** & Sung-ong, S. (2009). Thai pre-service science teachers' conceptions of the nature of science. *Asia-Pacific Forum on Science Learning and Teaching*, 10(1), 1-22. (EBSCO, ERIC, SCOPUS)
54. **Buaraphan, K.**, Faikumta, C., & Musikul, K. (2009). Current practice, problems, and needs of primary teachers for teaching science. *Kasetsart Journal (Social Sciences)*, 30(1), 339-346. (SCOPUS)
55. **Buaraphan, K.**, Roadrangka, V., Srisukvatananan, P., Singh, P., Forret, M., & Taylor, I. (2007). The development and exploration of preservice physics teachers' pedagogical content knowledge: From a methods course to teaching practice. *Kasetsart Journal (Social Sciences)*, 28(2), 276-287. (SCOPUS)
56. **Buaraphan, K.** & Roadrangka, V. (2006). Preservice physics teacher's pathway of pedagogical content knowledge development in a physics methods course: A case study. *Kasetsart Journal (Social Sciences)*, 27(2), 339-346. (SCOPUS)

Articles

1. Buaraphan, K. (2010 in Thai). In-service science teachers' alternative conceptions of nature of science. *College of Teacher Education Journal*, 2(1), 115-131.
2. Buaraphan, K. (2009 in Thai). Providing feedback for improving learners. *Kasetsart Educational Review*, 24(1), 97-108.
3. Buaraphan, K. (2007 in Thai). Alternative conceptions about force and motion. *Kasetsart Educational Review*, 22(3), 49-63.
4. Buaraphan, K. (2007 in Thai). Formative assessment: Concepts and methods. *Kasetsart Educational Review*, 22(1), 29-39.
5. Buaraphan, K. & Roadrangka, V. (2005 in Thai). Guideline for science teacher development: Developing pedagogical content knowledge. *Kasetsart Educational Review*, 20(2), 31-48.

Book

1. Buaraphan, K. (2017 in Thai). *Doing qualitative research is a piece of cake* (7th Ed.). Bangkok: Comma Design and Print.

Keynote Speaker

Year	Date	Topic/ Role	Conference	Organizer
2022	28-29 September 2022	Keynote Speaker	The 5 th International Conference on Mathematics, Science, Education and Technology (ICOMSET) in conjunction with the 1 st International Conference on Environmental Studies and Science Education (ICESSEd)	Universitas Negeri Padang
2021	1-2 September 2021	Keynote Speaker	The 4th International Conference on Research and Learning of Physics (ICRLP 2021)	Department of Physics, Faculty of Mathematics and Natural Sciences, Universitas Negeri Padang
2021	7th-9th July 2021	Keynote Speaker	The 8th International Conference for Science Educators and Teachers (ISET 2021)	SEAT (Science Education Association of Thailand), Thailand

2020	17 November – 8 December 2020	Visiting Professor	Department of Natural Science, Faculty of Mathematics and Natural Sciences	Yogyakarta State University, Indonesia
2019	4-8 November	Visiting Professor	Department of Natural Science, Faculty of Mathematics and Natural Sciences	Yogyakarta State University, Indonesia
2018	15 August	Forum on Educational Management and Thailand 4.0	ASEAN Comparative Education Research Network (ACER-N) 2018	ASEAN Comparative Education Research Network (ACER-N)
2017	16 May	Promoting Scientific Attitudes in the Science Education Context: Important Issues	The 4 th International Conference on Research, Implementation & Education of Mathematics and Sciences (ICRIEMS)	Yogyakarta State University, Indonesia
2016	30 September	Developing innovative ideas in science education in the Thai context	2 nd International Seminar on Science Education (ISSE)	Yogyakarta State University

Professional Associations:

- 2014-Present Science Education Association of Thailand (SEAT)
 2006 National Association for Research in Science Teaching (NARST)
 2006 National Science Teacher Association (NSTA)

Professional and Community Services:

- 2014-Present Committee
 The Science Education Association of Thailand (SEAT)
 Be responsible for public relations about news, events, and activities related to SEAT
- 2010-Present Editorial Review Board
 Journal of Science Teacher Education (JSTE)
 Review manuscripts and evaluate their quality for publication in JSTE at least 6 manuscripts a year.
- 2009-Present Reviewer
 Teaching Education, Asia-Pacific Forum on Science Learning and Teaching and International Journal of Learning.
 Review manuscripts and evaluate their quality for publication in the journals.
- 2008-Present Committee
 The Congress on Science and Technology of Thailand (Science Education Session)
 Be responsible for reviewing manuscripts submitted to present in the Congress on Science and Technology of Thailand.