Assistant Professor Dr. Namkang Sriwattanarothai

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SHORT PROFESSIONAL BIO:

Dr. Namkang Sriwattanarothai is an Assistant Professor at Mahidol University and serves as the Program Director for the Master and Doctoral Programs in Science and Technology Education (International Programme). She earned a Ph.D. in Science and Technology Education, an M.Sc. in Biochemistry, and a B.Sc. in Biology. Recognized for her excellence in higher education, she is a Senior Fellow (SFHEA) and holds a Level 3 certification from the Thailand Professional Standards Framework (THPSF).

Her expertise encompasses biochemistry education, informal science education, professional development, technology-enhanced learning, and computational thinking. She has led and contributed to numerous research projects focusing on educational ecosystems, participatory education management, and game-based learning methodologies. Her contributions have earned her several awards, including the Online Teaching Honorable Mention Award for a Blended Learning Course from Mahidol University (2022), Best MUIL Teacher of the Year (2023), and the Best Conference Paper Award (2024 IEEE Eurasian Conference on Educational Innovation).

Beyond academia, Dr. Namkang holds significant leadership roles, including FAOBMB Education Lead (starting November 2024), a member of the Curriculum Review Committee for the Undergraduate Program and Associates at Mahidol University, and a member of the Central Institutional Review Board at Mahidol University. She also serves as a STEM ambassador for Thailand, judges national round Young Science Club competitions, and reviewers for international academic journals. Passionate about advancing science and technology education, she continues to shape learning experiences through research, innovative teaching methodologies, and policy contributions.

PUBLICATION PROFILE: Google Scholar

FULL BIO

EDUCATION:

Degree	Degree Name	University	Year
Ph.D.	Science and Technology Education	Mahidol University	2009
M.Sc.	Biochemistry	Mahidol University	2006
B.Sc.	Biology	Chiang Mai University	2003

INTERESTING RESEARCH TOPICS OR SPECIALTIES:

1. Biochemistry education, molecular biology education, life science education
2. Informal science education
3. Professional development
4. Technology enhanced learning in science
5. Computational thinking
6. Diversity and evolution of Anabantoids fish

PROFESSIONAL MEMBERSHIPS:

The Science Society of Thailand Under the Patronage of His Majesty the King

ACADEMIC APPOINTMENT AND TEACHING:

2014–Present	Assistant Professor, Science and Technology Education Program, Mahidol Univers
2022–2026	Program Director for Graduate Programmes in Science and Technology Education (International Programme), Mahidol University
2013–2015	Program Director for Graduate Programmes in Science and Technology Education (International Programme), Mahidol University
2011–2012	Program Secretariat for Graduate Programmes in Science and Technology Education (International Programme), Mahidol University
2009–2014	Instructor, Science and Technology Education Program, Mahidol University
2005–2006	Teaching Assistant, Biochemistry Department, Faculty of Science, Mahidol University

AWARD AND CERTIFICATE:

1. Education Profession

2024 **Thailand Professional Standards Framework (THPSF) Level 3** from Association of Professional and Organizational Development Network of Thailand Higher Education (September 14th, 2024)

2024 **Senior Fellow (SFHEA)** in recognition of attainment against the UK Professional Standards Framework (UK-PSF) for teaching and learning support in higher education (May 8th, 2024)

2023 **Best Teacher of the Year Award** from the Institute for Innovative Learning, Mahidol University, Thailand

2022 **Online Teaching Honorable Mention Award for A Blended Learning Course**, Type Online Course Development and Delivery (Full Course) for Academic Year 2021 from Mahidol University, Thailand

2019 **Mentorship Model in Teacher Development for Teaching Research-Based Project** from Thailand Science Research and Innovation, and Kasikornbank Public Company Limited, Thailand

2. Research

2024 **Best Conference Paper Award** from 2024 IEEE 7th Eurasian Conference on Educational Innovation

2015 **Distinguished Research Award** for Pohpunpanya Project from Thailand Science Research and Innovation, Thailand

2015 **Outstanding Poster Presentation Award** from the 2nd International Conference on Innovation in Education 2015

2015 **Popular Vote for Oral Presentation Award** from the 1st International Conference on Innovation in Education 2012

2012 **Outstanding Research Award** for The Local Learning Enrichment Network (LLEN) Project from Thailand Research Fund

3. Administration

2022 **Certificate of Head of Department Development Program** from Mahidol University, Thailand

2019 **Certificate of Executive Development Program** from Mahidol University, Thailand

RESEARCH EXPERIENCES:

2023–2024 **Research and development of a mechanism to drive participatory education management at the provincial level towards the Thailand Education Sandbox: A case study of Samut Sakhon Province** (Investigator)
Granted by Program Management Unit on Area Based Development, Office of National Higher Education Science Research and Innovation Policy Council

2022 **A study of the educational ecosystems components in Nakhon Pathom, Samut Songkhram, Samut Sakhon, and Ratchaburi province, Thailand for encouraging the development of educational sandbox by a learning innovation named "Research-based learning"** (Investigator)
Granted by Program Management Unit on Area Based Development, Office of National Higher Education Science Research and Innovation Policy Council

2020–2021 **Professional Development Workshop for the Development and Management of Coding Classrooms for 21st century Learners** (Principal Investigator)
Granted by The Digital Economy Promotion Agency, Thailand and Institute for Innovative Learning, Mahidol University

2017–2018 **The Development of Minecraft Education Game to Enhance Content Knowledge and 21st century skills in STEM Project-based Learning for grade 4-6 Students** (Principal Investigator)
Granted by National Research Council of Thailand

2012–2019 Pohpanpunya Project (Investigator)
Granted by The Thailand Research Fund and Kasikornbank Public Company Limited

2013–2014 **A Model for the Development of Personal Potential in the Education Service Area Office at Samut Sakorn Province** (Principal Investigator)
Granted by National Research Council of Thailand

2013–2014 **Teacher Coaching Project** (Investigator)
Granted by The Thailand Research Fund and Office of the Basic Education Commission

2011–2013 **Biodiversity of Bubble Nest Builder *Betta* in Northeastern Thailand** (Principal Investigator)
Granted by The Thailand Research Fund, Office of the Higher Education Commission and Mahidol University

2011–2012 **Innovative Education Research in Life Science and Health Science to Enhance Learning in Students and the Publics** (Investigator)
Granted by Office of the Higher Education Commission

2011–2012	**Professional Development Project for Rajabhat University Instructors by Implementing Research Process** (Mentor) Granted by Office of the Higher Education Commission
2010–2011	**Enhanced Teaching-Learning Process in Science at Lower Secondary Schools in Samut Songkhram Province** (Investigator) *This project is a part of t**he Local Learning Enrichment Network (LLEN) Project*** Granted by The Thailand Research Fund
2010–2011	**Development of Local Curriculum and Gifted Education Curriculum through Thai Local Wisdom "Fighting Fish"** (Investigator) Granted by National Research Council of Thailand

RESEARCH VISITING SCHOLAR:

2009	**Science Education Research collaborated with Prof. Charles R. Barman** at School of Education, Indiana University-Purdue University Indianapolis (IUPUI), Indianapolis, USA.
2008	**DNA Barcoding Research collaborated with Dr. Dirk Steinke** at Canadian Centre for DNA Barcoding, Biodiversity Institute of Ontario, University of Guelph, Ontario, Canada

REVIEWER FOR:

1. Journal of Research Unit on Science, Technology and Environment for Learning
2. Journal of Education and Learning (EduLearn)

OTHER ACTIVITIES:

2024–Present	**FAOBMB Education** Leads (start November 2024)
2022–Present	**Curriculum Review Committee** for Undergraduate Program and Associates of Mahidol University
2020–Present	**Central Institutional Review Board** of Mahidol University
2018–Present	**Judge for Young Science Club Competition** (National Round) organized by The Science Society of Thailand Under the Patronage of His Majesty the King
2016–Present	**STEM ambassador** (Thailand)
2016–2017	**Executive Committee**, The Science Society of Thailand Under the Patronage of His Majesty the King

2011–2015 **Faculty Representatives**, Mahidol University Faculty Senate

PUBLICATIONS:

International Papers

1. Jittam, P., Ketpichainarong, W., **Sriwattanarothai, N.**, & Prasertsan S. (2025). Strategic STEM reform for national innovation and economic growth: A research-based framework insighted from the Pohpanpunya project. *Southeast Asian Journal of STEM Education (SAJSE), 5*(2), 2–14.
2. Adjiningsih, R.S. & **Sriwattanarothai, N.** (2022). Creating an interactive environment for learning microplastics via a board game at the museum. *International Journal of Learning and Teaching, 8*(2),93–98. doi: 10.18178/ijlt.8.2.93-98
3. Srisamoot, T., Supiwong, W., **Sriwattanarothai, N.**, Panijpan, B., Srisamoot, N., & Tanomtong, A. (2021). Karyotype of four mouth-brooding *Betta* fishes (*Betta* Bleeker, 1850) in Thailand. *Science Technology and Engineering Journal, 7*(1).
4. Panijpan, B., **Sriwattanarothai, N.**, & Laosinchai, P. (2020). Wild *Betta* fighting fish species in Thailand and other Southeast Asian countries. *ScienceAsia*, *46*(4), 1–10. doi:10.2306/scienceasia1513-1874.2020.064
5. Mahardthai, S., Yodyingyong, S.*, **Sriwattanarothai, N.**, & Jittam, P. (2020). The experiential learning unit for promoting students' understanding of vapor pressure and related concepts. *In Lee Lk., UL.H., Wang F.L., Cheung S.K.S., Au O., Li K.C. (eds) Technology in Education Innovation for Online Teaching and Learning. IXTE 2020. Communications in Computer and Information Science, 1302,* 13–22. Springer, Singapore. doi:10.1007/978-981-33-4594-2_2
6. Shovityakool, P., Jittam, P., **Sriwattanarothai, N.,** Laosinchai, P. (2019). A flexible supply chain management game. *Simulation & Gaming, 50*(4), 461–482. doi:10.1177/1046878119857119
7. Pammanasut, P., Panijpan, B., Senapin, S., Ruenwongsa, P., **Sriwattanarothai, N.,** Laosinchai, P., Phiwsaiya, K. (2018). Discovery of wild populations of *Betta smaragdina* Ladiges, 1972 (Teleostei, Osphronemidae) in a western province of Thailand. *Check List, 14*(6), 1077–1082. doi:10.15560/14.6.1077
8. Panijpan, B., **Sriwattanarothai, N.**, Kowasupat, C., Ruenwongsa, P., Jeenthong, T., & Phumchoosri, A. (2017). Biodiversity of bubble-nest building and mouth-brooding fighting fish species of the genus *Betta* in Southeast Asia. *Thailand Natural History Museum Journal, 11*(1), 1–21.
9. Dorji, K. & **Sriwattanarothai, N.** (2017). Effectiveness of mutation, amino-acid, protein, characteristics, and evolution (MAPCE) model for teaching genetic basis of evolution: Students' perspectives. *Educational Innovation and Practice, 2*(1), 36–55.
10. Jeenthong, T., Ruenwongsa, P., & **Sriwattanarothai, N.** (2014). Promoting integrated science process skills through betta-live science laboratory. *Procedia-Social and Behavioral Sciences*, 116, 3292–3296. doi:10.1016/j.sbspro.2014.01.750

11. Kowasupat, C., Panijpan, B., Ruenwongsa, P., & **Sriwattanarothai, N.** (2012). *Betta mahachaiensis,* a new species of bubble-nesting fighting fish (Teleostei: Osphronemidae) from Samut Sakhon Province, Thailand. *Zootaxa, 3522,* 49–60. doi:10.11646/zootaxa.3522.1.3
12. Kowasupat, C., Jittam, P., **Sriwattanarothai, N.,** Ruenwongsa, P., & Panijpan, B. (2012). Development of an inquiry-based learning unit for enhancing high-school students' understanding of animal social behavior. *The International Journal of Learning: Annual Review, 18*(10), 167–189. doi:10.18848/1447-9494/CGP/v18i10/47774
13. Monvises, A., Ruenwongsa, P., Panijpan, B., & **Sriwattanarothai, N.** (2011). Promoting student understanding of genetics and biodiversity by using inquiry-based and hands-on learning unit with an emphasis on guided inquiry. ***International Journal of Learning**: Annual Review, **17* (12), 227–244. doi:10.18848/1447-9494/CGP/v17i12/47396
14. To-im, J., Tianchai, C., Tianchai, N., Ketpichainarong, W., Jittam, P., **Sriwattanarothai, N.,** & Ruenwongsa, P. (2010). Using a local water problem as case-based scenario to encourage Thai grade 8 students' learning of science. *International Journal of Learning: Annual Review, **17* (6), 157–164. doi:10.18848/1447-9494/CGP/v17i06/47095
15. Monvises, A., Ruenwongsa, P., Panijpan, B., & **Sriwattanarothai, N.** (2010). A Siamese fighting fish learning unit for cooperative learning among primary students. ***International Journal of Learning**: Annual Review, **17* (5), 231–246. doi:10.18848/1447-9494/CGP/v17i05/47057
16. **Sriwattanarothai, N.,** Steinke, D., Ruenwongsa, P., Hanner, R., & Panijpan, B. (2010). Molecular and morphological evidence supports the species status of the Mahachai fighter *Betta* sp. Mahachai and reveals new species of *Betta* from Thailand. *Journal of Fish Biology 77*, 414–424. doi:10.1111/j.1095-8649.2010.02715.x
17. **Sriwattanarothai, N.,** Jittam, P., Ruenwonsa, P., & Panijpan, B. (2009). From research on local materials to the learning of science: An inquiry-based laboratory for undergraduates. INTERNATIONAL JOURNAL OF LEARNING: ANNUAL REVIEW, ***16*(6), 459–473.** doi:10.18848/1447-9494/CGP/v16i06/46373
18. Monvises, A., Nuangsaeng, B., **Sriwattanarothai, N.,** & Panijpan, B. (2009). The Siamese fighting fish: Well-known generally but little-known scientifically. SCIENCEASIA *35*, 8–16. doi:10.2306/scienceasia1513-1874.2009.35.008
19. Panijpan, B., Ruenwongsa, P., **& Sriwattanarothai, N. (2008).** Problems encountered in teaching/learning integrated photosynthesis: A case of ineffective pedagogical practice? BIOSCIENCE EDUCATION E-JOURNAL. doi:10.3108/beej.12.3
20. Jittam, P., Boonsiri, P., Promptmas, C., **Sriwattanarothai, N.**, Archavarungson, N., Ruenwongsa, P., & Panijpan, B. (2008). Red seaweed enzyme-catalyzed bromination of bromophenol red: An inquiry-based kinetics laboratory for undergraduates. BIOCHEMISTRY AND MOLECULAR BIOLOGY EDUCATION *37*(2), 99–105. doi:10.1002/bmb.20256

National Papers

1. Lham, T. & Sriwattanarothai, N. (2018). A board game to enhance understanding of cell cycle for grade ten Bhutanese students. *Rabsel-the CERD Education Journal, 19*(2), Autumn 2018.
2. อดิสรณ์ มนต์วิเศษ, บัลลังก์ เนื่องแสง, **น้ำค้าง ศรีวัฒนาโรทัย** และ ภิญโญ พานิชพันธ์ (2552). ปลากัดไทย: นักสู้ผู้สง่างามแห่งลุ่มน้ำจืด. *วารสารวิทยาศาสตร์* 63(3): 65–70.

Book

1. ปิยะฉัตร จิตต์ธรรม, วัชรี เกษพิชัยณรงค์, **น้ำค้าง ศรีวัฒนาโรทัย** และ อรุณวรรณ กลั่นกลึง (2563). รู้จักเด็กจากโครงงาน: การพัฒนาทักษะแห่งอนาคตในชั้นเรียน RBL.กรุงเทพฯ : บริษัท วิจจา จำกัด

International Conference Proceedings

1. Lin, S. M., Jittam, P., Ketpichainarong, W., **Sriwattanarothai, N.**, & Judprasong, K. (2025). Feed to Save: A STEM-Based Educational Board Game for Preventing Noncommunicable Diseases. *Proceedings of 2025 10th International STEM Education Conference (iSTEM-Ed), Pattaya, Thailand, 2025, pp. 1-6.* doi: 10.1109/iSTEM-Ed65612.2025.11129302.
2. Maung, H., Wongkia, W., Laosinchai, P., & **Sriwattanarothai, N.** (2025). Enhancing Algorithmic Thinking Through Graph-Theoretic Unplugged Activities. *Proceedings of 2025 10th International STEM Education Conference (iSTEM-Ed), Pattaya, Thailand, 2025, pp. 1–6*. doi: 10.1109/iSTEM-Ed65612.2025.11129443.
3. Unwet, W. & **Sriwattanarothai, N.** (2025, March). Fostering student understanding of space biology concepts through the "Exomon Space" educational board game: A multidisciplinary approach to interactive learning. *Proceedings of 2025 the 14th International Conference on Educational and Information Technology (ICEIT), Guangzhou, China, pp. 312–316.* doi: 10.1109/ICEIT64364.2025.10975918.
4. Htaw, M. C., Pipa, D., **Sriwattanarothai, N.**, Pichitpornchai, C., Gubelmann, R., Seufert, S., Niklaus, C., & Handschuh, S. (2024, January). Argumentative Writing Software: Perceptions of Undergraduate Students toward Artist Prototype. *Proceedings of 2024 IEEE 7th Eurasian Conference on Educational Innovation (ECEI), Bangkok, Thailand, pp. 92–96*. doi: 10.1109/ECEI60433.2024.10510808.
5. Sukumanan, S., **Sriwattanarothai, N.**, & Ketpichainarong, W. (2019, 1–3 April). The ant colony board game for promoting symbiotic relationship understanding. *Proceedings of 2019 International Symposium on Education and Psychology (ISEP 2019), Fukuoka, Japan.*
6. Drakpa, R., **Sriwattanarothai, N.,** Ketpichainarong, W., & Jittam, P. (2016, 27–29 January). Active learning unit to promote students' understanding of endocrine system and hormones: A case study in grade 10 Bhutanese students. *Proceedings of the 5th International Conference on Learning Innovation in Science and Technology (ICLIST 2016), Pattaya, Thailand, pp.10–19.*
7. Pimoubol, T., & **Sriwattanarothai, N.** (2015, 10–11 June). Blended-learning unit: A case of using Facebook as a learning tool to teach gene expression in higher education. In *Proceedings from 2015 Global Conference on Teaching and Learning with Technology, Singapore.*

8. **Sriwattanarothai, N.,** & Saengwacharasoontorn, K. (2015, March 16–18). Improving teacher performance with on-line and in-class coaching: A case study in Thai secondary school. In *Proceedings from the 2nd International Conference on Innovation in Education held at Learning Center, Mahidol University, Nakhon Pathom, Thailand.*
9. Ketpichainarong, W., **Sriwattanarothai, N.,** & Jittam, P. (2015, March 16–18). Teacher perceptions on adapting contemplative education concepts used in the classroom: A case study. In *Proceedings from the 2nd International Conference on Innovation in Education held at Learning Center, Mahidol University, Nakhon Pathom, Thailand.*
10. Dorji, K., & **Sriwattanarothai, N.** (2015, March 2–4). Hands-on activities to link gene mutations with three-dimensional protein structures for high school students. In *Proceedings from the 9th International Technology, Education, and Development Conference held at Meliã Castilla, Madrid, Spain.*
11. Lham, T., & **Sriwattanarothai, N.** (2015, March 2–4). Learning cell cycle via a game-based learning. In *Proceedings from the 9th International Technology, Education, and Development Conference held at Meliã Castilla, Madrid, Spain.*
12. Pimoubol, T., & **Sriwattanarothai, N.** (2012, 7–9 November). Attribution of a series of game to genetic disorder understanding. In *Proceedings from the 1st International Conference on Innovation in Education: Innovative Science, Mathematics, and Technology (SMT) Education for Enhancement of Learning for the 21st Century, Bangkok, Thailand.*
13. Jeenthong, T., **Sriwattanarothai, N.,** Ruenwongsa, P., & Panijpan, B. (2012, 7–9 November). Learning aggressive behavior and courtship behavior through computer game-based instructional unit. In *Proceedings from the 1st International Conference on Innovation in Education: Innovative Science, Mathematics, and Technology (SMT) Education for Enhancement of Learning for the 21st Century, Bangkok, Thailand.*
14. Klunklueng, A., **Sriwattanarothai, N.**, Tianchai, C., Tianchai, N., To-im, J., Ketpichainarong, W., Jittam, P., & Ruenwongsa, P. (2012, July 2–6). Learning about environment and natural resources of mangrove forest in Samut Songkhram province through junior science projects. In *Proceedings of the Fourth Thailand-Malaysia Joint Educational Research Conference 2012*, Chiang Mai, Thailand.
15. Jeenthong, T., Kowasupat, C., Phichai, P., Ruenwongsa, P., **Sriwattanarothai, N.,** & Panijpan, B. (2011, March 24–26). Computer-based instructional game about aggression and courtship of the Siamese fighting fish. In *Proceedings from ThaiSim 2011-TS'11-3rd Annual International Conference,* Ayutthaya, Thailand.
16. Tianchai, C.,Tianchai, N., To-im, J., Ketpichainarong, W., Jittam, P., **Sriwattanarothai, N.,** & Ruenwongsa, P. (2010, April 1–2). Using a local water problem as case-based scenario to encourage Thai grade 8 students' learning of science. In *Proceedings from the Second Annual International Research Conference on Social Sciences and Humanities*, Bangkok, Thailand.
17. Klunklueng, A., To-im, J., Jittam, P., Ketpichainarong, W., **Sriwattanarothai, N.,** & Ruenwongsa, P. (2010, April 1–2). Firefly learning module for environmental sustainable development in Samutsongkhram

province. In *Proceedings from the Second Annual International Research Conference on Social Sciences and Humanities*, Bangkok, Thailand.

18. Kowasupat, C., **Sriwattanarothai, N.,** Panijpan, B., & Ruenwongsa, P. (2010, April 1–2). Development of a learning package for enhancing high-school students' understanding in animal social behavior. In *Proceedings from the Second Annual International Research Conference on Social Sciences and Humanities*, Bangkok, Thailand.
19. Jittam, P., **Sriwattanarothai, N.**, Ruenwongsa, P., Panijpan, B., Hongboontri, C., & Coll, R. K. (2008, July). Using the learning cycle to enhance Thai undergraduate university students' understanding of enzyme kinetics. In *Proceedings from Australian Science Education Research Association (ASERA) 39th Conference*, Brisbane, Australia.
20. **Sriwattanarothai, N.,** Hongboontri, C., & Panijpan, B**.** (2007, November). Thai high school students' reflections of an inquiry-based protein activity. In *Proceedings from ICASE Asian Symposium*, Pattaya, Thailand.

International Workshop

1. Ketpichainarong, W., & **Sriwattanarothai, N.** (2015, March 17). Improving Thinking Skills through Active Learning Strategies. *Workshop at the 2nd International Conference on Innovation in Education (ICIE 2015)*, Nakhon Pathom, Thailand.
2. Panijpan, B., Ruenwongsa, P., Jittam, P., **Sriwattanarothai, N.**, & Samana, J. (2012, November 28). Biochemical Education. *Workshop at the 13th FAOBMB 2012 International Congress of Biochemistry and Molecular Biology,* Bangkok, Thailand.

International Webinar

1. **Sriwattanarothai N.** (2020, October 8). Engaged and empowered learners: Pedagogical practices supported by classroom response systems. Online webinar at Learning Innovation Festival 2020, Centre for Teaching Excellence, Singapore Management University, Singapore.